Appendices: (1/9)

Appendix 1: AHRQ PCMH Definition

Definition of PCMH:

The definition of PCMH is based on the existing AHRQ definition and has been used in previous literature reviews. These measures include:

1) Team-based care, defined as a team-based structure in which 2 or more clinicians work together to provide care.

2) An intervention that includes enhanced access to care, coordinated care, comprehensive healthcare delivery and a systems based approach to improving quality and safety, which includes:

- Enhanced access to care
- Coordinated care across settings or specialties
- Comprehensive care aimed to address a large majority if an individual's health needs
- A systems-based approach to improving quality and safety

3) A sustained partnership and personal relationship over time that is patient centered

4) Reorganization and structural changes to the traditional practice of healthcare delivery

Appendix 2: Database search strategies executed on March 27, 2017

PubMed (includes MEDLINE – 1946 to present**:** Bethesda, Maryland: National Library of Medicine, United States, National Center for Biotechnology Information)		
Search Statement	**Concept**	**Query**
#1	PCMHs	advanced primary care[tiab] OR guided care[tiab] OR health care home*[tiab] OR healthcare home*[tiab] OR medical home*[tiab] OR pcmh[tiab] OR pcmhs[tiab] OR patient aligned[tiab] OR primary care home*[tiab] OR guided care[ot] OR health care home*[ot] OR healthcare home*[ot] OR medical home*[ot] OR pcmh[ot] OR patient aligned[ot] OR primary care home*[ot]
#2	Components of PCMHs	"Case Management"[MeSH] OR "Continuity of Patient Care"[MeSH:NoExp] OR "Delivery of Health Care, Integrated"[MeSH] OR "Disease Management"[MeSH] OR "Patient Care Management"[MeSH:NoExp] OR "Patient Care Planning"[MeSH:NoExp] OR "Patient Care Team"[Mesh:NoExp] OR "Patient-Centered Care"[MeSH] OR care manage*[tiab] OR care redesign[tiab] OR care team*[tiab] OR case manage*[tiab] OR centered care[tiab] OR centered health*[tiab] OR chronic care model*[tiab] OR collaborative care[tiab] OR collaboratives[tiab] OR continuity of care[tiab] OR continuity of patient care[tiab] OR disease manage*[tiab] OR health care team*[tiab] OR health team*[tiab] OR healthcare team*[tiab] OR integrated delivery[tiab] OR integrated health*[tiab] OR inter disciplinary team*[tiab] OR interdisciplinary care[tiab] OR interdisciplinary team*[tiab] OR multi disciplinary care[tiab] OR multi disciplinary team*[tiab] OR multidisciplinary care[tiab] OR multidisciplinary team*[tiab] OR patient center*[tiab] OR system redesign[tiab] OR systems redesign[tiab] OR care manage*[ot] OR care redesign[ot] OR care team*[ot] OR case manage*[ot] OR centered care[ot] OR chronic care model*[ot] OR collaborative care[ot] OR collaboratives[ot] OR continuity of care[ot] OR continuity of patient care[ot] OR disease manage*[ot] OR health team*[ot] OR healthcare team*[ot] OR integrated delivery[ot] OR integrated health*[ot] OR interdisciplinary care[ot] OR interdisciplinary team*[ot] OR multi disciplinary care[ot] OR multi disciplinary team*[ot] OR multidisciplinary care[ot] OR multidisciplinary team*[ot] OR patient center*[ot] OR system redesign[ot] OR systems redesign[ot]

EMBASE.com (1974 to present**:** Amsterdam, Netherland: Elsevier Science)		
Search Statement	**Concept**	**Query**
#1	PCMHs	'advanced primary care' OR 'guided care' OR health NEXT/1 care NEXT/1 home* OR healthcare NEXT/1 home* OR medical NEXT/1

		home* OR ‘pcmh’ OR ‘pcmhs’ OR ‘patient aligned’ OR primary NEXT/1 care NEXT/1 home*
#3	Settings and Specialties	"Ambulatory Care"[MeSH] OR "Ambulatory Care Facilities"[MeSH:NoExp] OR "Community Health Centers"[MeSH:NoExp] OR "Community Health Services"[MeSH:NoExp] OR "Community Medicine"[MeSH] OR "Community Networks"[MeSH] OR "Family Practice"[MeSH] OR "General Practice"[MeSH] OR "Geriatrics"[MeSH] OR"Health Care Coalitions"[MeSH] OR "Health Services for the Aged"[MeSH] OR "Internal Medicine"[MeSH] OR "Outpatient Clinics, Hospital"[MeSH:NoExp] OR "Physicians, Family"[MeSH] OR "Physicians, Primary Care"[MeSH] OR "Primary Health Care"[MeSH:NoExp] OR ambulatory care[tiab] OR community medicine[tiab] OR family physician*[tiab] OR family pract*[tiab] OR general clinical pract*[tiab] OR general medical pract*[tiab] OR general medicine[tiab] OR general physician*[tiab] OR general pract*[tiab] OR geriatric[tiab] OR geriatrician*[tiab] OR geriatrics[tiab] OR gp[tiab] OR gps[tiab] OR internal medicine[tiab] OR internist*[tiab] OR pcp[tiab] OR pcps[tiab] OR primary care[tiab] OR primary health[tiab] OR primary medical care[tiab] OR primary pract*[tiab] OR ambulatory care[ot] OR community medicine[ot] OR family physician*[ot] OR family pract*[ot] OR general medicine[ot] OR general physician*[ot] OR general pract*[ot] OR geriatric[ot] OR geriatrician*[ot] OR geriatrics[ot] OR gp[ot] OR gps[ot] OR internal medicine[ot] OR internist*[ot] OR pcp[ot] OR pcps[ot] OR primary care[ot] OR primary health[ot] OR primary pract*[ot]
#4	Diseases and Conditions	"Angina Pectoris"[MeSH:NoExp] OR "Anxiety"[MeSH] OR "Anxiety Disorders"[MeSH] OR "Asthma"[Mesh:NoExp] OR “Cardiovascular Diseases"[MeSH:NoExp] OR "Chronic Disease"[MeSH] OR "Coronary Disease"[MeSH] OR "Depression"[MeSH] OR "Depressive Disorder"[MeSH] OR "Diabetes Mellitus"[MeSH] OR "Heart Failure"[MeSH] OR "Hyperlipidemias"[MeSH] OR "Hypertension"[Mesh:NoExp] OR "Low Back Pain"[MeSH] OR "Obesity"[Mesh:NoExp] OR “Obesity Hypoventilation Syndrome”[MeSH] OR “Obesity, Abdominal”[MeSH] OR “Obesity, Metabolically Benign”[MeSH] OR “Obesity, Morbid”[MeSH] OR "Overweight"[MeSH] OR angina[tiab] OR asthma[tiab] OR anxiety[tiab] OR back pain*[tiab] OR backach*[tiab] OR cardiovascular dis*[title] OR chronic disease*[tiab] OR chronic disorder*[tiab] OR chronic illness*[tiab] OR chronically ill[tiab] OR coronary disease*[tiab] OR coronary heart disease*[tiab] OR depress*[tiab] OR diabet*[tiab] OR heart failure*[tiab] OR hyperlipidaem*[tiab] OR hyperlipidem*[tiab] OR hypertens*[tiab] OR obese[tiab] OR obesity[tiab] OR overweight[tiab] OR angina[ot] OR asthma[ot]

		OR anxiety[ot] OR back pain*[ot] OR backach*[ot] OR cardiovascular dis*[ot] OR chronic disease*[ot] OR chronic disorder*[ot] OR chronic illness*[ot] OR chronically ill[ot] OR coronary disease*[ot] OR coronary heart disease*[ot] OR depress*[ot] OR diabet*[ot] OR heart failure*[ot] OR hyperlipidaem*[ot] OR hyperlipidem*[ot] OR hypertens*[ot] OR obese[ot] OR obesity[ot]
#5		#2 AND #3 AND #4
#6	Components of PCMHs focused search restricting Mesh terms to major topic and keywords in the title field only	"Case Management"[Majr] OR "Continuity of Patient Care"[Majr:NoExp] OR "Delivery of Health Care, Integrated"[Majr] OR "Disease Management"[Majr] OR "Patient Care Management"[Majr:NoExp] OR "Patient Care Planning"[Majr:NoExp] OR "Patient Care Team"[Majr:NoExp] OR "Patient-Centered Care"[Majr] OR care manage*[title] OR care redesign[title] OR care team*[title] OR case manage*[title] OR centered care[title] OR centered health*[title] OR chronic care model*[title] OR collaborative care[title] OR collaboratives[title] OR continuity of care[title] OR continuity of patient care[title] OR disease manage*[title] OR health care team*[title] OR health team*[title] OR healthcare team*[title] OR integrated delivery[title] OR integrated health*[title] OR inter disciplinary team*[title] OR interdisciplinary care[title] OR interdisciplinary team*[title] OR multi disciplinary care[title] OR multi disciplinary team*[title] OR multidisciplinary care[title] OR multidisciplinary team*[title] OR patient center*[title] OR system redesign[title] OR systems redesign[title]
#7	Settings and Specialties focused search restricting Mesh terms to major topic and keywords in the title field only	"Ambulatory Care"[Majr] OR "Ambulatory Care Facilities"[Majr:NoExp] OR "Community Health Centers"[Majr:NoExp] OR "Community Health Services"[Majr:NoExp] OR "Community Medicine"[Majr] OR "Community Networks"[Majr] OR "Family Practice"[Majr] OR "General Practice"[Majr] OR "Geriatrics"[Majr] OR "Health Care Coalitions"[Majr] OR "Health Services for the Aged"[Majr] OR "Internal Medicine"[Majr] OR "Outpatient Clinics, Hospital"[Majr:NoExp] OR "Physicians, Family"[Majr] OR "Physicians, Primary Care"[Majr] OR "Primary Health Care"[Majr:NoExp] OR ambulatory care[title] OR community medicine[title] OR family physician*[title] OR family pract*[title] OR general clinical pract*[title] OR general medical pract*[title] OR general medicine[title] OR general physician*[title] OR general pract*[title] OR geriatric[title] OR geriatrician*[title] OR geriatrics[title] OR gp[title] OR gps[title] OR internal medicine[title] OR internist*[title] OR pcp[title] OR pcps[title] OR primary care[title] OR primary health[title] OR primary medical care[title] OR primary pract*[title]
#8		#6 AND #7
#9		#5 OR #8

#10	Study Types and Study Characteristics	"Clinical Study" [Publication Type] OR "Comparative Study" [Publication Type] OR "Double-Blind Method"[MeSH] OR "Economics"[MeSH] OR "economics" [Subheading] OR "Epidemiologic Studies"[MeSH] OR "Epidemiologic Study Characteristics as Topic"[MeSH] OR "Evaluation Studies" [Publication Type] OR "Evaluation Studies as Topic"[MeSH] OR "Interrupted Time Series Analysis"[MeSH] OR "Meta-Analysis" [Publication Type] OR "Program Evaluation"[MeSH] OR "Quality of Health Care"[MeSH] OR "Random Allocation"[MeSH] OR "Single-Blind Method"[MeSH] OR "Treatment Outcome"[MeSH] OR "Validation Studies" [Publication Type] OR "utilization"[Subheading] OR case control*[tiab] OR cohort study[tiab] OR cohort studies[tiab] OR cohort analy*[tiab] OR comparative[tiab] OR comparison[tiab] OR cost of health care[tiab] OR cost of health care[ot] OR cross sectional[tiab] OR demonstration[tiab] OR evaluation study[tiab] OR evaluation studies[tiab] OR follow up study[tiab] OR follow up studies[tiab] OR intervention[tiab] OR longitudinal[tiab] OR matched[tiab] OR meta-analys*[tiab] OR multi center study[tiab] OR multi centre studies[tiab] OR multicenter study[tiab] OR multicentre studies[tiab] OR observational study[tiab] OR observational studies[tiab] OR pre test*[tiab] OR pretest*[tiab] OR post test*[tiab] OR posttest*[tiab] OR quality of care[tiab] OR quasi control*[tiab] OR quasi experiment*[tiab] OR quasicontrol*[tiab] OR quasiexperiment*[tiab] OR quasirandom*[tiab] OR retrospective[tiab] OR random*[tiab] OR rct[tiab] OR rcts[tiab] OR time point*[tiab] OR timepoint*[tiab] OR utilization[tiab] OR validation study[tiab] OR validation studies[tiab] OR systematic[sb] OR ((singl*[tiab] or doubl*[tiab] or treb*[tiab] or tripl*[tiab]) AND (blind*[tiab] or mask*[tiab])) OR ((clinical[tiab] OR cluster[tiab] OR multi center[tiab] OR multi centre[tiab] OR multicenter[tiab] OR multicentre[tiab] OR clinical[ot] OR cluster[ot] OR multi center[ot] OR multi centre[ot] OR multicenter[ot] OR multicentre[ot]) AND (trial[tiab] OR trials[tiab] OR trial[ot] OR trials[ot])) OR (continuing[tiab] AND study[tiab]) OR (time series[tiab] AND interrupt*[tiab])
#11		#9 AND #10
#12		#1 OR #11
#13	Publication Date Limit 2004 to 2017	"2004/01/01"[PDAT] : "2017/12/31"[PDAT]
#14		#12 AND #13

#15	English Language Limit	English[language]
#16		#14 AND #15
#17	Publication Type Removal	"Case Reports" [Publication Type] OR "Editorial" [Publication Type] OR "Historical Article"[Publication Type] OR "Letter" [Publication Type] OR "Practice Guideline" [Publication Type] OR "Practice Guidelines as Topic"[MeSH] OR case report[tiab] OR case reports[tiab] OR practice guideline[title]
#18		#16 NOT #17
#2	Components of PCMHs	'case management'/de OR 'disease management'/de OR 'integrated health care system'/de OR 'patient care'/de OR 'patient care planning'/de OR (care NEXT/1 manage*):ti,ab OR 'care redesign':ti,ab OR (care NEXT/1 team*):ti,ab OR (case NEXT/1 manage*):ti,ab OR 'centered care':ti,ab OR (centered NEXT/1 health*):ti,ab OR (chronic NEXT/1 care NEXT/1 model*):ti,ab OR 'collaborative care':ti,ab OR collaboratives:ti,ab OR 'continuity of care':ti,ab OR 'continuity of patient care':ti,ab OR (disease NEXT/1 manage*):ti,ab OR (health NEXT/1 team*):ti,ab OR (health NEXT/1 care NEXT/1 team*):ti,ab OR (healthcare NEXT/1 team*):ti,ab OR 'integrated delivery':ti,ab OR (integrated NEXT/1 health*):ti,ab OR (inter NEXT/1 disciplinary NEXT/1 team*):ti,ab OR 'interdisciplinary care':ti,ab OR (interdisciplinary NEXT/1 team*):ti,ab OR 'multi disciplinary care':ti,ab OR (multi NEXT/1 disciplinary NEXT/1 team*):ti,ab OR 'multidisciplinary care':ti,ab OR (multidisciplinary NEXT/1 team*):ti,ab OR (patient NEXT/1 center*):ti,ab OR 'system redesign':ti,ab OR 'systems redesign':ti,ab
#3	Settings and Specialties	'ambulatory care'/de OR 'community care'/de OR 'community medicine'/de OR 'elderly care'/de OR 'family health'/de OR 'general practice'/de OR 'general practitioner'/de OR 'geriatric care'/de OR 'geriatrician'/de OR 'geriatrics'/de OR 'gerontologist'/de OR 'internal medicine'/de OR 'internist'/de OR 'outpatient care'/de OR 'outpatient department'/de OR 'primary health care'/de OR 'primary medical care'/de OR 'ambulatory care':ti,ab OR (community NEXT/1 health NEXT/1 service*):ti,ab OR ‘community medicine’:ti,ab OR (community NEXT/1 network*):ti,ab OR (family NEXT/1 physician*):ti,ab OR (family NEXT/1 pract*):ti,ab OR (general NEXT/1 medical NEXT/1 practice*):ti,ab OR ‘general medicine’:ti,ab OR (general NEXT/1 physician*):ti,ab OR (general NEXT/1 pract*):ti,ab OR gp:ti,ab OR ‘internal medicine’:ti,ab OR pcp:ti,ab OR pcps:ti,ab OR ‘primary care’:ti,ab OR ‘primary health’:ti,ab OR (primary NEXT/1 medical NEXT/1 care):ti,ab OR (primary NEXT/1 pract*):ti,ab
#4	Diseases and Conditions	'angina pectoris'/de OR 'anxiety'/de OR 'anxiety disorder'/de OR 'asthma'/de OR 'backache'/de OR 'cardiovascular disease'/de OR 'chronic disease'/de OR 'coronary artery disease'/de OR

		'depression'/de OR 'major depression'/de OR 'diabetes mellitus'/de OR 'insulin dependent diabetes mellitus'/de OR 'non insulin dependent diabetes mellitus'/de OR 'congestive heart failure'/exp OR 'heart failure'/de OR 'hyperlipidemia'/de OR 'hypertension'/de OR 'low back pain'/de OR 'obesity'/de OR 'obesity hypoventilation syndrome'/de OR 'abdominal obesity'/de OR 'metabolically benign obesity'/de OR 'morbid obesity'/de OR angina:ti,ab OR anxiety:ti,ab OR asthma:ti,ab OR (back NEXT/1 pain*):ti,ab OR backache*:ti,ab OR (cardiovascular NEXT/1 dis*):ti OR (chronic NEXT/1 disease*):ti,ab OR (chronic NEXT/1 disorder*):ti,ab OR (chronic NEXT/1 illness*):ti,ab OR (chronically NEXT/1 ill):ti,ab OR (coronary NEXT/1 disease*):ti,ab OR (coronary NEXT/1 heart NEXT/1 disease*):ti,ab OR depress*:ti,ab OR diabet*:ti,ab OR (heart NEXT/1 failure*):ti,ab OR hyperlipidaem*:ti,ab OR hyperlipidem*:ti,ab OR hypertens*:ti,ab OR obese:ti,ab OR obesity:ti,ab
#5		#2 AND #3 AND #4
#6	Components of PCMHs focused search restricting EMTREE terms to major topic and keywords in the title field only	'case management'/mj OR 'disease management'/mj OR 'integrated health care system'/mj OR 'patient care'/mj OR 'patient care planning'/mj OR (care NEXT/1 manage*):ti OR 'care redesign':ti OR (care NEXT/1 team*):ti OR (case NEXT/1 manage*):ti OR 'centered care':ti OR (centered NEXT/1 health*):ti OR (chronic NEXT/1 care NEXT/1 model*):ti OR 'collaborative care':ti OR collaboratives:ti OR 'continuity of care':ti OR 'continuity of patient care':ti OR (disease NEXT/1 manage*):ti OR (health NEXT/1 team*):ti OR (health NEXT/1 care NEXT/1 team*):ti OR (healthcare NEXT/1 team*):ti OR 'integrated delivery':ti OR (integrated NEXT/1 health*):ti OR (inter NEXT/1 disciplinary NEXT/1 team*):ti OR 'interdisciplinary care':ti OR (interdisciplinary NEXT/1 team*):ti OR 'multi disciplinary care':ti OR (multi NEXT/1 disciplinary NEXT/1 team*):ti OR 'multidisciplinary care':ti OR (multidisciplinary NEXT/1 team*):ti OR (patient NEXT/1 center*):ti OR 'system redesign':ti OR 'systems redesign':ti
#7	Settings and Specialties focused search restricting EMTREE terms to major topic and keywords in the title field only	'ambulatory care'/mj OR 'community care'/mj OR 'community medicine'/mj OR 'elderly care'/mj OR 'family health'/mj OR 'general practice'/mj OR 'general practitioner'/mj OR 'geriatric care'/mj OR 'geriatrician'/mj OR 'geriatrics'/mj OR 'gerontologist'/mj OR 'internal medicine'/mj OR 'internist'/mj OR 'outpatient care'/mj OR 'outpatient department'/mj OR 'primary health care'/mj OR 'primary medical care'/mj OR 'ambulatory care':ti OR (community NEXT/1 health NEXT/1 service*):ti OR ‘community medicine’:ti OR (community NEXT/1 network*):ti OR (family NEXT/1 physician*):ti OR (family NEXT/1 pract*):ti OR (general NEXT/1 medical NEXT/1 practice*):ti OR ‘general medicine’:ti OR (general NEXT/1 physician*):ti OR (general NEXT/1 pract*):ti OR gp:ti OR ‘internal medicine’:ti OR pcp:ti OR pcps:ti OR ‘primary care’:ti OR ‘primary health’:ti OR (primary NEXT/1 medical NEXT/1 care):ti OR (primary NEXT/1 pract*):ti
#8		#6 AND #7

#9		#5 OR #8
#10	Study Types and Study Characteristics	'clinical study'/exp OR 'comparative study'/exp OR 'controlled study'/exp OR 'economic aspect'/exp OR 'evaluation study'/exp OR 'evidence based medicine'/exp OR 'follow up' NEXT/1 stud* OR 'health care quality'/de OR 'health care utilization'/de OR 'treatment outcome'/exp OR 'validation study'/exp OR cohort NEXT/1 analy* OR comparative OR comparison OR (continuing AND study) OR 'control group' OR 'cross sectional' OR demonstration OR 'double blind' OR intervention OR longitudinal OR matched OR 'multicenter study' OR 'observational study' OR 'observational studies' OR pretest* OR pre NEXT/1 test* OR posttest* OR post NEXT/1 test* OR program NEXT/1 evaluat* OR quasi NEXT/1 experiment* OR quasiexperiment* OR quasirandom* OR quasi NEXT/1 control* OR quasicontrol* OR 'quality of care' OR random* OR rct OR rcts OR retrospective OR 'single blind' OR 'systematic review' OR time NEXT/1 point* OR timepoint* OR 'triple blind' OR (clinical OR cluster OR 'multi center' OR 'multi centre' OR multicenter OR multicentre AND (trial OR trials)) OR ('time series' AND interrupt*)
#11		#9 AND #10
#12		#1 OR #11
#13	Publication date limit 2004-2017	[2004-2017]/py
#14	English Language Limit	[english]/lim
#15		#12 AND #13 AND #14
#16	Publication Type Removal	'case report' OR 'case reports' OR 'conference abstract'/it OR 'conference review'/it OR 'editorial'/it OR 'letter'/it OR 'practice guideline'/de
#17		#15 NOT #16

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The Cochrane Library (John Wiley & Sons.): CDSR (Cochrane Database of Systematic Reviews): Issue 3 of 12, March 2017; DARE (Database of Abstracts of Reviews of Effect): Issue 2 of 4, April 2015; TRIALS (Cochrane Central Register of Controlled Trials): Issue 2 of 12, February 2017; Cochrane Methodology Register : Issue 3 of 4, July 2012; HTAD (Health Technology Assessment Database) : Issue 4 of 4, October 2016; NHSEED (NHS Economic Evaluation Database): Issue 2 of 4, April 2015		
Search Statement	**Concept**	**Query**
#1	PCMHs	“guided care”:ti,ab,kw OR health next care next home*:ti,ab,kw OR healthcare next home*:ti,ab,kw OR medical next home*:ti,ab,kw OR pcmh:ti,ab,kw OR pcmhs:ti,ab,kw OR “patient aligned”:ti,ab,kw OR primary next care next home*:ti,ab,kw

#2	Components of PCMHs	[mh "Case Management"] OR [mh ^"Continuity of Patient Care"] OR [mh "Delivery of Health Care, Integrated"] OR [mh "Disease Management"] OR [mh ^"Patient Care Management"] OR [mh ^"Patient Care Planning"] OR [mh ^"Patient Care Team"] OR [mh "Patient-Centered Care"] OR care next manage*:ti,ab,kw OR "care redesign":ti,ab OR care next team*:ti,ab,kw OR case next manage*:ti,ab,kw OR 'centered care':ti,ab,kw OR centered next health*:ti,ab,kw OR chronic next care next model*:ti,ab,kw OR "collaborative care":ti,ab,kw OR collaboratives:ti,ab,kw OR continuity next/3 care:ti,ab,kw OR disease next manage*:ti,ab,kw OR health next care next team*:ti,ab,kw OR health next team*:ti,ab,kw OR healthcare next team*:ti,ab,kw OR "integrated delivery":ti,ab,kw OR integrated next health*:ti,ab,kw OR inter next disciplinary next team*:ti,ab,kw OR "interdisciplinary care":ti,ab,kw OR interdisciplinary next team*:ti,ab,kw OR "multi disciplinary care":ti,ab,kw OR multi next disciplinary next team*:ti,ab,kw OR "multidisciplinary care":ti,ab,kw OR multidisciplinary next team*:ti,ab,kw OR patient next center*:ti,ab,kw OR "system redesign":ti,ab,kw OR "systems redesign":ti,ab,kw
#3	Settings and Specialties	[mh "Ambulatory Care"] OR [mh ^"Ambulatory Care Facilities"] OR [mh ^"Community Health Centers"] OR [mh ^"Community Health Services"] OR [mh "Community Medicine"] OR [mh "Community Networks"] OR [mh "Family Practice"] OR [mh "General Practice"] OR [mh "Geriatrics"] OR [mh "Health Care Coalitions"] OR [mh "Health Services for the Aged"] OR [mh "Internal Medicine"] OR [mh ^"Outpatient Clinics, Hospital"] OR [mh "Physicians, Family"] OR [mh "Physicians, Primary Care"] OR [mh ^"Primary Health Care"] OR "ambulatory care":ti,ab,kw OR "community medicine":ti,ab,kw OR family next physician*:ti,ab,kw OR family next pract*:ti,ab,kw OR general next clinical next pract*:ti,ab,kw OR general next medical next pract*:ti,ab,kw OR "general medicine":ti,ab,kw OR general next physician*:ti,ab,kw OR general next pract*:ti,ab,kw OR geriatric:ti,ab,kw OR geriatrician*:ti,ab,kw OR geriatrics:ti,ab,kw OR gp:ti,ab,kw OR gps:ti,ab,kw OR "internal medicine":ti,ab,kw OR internist*:ti,ab,kw OR pcp:ti,ab,kw OR pcps:ti,ab,kw OR "primary care":ti,ab,kw OR "primary health":ti,ab,kw OR primary medical care:ti,ab,kw OR primary next pract*:ti,ab,kw
#4	Diseases and Conditions	[mh ^"Angina Pectoris"] OR [mh "Anxiety"] OR [mh "Anxiety Disorders"] OR [mh ^"Asthma"] OR [mh ^"Cardiovascular Diseases"] OR [mh "Chronic Disease"] OR [mh "Coronary Disease"] OR [mh "Depression"] OR [mh "Depressive Disorder"] OR [mh "Diabetes Mellitus"] OR [mh "Heart Failure"] OR [mh "Hyperlipidemias"] OR [mh ^"Hypertension"] OR [mh "Low Back Pain"] OR [mh ^"Obesity"] OR [mh "Obesity Hypoventilation Syndrome"] OR [mh "Obesity, Abdominal"] OR [mh "Obesity, Metabolically Benign"] OR

		[mh “Obesity, Morbid”] OR [mh "Overweight"] OR angina:ti,ab,kw OR asthma:ti,ab,kw OR anxiety:ti,ab,kw OR back next pain*:ti,ab,kw OR backach*:ti,ab,kw OR cardiovascular next dis*:ti OR chronic next disease*:ti,ab,kw OR chronic next disorder*:ti,ab,kw OR chronic next illness*:ti,ab,kw OR “chronically ill”:ti,ab,kw OR coronary next disease*:ti,ab,kw OR coronary next heart next disease*:ti,ab,kw OR depress*:ti,ab,kw OR diabet*:ti,ab,kw OR heart next failure*:ti,ab,kw OR hyperlipidaem*:ti,ab,kw OR hyperlipidem*:ti,ab,kw OR hypertens*:ti,ab,kw OR obese:ti,ab,kw OR obesity:ti,ab,kw
#5		#2 AND #3 AND #4
#6	Components of PCMHs focused search restricting Mesh terms to major topic and keywords in the title field only	[mh "Case Management"] OR [mh ^"Continuity of Patient Care"] OR [mh "Delivery of Health Care, Integrated"] OR [mh "Disease Management"] OR [mh ^"Patient Care Management"] OR [mh ^"Patient Care Planning"] OR [mh ^"Patient Care Team"] OR [mh "Patient-Centered Care"] OR care next manage*:ti OR “care redesign”:ti,ab OR care next team*:ti OR case next manage*:ti OR ‘centered care’:ti OR centered next health*:ti OR chronic next care next model*:ti OR “collaborative care”:ti OR collaboratives:ti OR continuity next/3 care:ti OR disease next manage*:ti OR health next care next team*:ti OR health next team*:ti OR healthcare next team*:ti OR “integrated delivery”:ti OR integrated next health*:ti OR inter next disciplinary next team*:ti OR “interdisciplinary care”:ti OR interdisciplinary next team*:ti OR “multi disciplinary care”:ti OR multi next disciplinary next team*:ti OR “multidisciplinary care”:ti OR multidisciplinary next team*:ti OR patient next center*:ti OR “system redesign”:ti OR “systems redesign”:ti
#7	Settings and Specialties focused search restricting Mesh terms to major topic and keywords in the title field only	[mh "Ambulatory Care"] OR [mh ^"Ambulatory Care Facilities"] OR [mh ^"Community Health Centers"] OR [mh ^"Community Health Services"] OR [mh "Community Medicine"] OR [mh "Community Networks"] OR [mh "Family Practice"] OR [mh "General Practice"] OR [mh "Geriatrics"] OR [mh "Health Care Coalitions"] OR [mh "Health Services for the Aged"] OR [mh "Internal Medicine"] OR [mh ^"Outpatient Clinics, Hospital"] OR [mh "Physicians, Family"] OR [mh "Physicians, Primary Care"] OR [mh ^"Primary Health Care"] OR “ambulatory care”:ti OR “community medicine”:ti OR family next physician*:ti OR family next pract*:ti OR general next clinical next pract*:ti OR general next medical next pract*:ti OR “general medicine”:ti OR general next physician*:ti OR general next pract*:ti OR geriatric:ti OR geriatrician*:ti OR geriatrics:ti OR gp:ti OR gps:ti OR “internal medicine”:ti OR internist*:ti OR pcp:ti OR pcps:ti OR “primary care”:ti OR “primary health”:ti OR primary medical care:ti OR primary next pract*:ti
#8		#6 AND #7
#9		#1 OR #5 OR #9

#10	Publication date limit 2004-2017	Limit #9 to 2014 to 2017

Appendix 3: List of Integrated Delivery and Finance Systems and Associated Insurance Products

Parent Organization	State	Plan Name
VA	USA	VA
AHMC Central Health LLC	CA	'CENTRAL HEALTH PLAN OF CALIFORNIA, INC. AHMC
Aultman Health Foundation	OH	'AULTCARE HEALTH INSURING CORPORATION

Baylor Scott & White Holdings	TX	'SCOTT AND WHITE HEALTH PLAN
Baylor Scott & White Holdings	TX	'INSURANCE COMPANY OF SCOTT AND WHITE
Capital District Physicians' Health Plan, Inc.	NY	'CDPHP UNIVERSAL BENEFITS, INC.
Capital District Physicians' Health Plan, Inc.	NY	'CAPITAL DISTRICT PHYSICIANS' HEALTH PLAN, INC.
Catholic Health Initiatives	WA	'SOUNDPATH HEALTH CHI
Catholic Health Initiatives	AR	'QUALCHOICE ADVANTAGE CHI
Catholic Health Initiatives	NE	'HEARTLANDPLAINS HEALTH Catholic Health Initiatives
Catholic Health Initiatives	OH	RIVERLINK HEALTH CHI
CommunityCare Managed Healthcare Plans of OK, Inc.	OK	'COMMUNITY CARE HMO, INC
Essence Group Holdings Corporation	MO	'ESSENCE HEALTHCARE, INC.
Geisinger Health System	PA	'GEISINGER HEALTH PLAN
Geisinger Health System	PA	'GEISINGER INDEMNITY INSURANCE COMPANY
Geisinger Health System	PA	'GEISINGER QUALITY OPTIONS, INC.
Group Health Cooperative	WA	'GROUP HEALTH COOPERATIVE
Health First, Inc.	FL	HEALTH FIRST HEALTH PLANS
Health First, Inc.	FL	'HEALTH FIRST HEALTH PLANS
Healthfirst, Inc.	NY	'HEALTHFIRST HEALTH PLAN, INC.
Healthfirst, Inc.	NY	'HEALTHFIRST HEALTH PLAN, INC.
HealthPartners, Inc.	MN	'GROUP HEALTH PLAN, INC. (Health Partners Inc)
HealthPartners, Inc.	MN	'HEALTHPARTNERS, INC.
Henry Ford Health System	MI	'HAP MIDWEST HEALTH PLAN, INC.
Henry Ford Health System	MI	'HEALTH ALLIANCE PLAN OF MICHIGAN
Henry Ford Health System	MI	'ALLIANCE HEALTH AND LIFE INSURANCE COMPANY
Henry Ford Health System	MI	'HAP MIDWEST HEALTH PLAN, INC.
InnovaCare Inc.	PR	'MMM HEALTHCARE, LLC Innovacare
InnovaCare Inc.	PR	'MMM HEALTHCARE, LLC Innovacare
InnovaCare Inc.	PR	'MMM HEALTHCARE, LLC Innovacare
Intermountain Health Care, Inc.	UT	'SELECTHEALTH, INC. Intermountain
Kaiser Foundation Health Plan, Inc.	CO	'KAISER FOUNDATION HP OF CO
Kaiser Foundation Health Plan, Inc.	OR	'KAISER FOUNDATION HP OF THE N W
Kaiser Foundation Health Plan, Inc.	CA	'KAISER FOUNDATION HP, INC.
Kaiser Foundation Health Plan, Inc.	CA	KAISER FOUNDATION HP, INC.
Kaiser Foundation Health Plan, Inc.	MD	'KAISER FNDN HP OF THE MID-ATLANTIC STS
Kaiser Foundation Health Plan, Inc.	HI	'KAISER FOUNDATION HP, INC.
Kaiser Foundation Health Plan, Inc.	GA	'KAISER FOUNDATION HP OF GA, INC.
Kelsey-Seybold Medical Group, PLLC	TX	'KS PLAN ADMINISTRATORS, LLC
Marshfield Clinic Health System, Inc.	WI	'SECURITY HEALTH PLAN OF WISCONSIN, INC. Marshfield Clinic

Martin's Point Health Care, Inc.	ME	'MARTIN'S POINT GENERATIONS ADVANTAGE, INC.
Martin's Point Health Care, Inc.	ME	'MARTIN'S POINT GENERATIONS ADVANTAGE, INC.
Ministry Health Care, Inc.	WI	NETWORK HEALTH INSURANCE CORPORATION
Presbyterian Healthcare Services	NM	'PRESBYTERIAN INSURANCE COMPANY, INC.
Presbyterian Healthcare Services	NM	'PRESBYTERIAN HEALTH PLAN
Providence Health & Services	OR	'PROVIDENCE HEALTH ASSURANCE
Spectrum Health System	MI	'PRIORITY HEALTH Spectrum
SSM Healthcare Corporation	WI	'DEAN HEALTH PLAN, INC.
SSM Healthcare Corporation	WI	'DEAN HEALTH PLAN, INC.
Summa Health System	OH	'SUMMACARE INC.
The Carle Foundation	IL	'HEALTH ALLIANCE - MIDWEST, INC.
The Carle Foundation	WA	'HEALTH ALLIANCE NORTHWEST HEALTH PLAN, INC.
The Carle Foundation	IL	'HEALTH ALLIANCE - MIDWEST, INC.
The Carle Foundation	IL	'HEALTH ALLIANCE CONNECT, INC.
Trinity Health	OH	'MOUNT CARMEL HEALTH INSURANCE COMPANY Trinity
Trinity Health	OH	'MOUNT CARMEL HEALTH PLAN, INC. Trinity
Tufts Associated HMO, Inc.	MA	Tufts Associated HMO, Inc.
Tufts Associated HMO, Inc.	MA	Tufts Associated HMO, Inc.
UAB Health System	AL	VIVA HEALTH, INC.
UPMC Health System	PA	'UPMC FOR YOU, INC
UPMC Health System	PA	'UPMC HEALTH NETWORK, INC.
UPMC Health System	PA	'UPMC HEALTH PLAN, INC.

Appendix 4: Characteristics of Included Studies - Integrated Delivery and Finance Systems (IDFS)

Appendix Table 4. Characteristics of Included Studies within Integrated Delivery and Finance Systems (IDFS)

Study, Year (Reference)	*Location, Organization*	*Study Type*	*Population*	*Follow-up duration*	*Outcomes reported*	*Quality*

Reuss-Brennan B. et al, 2016 (12)	UT and Idaho, Intermountain Health	Quasi-experimental	Adults	36+ months	Utilization, economic, processes of care	Good
Green B. et al, 2016 (50)	WA, Group Health	RCT	Adults	12-23 months	Processes of care	Good
Maeng D. et al, 2015 (35)	PA, Geisinger	Retrospective cohort	Older Adults	36+ months	Economic	Good
Liss D. et al, 2014 (44)	WA, Group Health	Pre-test/post-test	Adults	36+ months	Utilization	Good
Graham J. et al, 2015 (45)	PA, Geisinger	Cohort	Adults	12-23 months	Utilization, economic, clinical	Fair
Liss D. et al, 2013 (36)	WA, Group Health	Pre-test/post-test	Adults with DM, HTN, and CAD	24-35 months	Clinical, processes of care	Fair
Reid, R et al, 2013 (13)	WA, Group Health	Interrupted time series analysis	Adults	36+ months	Utilization	Fair
Maeng D. et al, 2013 (58)	PA, Geisinger	Cohort	Adults	36+ months	Patient satisfaction	Fair
Rosenberg C. et al, 2012 (14)	PA, UPMC	Quasi-experimental	Adults	24-35 months	Utilization economic,	Fair
Katon W. et al, 2012 (43)	WA, Group Health	RCT	Adults	24-35 months	Economic, clinical	Good
Maeng D. et al 2012 (36)	PA, Geisinger	Retrospective cohort	Older Adults	36+ months	Economic	Good
Fishman P. et al, 2012 (15)	WA, Group Health	Pre-test/post-test	Older Adults	36+ months	Utilization, economic, patient satisfaction	Fair
Maeng D. et al 2012 (42)	PA, Geisinger	Retrospective cohort	Adults	36+ months	Clinical	Good
Gilfillan R. et al, 2010 (16)	PA, Geisinger	Retrospective cohort	Adults*	36+ months	Economic, processes of care	Good
Reid, R et al, 2009 (17)	WA, Group Health	Quasi-experimental	Adults	12-23 months	Utilization, economic,	Fair

*Pediatric patients included in study but not included in analysis

Appendix 5: Characteristics of Included Studies - Government Systems

Appendix Table 5. Characteristics of Included Studies within Government Systems

Study, Year (Reference)	*Location, Organization*	*Study Type*	*Population*	*Follow-up duration*	*Outcomes reported*	*Quality*

Edwards S. et al, 2017 (73)	USA, VA	Quasi-experimental	Older adult Veterans with diabetes	36+ months	Utilization	Good
Wong E. et al, 2016 (74)	USA, VA	Retrospective pre-test/post-test	Adult Veterans	36+ months	Utilization	Good
Schubert C. et al, 2016 (38)	IN, VA	Prospective quasi-experimental	Older Veterans	13-23 months	Utilization, Economic	Good
O'Toole T. et al, 2016 (18)	USA, VA	Cohort	Adult Veterans	24-35 months	Utilization	Fair
Yoon J. et al, 2016 (33)	USA, VA	Cohort	Adult Veterans	36+ months	Utilization, economic, clinical	Good
Andrews C. et al, 2015 (19)	USA, Military Health System	Pre-test/post-test	Adults in military	36+ months	Utilization, clinical	Good
Yoon J. et al, 2015 (67)	USA, VA	Retrospective pre-test/post-test cohort	Adult Veterans	24-35 months	Utilization, economic	Good
Bekelman D. et al, 2015 (46)	USA, VA	RCT	Adult Veterans	12-23 months	Utilization, clinical	Good
Randall I. et al, 2017 (29)	USA, VA	Retrospective pre-test/post-test cohort	Adult Veterans	36+ months	Utilization	Fair
Fandre M. et al, 2014 (20)	KY, Military Health System	Retrospective cohort	Adults, non-active duty Army	6-11 months	Utilization	Fair
Smith J. et al, 2014 (21)	AK, Indian Health System	Pre-test/post-test	Adults with Indian Health System benefits	36+ months	Utilization, processes of care	Fair
Hebert P. et al, 2014 (37)	USA, VA	Pre-test/post-test	Adult Veterans	36+ months	Utilization, economic	Good

Werner R. et al, 2014 (9)	USA, VA	Pre-test/post-test	Adult Veterans	24-35 months	Utilization, processes of care	Good
Johnston J. et al, 2013 (22)	AK, Indian Health Services	Prospective cohort	Adults with Indian Health System benefits	36+ months	Utilization	Fair
Yoon J. et al, 2013 (75)	USA, VA	Quasi-experimental	Adult Veterans	12-23 months	Utilization	Fair
Christensen E. et al, 2013 (59)	MD, Military Health System	Quasi-experimental	Adults in military	36+ months	Patient satisfaction	Good
O'Toole T. et al, 2011 (47)	USA, VA	Quasi-experimental	Adult Veterans	24-35 months	Utilization, clinical	Fair
O'Toole T. et al, 2010 (30)	RI, VA	Retrospective cohort	Adult Veterans, predominantly homeless	12-23 months	Utilization, clinical, processes of care	Good
Edes T. et al, 2014 (31)	USA, VA*	Cohort	Adult Veterans	12-23 months	Utilization, economic	Fair

*Included VA and Medicare admissions

Appendix 6: Characteristics of Included Studies - Non-Integrated Systems

Appendix Table 6. Characteristics of Included Studies within Non-Integrated Delivery Systems

Study, Year (Reference)	*Location, Organization*	*Study Type*	*Population*	*Follow-up duration*	*Outcomes reported*	*Quality*

Newman R. et al, 2017. (23)	Eastern Virginia Medical School, VA	Prospective pre-post study	Adults	24-35 months	Utilization	Fair
Cuellar A. et al, 2016 (24)	CareFirst BlueCross BlueShield's PCMH, Maryland, Washington DC, and Virginia	Retrospective quasi-experimental cohort	Adults	36+ months	Utilization, economic	Fair
Eisenstat S. et al, 2017 (49)	Massachusetts General Hospital Primary Care Clinics; MA	Pre-test/post-test cohort	Adults	24-35 months	Clinical	Good
Shane D. et al, 2016 (39)	Iowa Medicaid Health Homes, IA	Quasi-experimental pre/post	Adults	12-23 months	Utilization, economic	Good
Kern L. et al, 2016 (34)	Taconic Health Information Network and Community (THINC), NY	Retrospective cohort	Adults	36+ months	Utilization, processes of care	Good
Domino M. et al, 2016 (76)	Community Care North Carolina, NC	Quasi-experimental	Adults	Less than 6 months	Utilization	Good
Rosenthal M. et al, 2016 (51)	Health Improvement Collaborate of Greater Cincinnati, OH	Cohort	Adults	24-35 months	Utilization, economic, processes of care	Good
Rosenthal M. et al, 2015 (52)	Rochester Medical Home Initiative, NY	Cohort	Adults	36+ months	Utilization, economic, processes of care	Good
Rosenthal M. et al, 2016 (25)	Health TeamWork and Cover Colorado, CO	Retrospective pre-test/post-test cohort	Adults	36+ months	Utilization, economic, processes of care	Good
Jones C. et al, 2016 (40)	Vermont's all payer medical home; VT	Retrospective cohort	Adults, children (excluded from analysis)	36+ months	Utilization, economic	Good
Farrell T. et al, 2015 (77)	University of Utah Community Clinics, UT	Retrospective pre/post cohort	Adults	6-11 months	Utilization	Good

Romanelli R. et al, 2015 (32)	Davis Family Clinic - Sutter Medical Foundation, CA	Retrospective cohort	Adults	6-11 months	Utilization, clinical	Good
Markovitz A. et al, 2015 (78)	University of Michigan, MI	Pre-test/post-test	Adults	36+ months	Processes of care	Good
Page T. et al, 2015 (53)	Health Choice Network of Florida (FQHC), FL	Retrospective pre-test/post-test cohort	Adults with diabetes	12-23 months	Utilization, processes of care	Fair
Carrillo J. et al, 2014 (26)	NY Presbyterian / Columbia - Regional Health Collaborative, NY	Pre-test/post-test	Adults	36+ months	Utilization, economic	Good
Higgins S. et al, 2014 (79)	Pennsylvania Chronic Care Initiative, PA	Longitudinal case control	Adults	36+ months	Utilization, economic	Good
Heyworth L. et al, 2014 (61)	Harvard Vanguard Medical Associates, MA	Pre-test/post-test	Adults	36+ months	Patient satisfaction	Fair
Fillmore H. et al, 2014 (41)	Community Care of North Carolina, NC	Quasi-experimental	Adults	36+ months	Economic	Fair
Rosenthal M. et al, 2013 (54)	Rhode Island Chronic Care Sustainability Initiative, RI	Quasi-experimental pre/post cohort	Adults	24-35 months	Utilization, processes of care	Good
Hochman M. et al, 2014 (62)	University of Southern California Medical Center, CA	Pre-test/post-test	Adults	12-23 months	Utilization, patient satisfaction	Good
Werner R. et al, 2013 (55)	Horizon Blue Cross Blue Shield of New Jersey, NJ	Pre-test/post-test	Adults	24-35 months	Utilization, economic, processes of care	Good
Fifield J. et al, 2013 (56)	Emblem Health Inc., NY	RCT	Adults	12-23 months	Utilization, economic, processes of care	Good
Schmidt L. et al, 2013 (60)	Safety net clinics in Orleans Parish, New Orleans LA	Pre-test/post-test	Adults in safety net clinics	Not specified	Patient Satisfaction	Poor

Isetts B. et al, 2012 (80)	Fairview Health Services of Minneapolis, MN	Pre-test/post-test	Adults	12-23 months	Economic	Fair
Carrillo J. et al, 2011 (27)	NY Presby Regional Health Collaborative, NY	Pre-test/post-test	Hispanic adults with DM, asthma, or CHF	6-11 months	Utilization	Fair
Gabbay R. et al. 2011 (57)	Pennsylvania Governor's Office Health Care Reform, PA	Quasi-experimental	Adults	12-23 months	Processes	Fair
Lee K. et al, 2011 (81)	Jacksonville Urban Disparity Institute, FL	Retrospective	Adults	36+ months	Clinical	Good
Roby D. et al, 2010 (28)	Orange County Health Care Coverage Institute, FL	Retrospective	Adults	36+ months	Utilization	Good
Hassaballa I. et al, 2015 (48)	Whittier Street Health Center, MA	Pre-test/post-test	Adults	24-35 months	Clinical	Fair
White B. et al, 2014 (82)	Oregon Health and Science University, OR	Retrospective	Adults	12-23 months	Utilization	Good

Appendix 7: Text Depiction of Flow Diagram

Records # breakdown after EndNote deduping
Total number of records **13938** (**5921** duplicate records removed from **19859**)

PubMed 6738
Embase.com 5534
Cochrane Library Databases 1666
CDSR (Cochrane Database of Systematic Reviews): Issue 3 of 12, March 2017
Records = 189
DARE (Database of Abstracts of Reviews of Effect): Issue 2 of 4, April 2015
Records = 121
CENTRAL (Cochrane Central Register of Controlled Trials): Issue 2 of 12, February 2017
Records = 1213
Cochrane Methodology Register: Issue 3 of 4, July 2012
Records = 3
HTAD (Health Technology Assessment Database): Issue 4 of 4, October 2016
Records = 45
NHSEED (NHS Economic Evaluation Database): Issue 2 of 4, April 2015
Records = 95

Record # breakdown before EndNote deduping:
Total number of records **19859**
PubMed 6761
Embase.com 9923
Cochrane Library Databases 3175
CDSR (Cochrane Database of Systematic Reviews): Issue 3 of 12, March 2017
Records = 208
DARE (Database of Abstracts of Reviews of Effect): Issue 2 of 4, April 2015
Records = 134
CENTRAL (Cochrane Central Register of Controlled Trials): Issue 2 of 12, February 2017
Records = 2649
Cochrane Methodology Register: Issue 3 of 4, July 2012
Records = 7
HTAD (Health Technology Assessment Database): Issue 4 of 4, October 2016
Records = 51
NHSEED (NHS Economic Evaluation Database): Issue 2 of 4, April 2015
Records = 126

Appendix 8: Screening Questions by Level

1) Does the study fit any of the criteria (see below) for the patient centered medical home?

A Team based care. B) An intervention that includes any of the following: enhanced access to care

- coordinated care
- comprehensive healthcare delivery
- systems based approach to improving quality and safety

A sustained partnership and personal relationship over time that is patient centered

Reorganization and structural changes to the traditional practice of healthcare delivery in a primary care setting

2) Does the study involve adults in an internal medicine (inpatient/outpatient), family practice, or geriatrics setting? Please indicate no for surgical or pediatric articles.

3) Is the study based in the US?

4) Is the study a randomized control trial or observational study?

5) Is the study one of the following? A) Editorial B) Conference Abstract C) Review Article

6. Is the publication date from 2004-2017?

Level 2:

1. Was the majority of the study conducted in the outpatient, primary care (internal medicine, family medicine, or geriatrics) setting?
2. Did the study intervention include only telehealth or electronic health record (EHR/EMR) intervention?
3. Did the study address patient or population outcomes?
4. Is the study based in the US?
5. Does data collection end prior to the year 2004?
6. Is this a systematic review, commentary, meta-analysis, or qualitative study?

70 **Appendix 9: All Included Studies and Outcomes**

Study, Year (Reference)	*Location, Organization* *Population* *Payer and payment mix (when available)*	*Study Type* *Follow-up duration*	*Quality*	*Outcome Category*	*Outcome*	*Reported Outcome Changes*
Characteristics of Included Studies within Integrated Delivery and Finance Systems (IDFS)						
Reiss-Brennan B. et al, 2016 (12)	UT and Idaho, Intermountain Health Adults Intermountain Health Insurance, mixed payment	Quasi-experimental 36+ months	Good	Processes of care: screening	Depression screening rates among patients with depression, PCMH relative to usual care	OR 1.91 (CI 1.75, 2.08, p <.001)
				Processes of care: adherence to care plan or guidelines	Adherence to diabetes bundle, PCMH relative to usual care	OR 1.21 (CI 1.11 ,1.42, p<.001)
				Processes of care: adherence to care plan or guidelines	Documented self-care plan, PCMH relative to usual care	OR 5.59 (CI 4.27, 7.33, p<.001)
				Processes of care: adherence to care plan or guidelines	Hypertension in control (<140/90mmgHg), PCMH relative to usual care	OR 0.87 (CI 0.80, 0.95, p=.002)
				Processes of care: adherence to care plan or guidelines	Documented advanced directives, PCMH relative to usual care	OR 0.97 (CI .91, 1.03, p .28)
				Processes of care: adherence to care plan or guidelines	Annual visit with PCP, PCMH relative to usual care	OR 1.09 (CI 1.03, 1.15, p=.002)
				Utilization: admissions	Hospital admissions, PCMH relative to usual care	IRR 0.89 (CI .85, .93, p<.001)

				Utilization: ED visits	ED visits, PCMH relative to usual care	IRR 0.77 (CI .74-.80, p<.001)
				Utilization: outpatient visits	Ambulatory sensitive visits, PCMH relative to usual care	IRR 0.77 (CI .70, .85, p<.001)
				Utilization: outpatient visits	PCP visits, PCMH relative to usual care	IRR 0.93 (CI .92, .94, p<.001)
				Utilization: outpatient visits	Specialty visits, PCMH relative to usual care	IRR 0.98 (CI .97, .99, p=.02)
				Utilization: outpatient visits	Urgent care visits, PCMH relative to usual care	IRR 0.99 (CI .97-1.02, p=.74)
				Economic: total cost	Payments received by health system by insurances, PCMH relative to usual care	$115.09 decrease; $3400.62 vs $3515.71 (p=.008)
Green B. et al, 2016 (50)	WA, Group Health Adults Group Health Insurance, mixed payer	RCT 12-23 months	Good	Processes of care: screening	Colorectal cancer screening rate with >8 months of intervention exposure vs <4 months, PCMH relative to usual care	10.1% increase (CI 5.7%, 14.6%)
Maeng D. et al, 2015 (35)	PA, Geisinger Older Adults Geisinger Insurance	Retrospective cohort 36+ months	Good	Economic: total cost	Adjusted cost estimate of PCMH intervention minus expected cost	$53 or 7.9% decrease (CI -$100, -$6)
				Economic: inpatient cost	Adjusted cost estimate of PCMH intervention minus expected cost	$34 or 18.7% decrease (CI -$60, -$9)
				Economic: outpatient cost	Adjusted cost estimate of PCMH intervention minus expected cost	$9 or 5.1% decrease (CI -$26, $9)
				Economic: professional cost	Adjusted cost estimate of PCMH intervention minus expected cost	$4 or 2.7% decrease (CI -$15, $7)
				Economic: prescription cost	Adjusted cost estimate of PCMH intervention minus expected cost	$7 or 6.8% decrease (CI -$18, $3)
Liss D. et al, 2014 (72)	WA, Group Health Adults	Pre-test/post-test 36+ months	Good	Utilization: outpatient visits	Overall specialty use rate	Year 1: RR 0.93 (p<.001); Year 2: RR 0.96 (p=.02) Year 3: 0.98 (p=.23)

	Group Health Insurance Mix (48.8% commercial, 49.9% Medicare)					
				Adjusted RR of specialty care at 2nd year post PCMH implementation listed by specialty, PCMC relative to usual care	Behavioral health	RR 1.23 (CI 1.14, 1.33, p<.001)
					Cardiology	RR 0.99 (CI 0.95, 1.02)
					Consultative Internal Medicine	RR 0.61 (CI 0.54, 0.68, p<.001)
					Eye Care	RR 1.08 (CI 1.06, 1.11, p<.001)
					Gastroenterology	RR 0.86 (CI 0.81, 0.93, p<.001)
					General Surgery	RR 1.01 (CI 0.93, 1.10)
					Neurology	RR 1.24 (CI 1.13, 1.37, p<.001)
					Obstetrics/Gynecology	RR 1.09 (CI .98, 1.21)
					Orthopedic Surgery	RR 1.11 (CI 1.05, 1.17, p<.001)
					Urology	RR 1.04 (CI 0.95, 1.13)
Graham J. et al, 2015 (45)	PA, Geisinger Adults Geisinger insurance	Cohort 12-23 months	Fair	Health: Mortality	Deaths at 12 months, PCMH relative to usual care	15% decrease (11% vs 25%, p<.01)
				Health: pain	Harris Hip pain score (0-91 scale, 91=best), PCMH relative to usual care	73 vs 64 (p=.04)
				Health: quality of life	EQ-5D quality of life scale (0-1, 1=best), PCMH relative to usual care	0.76 vs 0.73 (p=.49)
				Economic: total cost	Mean total cost PMPM, PCMH relative to usual care	$1281 vs $1496 (p=.52)
				Economic: pharmacy cost	Mean pharmacy cost PMPM, PCMH relative to usual care	$69 vs 141 (p=.20)

				Economic: non-pharmacy cost	Mean non-pharmacy cost, PCMH relative to usual care	$1212 vs $1452 (p=.52)
				Utilization: ED visits	Visits per 100 patients at 12 months, PCMH relative to usual care	69.6 vs 54.3 (p=.42)
				Utilization: admissions	Admissions per 100 patients at 12 months, PCMH relative to usual care	23.3 vs 25.7 (p=.83)
				Utilization: prescriptions	Prescription orders per patient at 12 months, PCMH relative to usual care	56.2 vs 40.2 (p=.16)
Liss D. et al, 2013 (44)	WA, Group Health Adults with DM, HTN, and CAD Insurance mixed	Pre-test/post-test 24-35 months	Fair	Clinical: Hgb A1c	Adjusted RR of mean Hgb A1c in PCMH cohort relative usual care at 2 year follow up	0.15% decrease in Hgb A1c (p<.001)
				Clinical: Blood pressure (systolic)	Adjusted RR of mean systolic BP in PCMH cohort relative usual care at 2 year follow up	0.2 mmHg decrease in systolic BP (RR -0.43, p>.05)
				Clinical: lipids	Adjusted RR of mean LDL in PCMH cohort relative usual care at 2 year follow up	2.4 mg/dL decrease in LDL (RR -2.20, p<.01)
				Processes of care: Hgb A1c at goal	Number of patients with Hgb A1c <9.0 in PCMH cohort relative usual care at 2 year follow up	4 patient increase (RR 1.03, p<.05)
				Processes of care: Blood pressure at goal	Number of patients with BP <140/90 in PCMH cohort relative usual care at 2 year follow up	1 patient increase (RR 1.01, p>.05)
				Processes of care: Lipids at goal	Number of patients with LDL <100 mg/dL in PCMH cohort relative usual care at 2 year follow up	9 patient increase (RR 1.11, p<.01)
				Processes of care: screening	Number of patients with Hgb A1c screening in PCMH cohort relative usual care at 2 year follow up	1 patient decrease (RR 1.01, p<.05)
				Processes of care: screening	Number of patients with LDL screening in PCMH cohort relative usual care at 2 year follow up	1 patient increase (RR 1.00, p>.05)
Reid, R et al, 2013 (13)	WA, Group Health Adults	Interrupted time series analysis	Fair	Utilization: outpatient visits	PCP visits/month; adjusted change in use per 1000 enrollees, PCMH relative to control	Year 2: 9.65% decrease (p<.001); Year 3 12.62% decrease (p<.001)

	Group Health Insurance Mix (Commercial > Medicare > Medicaid > other)	36+ months				
				Utilization: ED visits	ED visits/month; adjusted change in use per 1000 enrollees, PCMH relative to control	Year 2: 1.73% decrease (p<.001); Year 3: 2.31% decrease (p<.001)
				Utilization: admissions	Inpatient visits/month; adjusted change in use per 1000 enrollees, PCMH relative to control	Year 2: 0.01% decrease (p=.93); Year 3: 0.05% increase (p=.74)
				Utilization: admissions	Ambulatory care sensitive admissions/visit: adjusted change in use per 1000 enrollees, PCMH relative to control	Year 2: 0.02% decrease (p=.61); Year 3: 0.03% increase (p=.49)
Maeng D. et al, 2013 (58)	PA, Geisinger Adults Geisinger Insurance Mix (Medicare, Medicaid > Commercial)	Cohort 36+ months	Fair	Patient satisfaction:	Noticed difference in care	13.8% increase (p<.05)
				Adjusted difference in rates of patient response to survey questions, PCMH relative to usual care	Noticed difference in care coordination	19.6% increase (p<.05)
					Noticed difference in service	16.8% increase (p<.05)
					Feel quality is higher	10.4% increase (p<.05)
					Source of care PCP	15.4% increase (p<.05)
					Source of care ED	12.3% decrease (p<.05)
					Got care on same day	0.8% decrease (NS)
					Specialist appointment within 1 week	0.9% decrease (NS)
					Not difficult to contact via phone	9.7% decrease (NS)
					Not difficult to contact on weekend/night	0.6% decrease (NS)
					Got test results in 1 week	2.5% increase (NS)
					PCP always listens to concerns	4.4% increase (NS)

					PCP always explains	4.0% increase (NS)
					PCP always involves patient	3.4% increase (NS)
					PCP gives clear instructions	0.3% decrease (NS)
					PCP informed about specialist care	1.2% increase (NS)
					PCP informed about ED or inpatient care	1.6% decrease (NS)
					PCP schedules for preventative services	1.7% increase (NS)
					Nurses and receptionists helpful	0% increase (NS)
Rosenberg C. et al, 2012 (14)	PA, UPMC Adults UPMC Insurance Mix (Commercial > Medicaid > Medicare > Other)	Quasi-experimental 24-35 months	Fair	Economic: total cost	Difference in PMPM costs, PCMH relative to usual care	Year 1: $16.31 increase (p<.0001); Year 2: $15.84 decrease (p<.0001)
				Economic: medical cost	Difference in PMPM costs, PCMH relative to usual care	Year 1: $9.41 increase (p<.001); Year 2: $4.73 decrease (NS)
				Economic: pharmacy cost	Difference in PMPM costs, PCMH relative to usual care	Year 1: $6.91 increase (p<.0001); Year 2: $11.11 decrease (p<.0001)
				Economic: ED cost	Difference in PMPM costs, PCMH relative to usual care	Year 1: $0.41 increase (NS); Year 2: $0.30 decrease (NS)
				Economic: outpatient cost	Difference in PMPM costs of primary care, PCMH relative to usual care	Year 1: $0.46 increase (p<.001); Year 2: $0.46 increase (p<.01)
				Economic: outpatient cost	Difference in PMPM costs of specialty care, PCMH relative to usual care	Year 1: $0.74 increase (p<.01); Year 2: $0.53 decrease (NS)
				Economic: laboratory cost	Difference in PMPM costs, PCMH relative to usual care	Year 1: $0.34 increase (p<.001); Year 2: $0.55 increase (p<.001)
				Utilization: admissions	Percent change in use / 1000 members, PCMH relative to usual care	Year 1: 2.5% decrease (p<.05); Year 2: 4.4% decrease (NS)

				Utilization: readmissions	Percent change in use / 1000 members, PCMH relative to usual care	Year 1: 12.9% decrease (p<.05); Year 2: 16.9% decrease (p<.05)
				Utilization: ED visits	Percent change in use / 1000 members, PCMH relative to usual care	Year 1: 2.0% decrease (p<.05); Year 2: 3.6% decrease (p<.05)
Katon W. et al, 2012 (43)	WA, Group Health Adults Insurance mix not specified	RCT 24-35 months	Good	Clinical: depression	SCL-20 score, estimated group difference, PCMH relative to usual care at 12 months	-0.41% (CI -.56, -.26)
				Clinical: Hgb A1c	Hgb A1c%, estimated group difference, PCMH relative to usual care at 12 months	-0.56% (CI -.85, -.27)
				Clinical: lipids	LDL in mg/dL, estimated group difference, PCMH relative to usual care at 12 months	-9.1 (CI -17.5, -.8)
				Clinical: blood pressure	Systolic blood pressure in mmHg, estimated group difference, PCMH relative to usual care at 12 months	-3.4% (CI -6.9, 0.1)
				Economic: outpatient cost	Estimated difference in total outpatient costs in primary and secondary sensitivity analysis at 24 months, PCMH relative to usual care	Primary: $594 decrease (NS); Secondary: $1116 decrease (NS)
Maeng D. et al 2012 (36)	PA, Geisinger Older Adults Geisinger Insurance (Medicare only)	Retrospective cohort 36+ months	Good	Economic: total cost	Estimated regression cost difference with PMCH exposure by time without prescription drug coverage interaction, in $PMPM	Months 1-6: $24.08 decrease (p<.1); Months 7-12: $20.58 decrease (NS); Months 13-24: $33.51 decrease (NS); Month >24: $59.70 decrease (p<.1)
					Estimated regression cost difference with PMCH exposure by time with prescription drug coverage interaction, in $PMPM	Months 1-6: $38.11 decrease (p<.1); Months 7-12: $37.13 decrease (p<.1); Months 13-24: $62.35 decrease (NS); Month >24: $108.30 decrease (p<.05)

Fishman P. et al, 2012 (15)	WA, Group Health Older Adults Group Health (Medicare only)	Pre-test/post-test 36+ months	Fair	Patient satisfaction: adjusted differences on 100-point scale in responses between patients at PCMH and control clinic, PCMH relative to control	Quality of doctor-patient interaction	1 year: 1.31 (NS); 2 year: 1.43 (NS)
					Shared decision making	1 year: 4.28 (p<.01); 2 year: 1.58 (NS)
					Coordination of care	1 year: 2.88 (p<.05); 2 year: 3.16 (p<.05)
					Access to care	1 year: 3.78 (p<.001); 2 year: 3.00 (p<.05)
					Helpfulness of staff	1 year: 0.51 (NS); 2 year: 1.03 (NS)
					Patient Activation	1 year: 2.63 (NS); 2 year: 2.38 (NS)
					Goal setting	1 year: 0.74 (NS); 2 year: 3.48 (NS)
				Utilization: admissions	Ambulatory care sensitive admissions in visits per 1000 patients per month, relative difference in PCMH relative to usual care	Year 1: 75% (p<.001); Year 2: 82% (p=.002)
				Utilization: admissions	Total admissions in visits per 1000 patients per month, relative difference in PCMH relative to usual care	Year 1: 98% (p=.625); Year 2: 95% (p=.265)
				Utilization: outpatient	PCP visits per 1000 patients per month, relative difference in PCMH relative to usual care	Year 1: 96% (p=.052); Year 2: 93% (p<.001)
				Utilization: outpatient	Specialty visits per 1000 patients per month, relative difference in PCMH relative to usual care	Year 1: 108% (p=.001); Year 2: 105% (p=.036)
				Utilization: ED visits	ED visits per 1000 patients per month, relative difference in PCMH relative to usual care	Year 1: 78% (p<.001); Year 2: 79% (p<.001)
				Utilization: telephone visits	Telephone encounters per 1000 patients per month, relative difference in PCMH relative to usual care	Year 1: 117% (p<.001); Year 2: 110% (p=.265)

				Utilization: nursing calls	Consulting nursing calls per 1000 patients per month, relative difference in PCMH relative to usual care	Year 1: 91% (p=.007); Year 2: 85% (p<.001)
				Utilization: secure messages	Secure messages per 1000 patients per month, relative difference in PCMH relative to usual care	Year 1: 208% (p<.001); Year 2: 200% (p=.001)
				Economic: total cost	Comparison of adjusted costs $PMPM, PCMH relative to usual care	Year 1: $2.79 increase (p=.892); Year 2: $5.92 decrease (p=.781)
				Economic: primary care cost		Year 1: $2.18 increase (p=.112); Year 2: $1.46 increase (p=.283)
				Economic: specialty care		Year 1: $22.74 increase (p<.001); Year 2: $18.82 increase (p<.001)
				Economic: ED cost		Year 1: $0.76 decrease (p=.537); Year 2: $1.13 decrease (p=.454)
				Economic: inpatient costs		Year 1: $26.18 decrease (p=.054); Year 2: $17.08 decrease (p=.261)
Maeng D. et al 2012 (42)	PA, Geisinger Adults Geisinger Insurance (Medicare only)	Retrospective cohort 36+ months	Good	Clinical: amputation	Odds ratio of outcome, PCMH relative to usual care	OR 0.178 (CI 0.048, 0.664, p<.01))
				Clinical: new ESRD	Odds ratio of outcome, PCMH relative to usual care	OR 0.688 (CI 0.518, 0.915, p<.01)
				Clinical: Myocardial infarction	Odds ratio of outcome, PCMH relative to usual care	OR 1.067 (CI 0.993, 1.146, NS)
				Clinical: CVA	Odds ratio of outcome, PCMH relative to usual care	OR 0.986 (CI 0.946, 1.027, NS)
Gilfillan R. et al, 2010 (16)	PA, Geisinger Adults[a]	Retrospective cohort 36+ months	Good	Process of care: screening	Proportion of Hgb A1c testing in patients with DM, PCMH relative to usual care	4.37% decrease (p<.01)

	Geisinger Insurance Mix (PPO > HMO > other)					
				Process of care: screening	Proportion of lipid screening in patients with DM, PCMH relative to usual care	2.04% decrease (p=.103)
				Process of care: screening	Proportion of retinopathy screening in patients with DM, PCMH relative to usual care	2.72% decrease (p=.079)
				Process of care: screening	Proportion of patients with DM needing medical treatment for nephropathy, PCMH relative to usual care	3.15% decrease (p=.011)
				Process of care: screening	Proportion of patients with LDL screening, total cohort, PCMH relative to usual care	2.42% decrease (p=.047)
				Utilization: ED visits	Point estimate OR of ED visits PCMH relative to usual care	OR 0.878 (CI 0.827, .993)
				Utilization: admissions	Point estimate OR of inpatient hospitalization, PCMH relative to usual care	OR 0.886 (CI 0.844, 0.930)
					Risk adjusted difference in total cost $PMPM, medical benefit only, PCMH relative to usual care	12.65% decrease (from $515.13 to 449.99)
				Economic: total cost	Risk adjusted difference in total cost $PMPM, medical and pharmacy benefit only, PCMH relative to usual care	14.50% decrease (from $638.87 to 546.26)
Reid, R et al, 2009 (17)	WA, Group Health Adults Group Health Insurance (mix not specified)	Quasi-experimental 12-23 months	Fair	Utilization: ED visits	Adjusted ED utilization rate ratio, PCMH relative to usual care	Rate Ratio 0.71 (p<.001)
				Utilization: ambulatory visits	Adjusted PCP utilization rate ratio, PCMH relative to usual care	Rate ratio: 0.94 (p<.001)
				Utilization: ambulatory visits	Adjusted specialty utilization rate ratio, PCMH relative to usual care	Rate ratio: 1.08 (p<.001)
				Utilization: admissions	Adjusted total utilization rate ratio, PCMH relative to usual care	Rate ratio: 1.03 (NS)

				Utilization: admissions	Adjusted ambulatory care sensitive utilization rate ratio, PCMH relative to usual care	Rate ratio: 0.89 (p<.001)
				Economic: total cost	Adjusted difference in mean cost, $per member per year	$17 decrease (from $6089 to 6107) NS)
				Economic: primary care cost	Adjusted difference in mean cost, $per member per year	$16 increase (from $566 to 582, p<.05)
				Economic: ED cost	Adjusted difference in mean cost, $per member per year	$54 decrease (from $292 to 238, p<.001)
				Economic: specialty care cost	Adjusted difference in mean cost, $per member per year	$37 increase (from $1104 to 1140, NS)
				Economic: inpatient costs	Adjusted difference in mean cost, $per member per year	$9 increase (from $2174 to 2183, NS)
Characteristics of Included Studies within Government Systems						
Edwards S. et al, 2017 (73)	USA, VA Older adult Veterans with diabetes VA	Quasi-experimental 36+ months	Good	Utilization: hospitalizations	OR for rates of hospitalizations for specific conditions, PCMH relative to usual care	Ambulatory care-sensitive hospitalizations: OR 0.35 (CI .30, .42)
						Dehydration: OR 0.21 (CI .14, .31)
						CHF: OR 0.46 (CI 0.35, 0.60)
						UTI: OR 0.46 (CI .31, 0.71)
						Long-Term Diabetes Complications: OR 0.49 (CI .33, 0.75)
						COPD: OR 0.64 (0.42-0.98)
						No significant changes in hospitalizations for HTN, uncontrolled DM, or angina.
Wong E. et al, 2016 (74)	USA, VA Adult Veterans	Retrospective pre-test/post-test	Good	Utilization: outpatient visits	PCP visits in patients 65+, low-comorbidity, PCMH relative to usual care	0.5% increase (p=.029)

	VA	36+ months				
					PCP visits in patients 65+, high-comorbidity, PCMH relative to usual care	0.8 to 1.1% increase (p=.004)
					PCP visits in patients <65, low-comorbidity, PCMH relative to usual care	1.1% increase (p=.062)
					PCP visits in patients <65, high-comorbidity, PCMH relative to usual care	2.1% increase (p=.023)
Schubert C. et al, 2016 (38)	IN, VA Older Veterans VA	Prospective quasi-experimental 13-23 months		Utilization: ED visits	Difference-in-difference rates of ED visits, PMCH relative to usual care	7.1% decrease (p=.59)
				Utilization: hospitalizations	Difference-in-difference rates of hospitalizations, PMCH relative to usual care	37.9% decrease (p=.14)
				Utilization: readmissions	Difference-in-difference rates of 30-day readmissions, PMCH relative to usual care	14.8% decrease (p=.19)
				Utilization: total bed days	Difference-in-difference rates of total bed days, PMCH relative to usual care	28.5% decrease (p=.01)
				Economic: total cost	Estimated cost saving for PCMH implementation at 1 center (based on 15 avoided admissions and 53 readmissions minus the cost of program staff which included NPs, SWs, and support assistant)	$273, 303
O'Toole T. et al, 2016 (18)	USA, VA Adult Veterans VA	Cohort 24-35 months	Fair	Utilization: ED visits	Pre-post difference in rates of ED visits at 6 months, PCMH relative to usual care	19% decrease (from 3022 visits to 2447 visits)
				Utilization: admissions	Pre-post difference in rates of hospitalizations at 6 months, PCMH relative to usual care	34.7% decrease (from 812 hospitalizations to 530 hospitalizations)

Yoon J. et al, 2016 (33)	USA, VA Adult Veterans VA	Cohort 36+ months	Good	Utilization: hospitalizations	All cause admissions, advanced EBQI-PACT to PACT care	IRR 1.05 (p=.570)
				Utilization: ED visits	ED visits, advanced EBQI-PACT to PACT care	IRR 1.23 (p=.137)
				Utilization: readmissions	Readmissions for ambulatory care sensitive conditions, advanced EBQI-PACT to PACT care	IRR 1.42 (p=.319)
				Utilization: telephone encounters	Telephone encounters, advanced EBQI-PACT to PACT care	IRR 1.59 (p=.127)
				Utilization: laboratory visits	Laboratory visits, advanced EBQI-PACT to PACT care	IRR 0.89 (p=.004)
				Utilization: outpatient visits	Primary Care visits, advanced EBQI-PACT to PACT care	IRR 0.85 (p<.001)
				Utilization: outpatient visits	Specialty visits, advanced EBQI-PACT to PACT care	IRR 0.83 (p<.001)
				Utilization: outpatient visits	Mental health/substance abuse visits, advanced EBQI-PACT to PACT care	IRR 0.69 (p<.001)
				Economic: costs	Log of health care costs, log coefficient, advanced EBQI-PACT to PACT care	Coefficient -0.03 (p=.615)
				Clinical: mortality	OR for mortality at 1 year,advanced EBQI-PACT to PACT care	OR 1.27 (p=.147)
Andrews C. et al, 2015 (19)	USA, Military Health System Adults in military Military Health System insurance	Pre-test/post-test 36+ months	Good	Clinical: Hgb A1c	Average Hgb A1c, difference from start of intervention to end of study	0.14% decrease in Hgb A1c (7.12 to 6.98%, p<.001)
				Utilization: ED visits	Mean ED visits/ person from start of intervention to end of study	.09 visit increase (from 1.42 to 1.51)
				Utilization: ED visits	Overall ED visits/100 people from start of intervention to end of study	5.73 visit decrease (from 22.45 to 16.72)
Yoon J. et al, 2015 (67)	USA, VA Adult Veterans	Retrospective pre-test/post-test cohort	Good	Utilization: outpatient visits	PCP visits; percent change PCMH relative to usual care	17% decrease (p<.001)

	VA	24-35 months				
				Utilization: outpatient visits	Specialty visits; percent change PCMH relative to usual care	2% increase (p<.001)
				Utilization: telephone visits	Percent change PCMH relative to usual care	85% increase (p<.001)
				Utilization: ED visits	Percent change PCMH relative to usual care	7% increase (p<.001)
				Utilizations: admissions	Hospitalizations for ambulatory care sensitive condition; percent change PCMH relative to usual care	50% increase (p<.001)
				Economic: total cost	Percent change PCMH relative to usual care	17% increase (p<.001)
Bekelman D. et al, 2015 (46)	USA, VA Adult Veterans VA	RCT 12-23 months	Good	Clinical: health status	KCCQ overall summary score (higher scores better), PCMH relative to usual care	1 year: 54.2 vs 53.6 (p=.97)
				Clinical: mortality	1 year mortality rate, PMCH relative to usual care	5.3% decrease (from 9.6% to 4.3%, p=0.04)
				Clinical: mental health	Depression scores on PHQ-9 (lower scores better), PCMH relative to usual care	2.1 point decrease (CI 0.43, 3.78, p=.01)
				Utilization: admissions	1 year hospitalization rates, PCMH relative to usual care	29.4% vs 29.9% (p=.87)
Randall I. et al, 2017 (29)	USA, VA Adult Veterans VA	Retrospective pre-test/post-test cohort 36+ months	Fair	Utilization: hospitalizations	Estimated percentage change from pre-intervention to PCMH	8.61% decrease (p<.05)
				Utilization: outpatient visits	PCP visits, estimated percentage change from pre-intervention to PCMH	10.7% increase (p<.05)
				Utilization: outpatient visits	Specialty visits, estimated percentage change from pre-intervention to PCMH	7.54% decrease (p<.05)
				Utilization: outpatient visits	Mental health visits, estimated percentage change from pre-intervention to PCMH	1.59% decrease (NS)
				Utilization: outpatient visits	Urgent care visits, estimated percentage change from pre-intervention to PCMH	15.54% decrease (NS)

				Utilization: ED visits	Estimated percentage change from pre-intervention to PCMH	0.59% decrease (NS)
Fandre M. et al, 2014 (20)	KY, Military Health System Adults, non-active duty Army Miltary Health System insurance	Retrospective cohort 6-11 months	Fair	Utilization: ED visits	Logistic regression model with log odds estimating effect of PCMH enrollment on ED visit rates	OR: 0.334 (p=0.334)
Smith J. et al, 2014 (21)	AK, Indian Health System Adults with Indian Health System benefits Indian Health System insurance	Pre-test/post-test 36+ months	Fair	Process of care: diagnosis	Rates of diagnosis of DM/10,000, PCMH relative to usual care	2 diagnosis/10,000/month increase (p=.017)
				Processes of care: Hgb A1c at goal	Hgb A1c <7%, PCMH relative to usual care	6.2 screened patients/month increase (p=.135)
				Utilization: screening	Annual Hgb A1c screening rate/100, PCMH relative to usual care	Rates of screening (NS)
				Utilization: ED visits	Average number of ED visits per patient, PCMH relative to usual care	1 ED visit/10 patient decrease (p<.001)
				Utilization: admissions	Average number of inpatient days for patients with DM, PCMH relative to usual care	Number of inpatient days (NS)
Hebert P. et al, 2014 (37)	USA, VA Adult Veterans VA	Pre-test/post-test 36+ months	Good	Utilization: admissions	Ambulatory care sensitive hospitalizations; % change in utilization for all ages from 2010 to 2012, PCMH relative to usual care	1.7% decrease (p<.05)
				Utilization: admissions	Medical condition hospitalizations; % change in utilization for all ages from 2010 to 2012, PCMH relative to usual care	0.1% decrease (NS)

				Utilization: admissions	Mental health hospitalizations; % change in utilization for all ages from 2010 to 2012, PCMH relative to usual care	0.1% increase (NS)
				Utilization: outpatient visits	PCP visit % change in utilization for all ages from 2010 to 2012, PCMH relative to usual care	1.0% increase (p<.05)
				Utilization: outpatient visits	Mental health visit % change in utilization for all ages from 2010 to 2012, PCMH relative to usual care	7.3% decrease (p<.05)
				Utilization: outpatient visits	Urgent care visit % change in utilization for all ages from 2010 to 2012, PCMH relative to usual care	1.4% decrease (NS)
				Utilization: outpatient visits	Specialty visit % change in utilization for all ages from 2010 to 2012, PCMH relative to usual care	1.2% decrease (NS)
				Utilization: ED visits	Total % change in utilization for all ages from 2010 to 2012, PCMH relative to usual care	1.6% increase (NS)
				Economic: outpatient cost	Primary care estimated cost change in $millions, PCMH relative to usual care	$155.0M increase
				Economic: outpatient cost	Mental health care estimated cost change in $millions, PCMH relative to usual care	$735.8M decrease
				Economic: inpatient cost	Estimated cost change in $millions, PCMH relative to usual care	$58.5M decrease
				Economic: total cost	Estimated cost change in $millions, PCMH relative to usual care	$639.3M decrease
Werner R. et al, 2014 (9)	USA, VA Adult Veterans VA	Pre-test/post-test 24-35 months	Good	Utilization: telephone visits	Effect of PCMH implementation on telephone visits, PMCH relative to usual care	ES 0.007 (NS)
				Utilization: ED visits	Effect of PCMH on ED visits, PCMH relative to usual care	ES -0.012 (NS)
				Processes of care: follow up appointment	Effect of PMCH on ability for patient to obtain appointment within 3 days of desired date, PCMH relative to usual care	ES 0.119 (p<.01)
				Processes of care: follow up appointment	Effect of PCMH on contact within 2 days of discharge, PCMH relative to usual care	ES -0.003 (NS)

Johnston J. et al, 2013 (22)	AK, Indian Health Services Adults with Indian Health System benefits	Prospective cohort 36+ months		Utilization: admissions	Hospital admissions as % of population from initiation of PCMH program to end of study	0.17% decrease (from 0.91% to 0.74%, p<.001))
				Utilization: ED visits	ED visits as % of population from initiation of PCMH program to end of study	1.72% decrease (from 7.56% to 5.84%, p=0.035)
				Utilization: admissions	Asthma admissions as % of population from initiation of PCMH program to end of study period	0.1% decrease (0.7% to 0.6%, p <.001)
Yoon J. et al, 2013 (75)	USA, VA Adult Veterans VA	Quasi-experimental 12-23 months	Fair	Utilization: admissions	Adjusted odds ratio for admission based on primary care clinics with greater medical home adoption scores	OR 0.97 (p<.05)
Christensen E. et al, 2013 (59)	MD, Military Health System Adults in military Indian Health System insurance	Quasi-experimental 36+ months		Patient satisfaction: Difference in rate of positive survey response, PMCH relative to usual rate	Satisfied with health care at clinic	3.61% increase (p<.01)
					High rating of PCP	3.49% increase (p<.05)
					Access to care (composite)	9.75% increase (p<.001)
					Access to PCP when needed	11.06% increase (p<.001)
					Satisfied with ease of scheduling	5.66% increase (p<.001)
					Provider communication (composite)	2.79% increase (p<.01)
					PCP listen carefully often or always	2.93% increase (p<.01)
					PCP explains things often or always	3.61% increase (p<.01)
					Customer service (composite)	4.51% increase (p<.001)
					Trust in staff (composite)	2.01% increase (p<.01)
					Patient activation (composite)	6.46% increase (p<.01)
O'Toole T. et al, 2011 (47)	USA, VA Adult Veterans	Quasi-experimental	Fair	Utilization: ED visits	Rates of ED visit prior to and after PCMH implementation	8.8% increase (P<.001)

	VA	24-35 months				
				Utilization: outpatient visits	Rates of visit type prior to and after PCMH implementation	25.2% increase (NS)
				Utilization: admissions	Rates of inpatient visits type prior to and after PCMH implementation	7.5% increase (p<.001)
				Clinical: blood pressure	Difference in rates of patients at BP goal of 140/90 prior to and after PCMH implementation	17.3% increase (p<.001)
				Clinical: Hgb A1c	Difference in rates of patients at Hgb A1c goal of <9% prior to and after PCMH implementation	18.6% decrease (p<.001)
				Clinical: lipids	Difference in rates of patients at LDL <100 mg/dL prior to and after PCMH implementation	2.4% increase (p=.50)
O'Toole T. et al, 2010 (30)	RI, VA Adult Veterans, predominantly homeless VA	Retrospective cohort 12-23 months	Good	Clinical: blood pressure	Difference in blood pressure, PCMH relative to usual care	PCMH BP: -10/-7.4 relative to usual care -4.2/-0.5; Systolic p=0.24, diastolic p=0.03
				Clinical: lipids	Difference in LDL mg/dL, PCMH relative to usual care	5.8mg/dL decrease (p=.51)
				Clinical: Hgb A1c	Difference in Hgb A1c, PCMH relative to usual care	2.5% absolute reduction in Hgb A1c (p=.03)
				Processes of care: blood pressure at goal	Proportion of patients at target goal, PCMH relative to usual care	78.8% vs 75% (p=.45)
				Processes of care: lipids at goal	Proportion of patients at target goal, PCMH relative to usual care	57.1% vs 53.8% (p=.76)
				Processes of care: DM measures at goal	Proportion of patients at target goal, PCMH relative to usual care	65.4% vs 45.5% (p<.01)
				Utilization: ambulatory visits	Number of PCP visits per patient, PCMH relative to usual care, reported only as P value difference	p=.05
				Utilization: ED visits	Number of ED visits per patient, PCMH relative to usual care, reported only as P value difference	p=.27

				Utilization: admissions	Number of hospitalizations per patient, PCMH relative to usual care, reported only as P value difference	p=.02
Edes T. et al, 2014 (31)	USA, VA Adult Veterans VA	Cohort 12-23 months	Fair	Utilization: admissions	Total VA and Medicare hospital admissions per patient, PCMH relative to usual care	25.5% decrease (from 15.7 to 11.7, p <.01)
				Economic: total cost	Annualized cost during PCMH intervention relative to projected pre-intervention control	11.7% decrease ($39, 796 vs $45, 061, p <.001)
Characteristics of Included Studies within Non-Integrated Delivery Systems						
Newman R. et al, 2017. (23)	Eastern Virginia Medical School, VA Adults Insurance mix not specified but included Medicare and Medicare Advantage	Prospective pre-post study 24-35 months	Fair	Utilization: readmissions	Monthly 30-day readmission rates after intervention, PCMH relative to usual care	3.9% decrease from 22.2% to 18.3% (p=.0233)
				Utilization: ED visits	Monthly ED visits, PCMH relative to usual care	17% reduction from 176/month to 146/month (p <.001)
Cuellar A. et al, 2016 (24)	CareFirst BlueCross BlueShield's PCMH, Maryland, Washington DC, and Virginia Adults Blue Cross Blue Shield Insurance (mix not specified)	Retrospective quasi-experimental cohort 36+ months	Fair	Economic: total cost	Yearly claims expenditures per member for all covered services	Year 1: No significant change in total expenditures between intervention and comparison

						Year 2: 2.8% decrease (CI -$191.82, -$26.92) in PCMH group
						Total 3-year: $297 decrease (CI -$471.411, -$123.59) in PCMH group
				Economic: inpatient care	Inpatient spending per patient	Total 3-year 3: 5.0% decrease (-$23, CI $-35, -$11) in PCMH group
				Economic: ED care	ED spending per patient	Total 3-year: 4.5% decrease (-$8, CI -$11, -$5) in PCMH group
				Economic: prescription drug cost	Prescription drug spending per patient	Total 3-year: 2.7% decrease (-$14, CI -$20, -$9) in PCMH group
				Utilization: admissions	Inpatient admissions / 1000 patients	Year 3-year: 2.4% decrease (2.4/1000, CI -2.8, -2.2)
				Utilization: ED visits	ED visits / 1000 patients	Total 3-year: 3.2% decrease (9.9/1000, CI -9.0, -7.7)
Eisenstat S. et al, 2016 (49)	Massachusetts General Hospital Primary Care Clinics; MA Adults Insurance mix not specified	Pre-test/post-test cohort 24-35 months	Good	Clinical outcome: Hgb A1c%	Proportion of patients with T2DM who had Hgb A1c >9% at end of study period, PCMH relative to usual care	1.5% decrease (from 13.9% to 12.4%, p <.001)
Shane D. et al, 2016 (39)	Iowa Medicaid Health Homes, IA Adults Medicaid insurance	Quasi-experimental pre/post 12-23 months	Good	Utilization: ED visits	Difference-in-difference estimator for monthly rate of ED visit PMPM, PCMH relative to usual care	1.4% decrease (SE .002, p<.01))

				Economic: total costs	Difference-in-difference estimate for average monthly member total cost, PMPM, PCMH relative to usual care	$132.10 decrease (SE $25.40, p<.01)
				Economic: ED costs	Difference-in-difference estimator for average monthly member ED cost, PMPM, PCMH relative to usual care	$11.80 decrease (SE $2.01, p<.01)
Kern L. et al, 2016 (34)	Taconic Health Information Network and Community (THINC), NY Adults Aetna, United Healthcare, Empire Blue Cross Blue Shield, Physicians' Health Plan, MVP Healthcare, Hudson health Plan, insurance mix not specified	Retrospective cohort 36+ months	Good	Utilization: ED visits	Incidence rate ratio of outcome, PCMH relative to EHR intervention	IRR 1.08 (CI 0.98, 1.20, p=1.22)
				Utilization: outpatient visits	Incidence rate ratio of primary care visit PCMH relative to EHR intervention	IRR 1.07 (CI 1.05, 1.09, p<.001)
				Utilization: outpatient visits	Incidence rate ratio of specialty care visit PCMH relative to EHR intervention	IRR 0.90 (CI 0.87, 0.92, p<.001)
				Utilization: laboratory visits	Incidence rate ratio of outcome, PCMH relative to EHR intervention	IRR 0.96 (CI 0.94, 0.99, p=.007)
				Utilization: radiology and diagnostic tests	Incidence rate ratio of outcome, PCMH relative to EHR intervention	IRR 0.96 (CI 0.93, 0.99, p=.020)
				Processes of care: screening	Relative risk of retinal examination for patients with DM, PCMH relative to EHR intervention	RR 1.07 (CI 1.00, 1.15, p=.059)
				Processes of care: screening	Relative risk of Hgb A1c testing for patients with DM, PCMH relative to EHR intervention	RR 1.07 (CI 1.03, 1.10, p<.001)

				Processes of care: screening	Relative risk of LDL testing for patients with DM, PCMH relative to EHR intervention	RR 0.97 (CI .94, 1.01, p=.135)
				Processes of care: screening	Relative risk of nephropathy screening for patients with DM, PCMH relative to EHR intervention	RR 1.07 (CI 1.01, 1.12, p=.014)
				Processes of care: screening	Relative risk of breast cancer screening, PCMH relative to EHR intervention	RR 1.02 (CI 1.00, 1.04, p=.113)
				Processes of care: screening	Relative risk of chlamydia screening for women, PCMH relative to EHR intervention	RR 1.25 (CI 1.10, 1.42, p<.001)
				Processes of care: screening	Relative risk of colorectal cancer screening, PCMH relative to EHR intervention	RR .99 (CI .96, 1.01, p=.32)
				Process of care: medication prescriptions	Relative risk of appropriate medications for patient with DM, PCMH relative to EHR intervention	RR 0.98 (CI 0.88, 1.09, p=.71)
Domino M. et al, 2016 (76)	Community Care North Carolina, NC Adults Medicaid insurance	Quasi-experimental Less than 6 months	Good	Utilization: follow up	Effect of medical home intervention in 7 day follow up with PCP after schizophrenia admission	ES 1.8 (p<.01)
				Utilization: follow up	Effect of medical home intervention in 7 day follow up with mental health specialist after schizophrenia admission	ES -2.0 (p<.05)
				Utilization: follow up	Effect of medical home intervention in 7 day follow up with PCP after depression admission	ES 3.4 (p<.01)
				Utilization: follow up	Effect of medical home intervention in 7 day follow up with mental health specialist after depression admission	ES 0.14 (p>.05)
Rosenthal M. et al, 2016 (51)	Health Improvement Collaborate of Greater Cincinnati, OH	Cohort 24-35 months	Good	Utilization: outpatient visits	Primary care visits, effect as percentage of pilot baseline relative to comparison group	0.1% decrease (p=.87)

	Adults Anthem, Humana, and United Healthcare, insurance mix not specified					
				Utilization: outpatient visits	Specialty visits, effect as percentage of pilot relative to comparison group	1.3% decrease (p=.44)
				Utilization: ED visits	Effect as percentage of pilot baseline relative to comparison group	7.2% decrease (p=.08)
				Utilization: admissions	Inpatient admissions, effect as percentage of pilot baseline relative to comparison group	4.3% decrease (p=.47)
				Utilization: ED visits	Ambulatory care sensitive emergency room visits, effect as percentage of pilot baseline relative to comparison group	22.6% (p=.01)
				Utilization: admissions	Ambulatory care sensitive admissions, effect as percentage of pilot baseline relative to comparison group	22.7% (p=.99)
				Economic: total cost	Total costs of care $ PMPM, PCM relative to usual care	$7.70 decrease (p=.99)
				Processes of care: screening	Hgb A1c testing for patients with diabetes, effect as % of PCMH relative to usual care	0.4% increase (p=.37)
				Processes of care: screening	Lipid testing for patients with diabetes, effect as % of PCMH relative to usual care	3.3% increase (p<.001)
				Processes of care: screening	Dilated exam for patients with diabetes, effect as % of PCMH relative to usual care	0.2% decrease (p=.90)
				Processes of care: screening	Colon cancer screening, effect as % of PCMH relative to usual care	3.7% increase (p=.10)
				Processes of care: screening	Breast cancer screening, effect as % of PCMH relative to usual care	1.4% increase (p=.08)
				Processes of care: screening	Cervical cancer screening, effect as % of PCMH relative to usual care	1.0% increase (p=.42)

Rosenthal M. et al, 2015 (52)	Rochester Medical Home Initiative, NY Adults Excellus BlueCross BlueShield and MVP Health Care, insurance mix not specified	Cohort 36+ months	Good	Utilization: admissions	Difference in difference estimator of PCMH relative to usual care	0.01% decrease (p=.51)
				Utilization: ED visits	Difference in difference estimator of PCMH relative to usual care	0.01% decrease (p=.30)
				Utilization: ED visits	Ambulatory care sensitive ED visits, difference in difference estimator of PCMH relative to usual care	0.01% increase (p=.67)
				Utilization: outpatient visits	PCP visits, difference in difference estimator of PCMH relative to usual care	0.01% increase (p<.001)
				Utilization: outpatient visits	Specialty visits, difference in difference estimator of PCMH relative to usual care	0% (p=.48)
				Utilization: imaging testing	Difference in difference estimator of PCMH relative to usual care	0.16% decrease (p<.001)
				Utilization: laboratory testing	Difference in difference estimator of PCMH relative to usual care	0.01% increase (p=0.037)
				Utilization: prescription days supply	Difference in difference estimator of PCMH relative to usual care	0% (p=0.05)
				Processes of care: any prevention quality indicator	Difference in difference estimator of PCMH relative to usual care	0.15% decrease (p=0.027)
				Economic: total cost	Difference in difference estimator of PCMH relative to usual care	0.01% decrease (p=0.016)
				Economic: inpatient spending	Difference in difference estimator of PCMH relative to usual care	0.01% increase (p=.015)
				Economic: prescription spending	Difference in difference estimator of PCMH relative to usual care	0.01% decrease (p=0.13)

				Processes of care: screening	Breast cancer screening, difference in difference estimator of PCMH relative to usual care	2.62% increase (p=.005)
				Processes of care: screening	Cervical cancer screening, difference in difference estimator of PCMH relative to usual care	0.62% decrease (p=.363)
				Processes of care: screening	Chlamydia screening, difference in difference estimator of PCMH relative to usual care	6.66% increase (p=.198)
				Processes of care: screening	Hgb A1c testing in patients with diabetes, difference in difference estimator of PCMH relative to usual care	2.42% increase (p=.138)
				Processes of care: screening	LDL testing in patients with diabetes, difference in difference estimator of PCMH relative to usual care	3.83% increase (p=.048)
				Processes of care: screening	Retinopathy screening in patients with diabetes, difference in difference estimator of PCMH relative to usual care	2.63% decrease (p=.264)
				Processes of care: screening	Nephropathy screening in patients with diabetes, difference in difference estimator of PCMH relative to usual care	2.56% increase (p=.263)
Rosenthal M. et al, 2016 (25)	Health TeamWork and Cover Colorado, CO Adults Aetna, Cigna, Humana, United HealthCare, insurance mix not specified	Retrospective pre-test/post-test cohort 36+ months	Good	Processes of care: screening	Odds ratio of Hgb A1c testing for patients with diabetes, PCMH relative to usual care	2 year: OR 0.94 (p=.09); 3 year: OR 0.92 (p=.03)
				Processes of care: screening	Odds ratio of lipid testing for patients with diabetes, PCMH relative to usual care	2 year: OR 1.01 (p=.44); 3 year: OR 1 (p=.97)
				Processes of care: screening	Odds ratio of retinopathy testing for patients with diabetes, PCMH relative to usual care	2 year: OR 0.99 (p=.41); 3 year: OR 1 (p=.71)

				Processes of care: screening	Odds ratio of colorectal cancer screening, PCMH relative to usual care	2 year: OR 0.85 (p<.001); 3 year: OR 0.88 (p<.001)
				Processes of care: screening	Odds ratio of breast cancer screening, PCMH relative to usual care	2 year: OR 1.02 (p=.17); 3 year: OR 1.09 (p<.001)
				Processes of care: screening	Odds ratio of cervical cancer screening, PCMH relative to usual care	2 year: OR 1.10 (p<.01); 3 year: OR 1.09 (p<.001)
				Economic: total cost	Total cost of care PMPM; effect size as percent pilot relative to comparison group	2 year: -1.1% (p=.06); 3 year: -2.1% (p=.24)
				Economic: inpatient cost	Inpatient costs PMPM; effect size as percent pilot relative to comparison group	2 year: -4.2% (p=.50); 3 year: -7.7% (p=.37)
				Economic: ED costs	ED costs PMPM; effect size as percent pilot relative to comparison group	2 year: -13.9% (p<.001); 3 year: -11.8% (p<.001)
				Utilization: outpatient visits	Primary care; effect size as percent pilot relative to comparison group	2 year: -0.4% (p=.62); 3 year: -1.5% (p=.02)
				Utilization: outpatient visits	Specialty care; effect size as percent pilot relative to comparison group	2 year: 0.6% (p=.8); 3 year: -2.0% (p=.38)
				Utilization: admissions	Ambulatory care sensitive hospital admissions; effect size as percent pilot relative to comparison group	2 year: -18.3% (p=.38); 3 year: -18.9% (p=.23)
				Utilization: admissions	Total hospital admissions; effect size as percent pilot relative to comparison group	2 year: -2.6% (p=.94); 3 year: -3.1% (p=.48)
				Utilization: ED visits	Total ED visits; effect size as percent pilot relative to comparison group	2 year: -7.9% (p=.02); 3 year: -9.3% (p=.01)
				Utilization: ED visits	Ambulatory care sensitive ED visits; effect size as percent pilot relative to comparison group	2 year: 0.7% (p=.91); 3 year: 4.6% (p=.51)
				Utilization: prescription days supply	Days of treatment supplied; effect size as percent pilot relative to comparison group	2 year: -2.1% (p=.12); 3 year: -2.2% (p=.11)
Jones C. et al, 2016 (40)	Vermont's all payer medical home; VT Adults, children (excluded from analysis)	Retrospective cohort 36+ months	Good	Economic: total cost	Difference in difference estimator per capita, PCMH relative to usual care	-$482.40 (p<.001)

	Medicare, Medicaid, and 3 commercial insurance plans					
				Economic: inpatient spending	Difference in difference estimator per capita, PCMH relative to usual care	-$515.20 (p<.001)
				Economic: ED spending	Difference in difference estimator per capita, PCMH relative to usual care	-$1.90 (p=.560)
				Utilization: ED visits	Difference in difference estimator per capita, PCMH relative to usual care	5.2 (p=.207)
				Utilization: outpatient visits	PCP visits; Difference in difference estimator annual utilization per 1000 members, PCMH relative to usual care	-27.9 (p=.094)
				Utilization: outpatient visits	Specialty visits; Difference in difference estimator annual utilization per 1000 members, PCMH relative to usual care	-13.3 (p=.150)
				Utilization: imaging testing	Standard imaging; Difference in difference estimator annual utilization per 1000 members, PCMH relative to usual care	-42.8 (p<.001)
				Utilization: imaging testing	Advanced imaging; Difference in difference estimator annual utilization per 1000 members, PCMH relative to usual care	-14.7 (p<.001)
				Utilization: screening	Breast cancer screening; difference in difference estimator as % of preventative and effective care	0.7% (p=.583)
				Utilization: screening	Cervical cancer screening; difference in difference estimator as % of preventative and effective care	1.5% (p=.144)
				Utilization: screening	Retinopathy screening in patients with DM; difference in difference estimator as % of preventative and effective care	4.3% (p<.001)
				Utilization: screening	Hgb A1c in patients with DM; difference in difference estimator as % of preventative and effective care	0.8% (p=.710)

				Utilization: screening	LDL screening in patients with DM; difference in difference estimator as % of preventative and effective care	4.7% (p=.030)
				Utilization: screening	Nephropathy screening in patients with DM; difference in difference estimator as % of preventative and effective care	3.3% (p=.136)
Farrell T. et al, 2015 (77)	University of Utah Community Clinics, UT Adults Mixed (Commercial > Medicare > Medicaid)	Retrospective pre/post cohort 6-11 months	Good	Utilization: readmissions	% difference in readmission rate after implementation of PCMH intervention	30 days: -9.9% (p<0.05)
						60 days: -16.4% (p<.01)
						90 days: -20.4% (p<.01)
						180 days: 30.3% (p<.01)
Romanelli R. et al, 2015 (32)	Davis Family Clinic - Sutter Medical Foundation, CA Adults Mixed (Commercial > Medicare > Medicaid)	Retrospective cohort 6-11 months	Good	Clinical: blood pressure	Adjusted OR of BP at goal, PCMH relative to usual care	OR 1.26 (p=.202)
				Clinical: lipids	Adjusted OR of LDL cholesterol at goal, PCMH relative to usual care	OR 0.63 (p=.108)
				Clinical: Hgb A1c	Adjusted OR of Hgb A1c at goal, PCMH relative to usual care	OR 0.73 (p=.455)
				Utilization: ED visits	Adjusted IRR of ED visit, PCMH relative to usual care	IRR 0.89 (p=.377)
				Utilization: outpatient visits	Adjusted IRR of office visit, PCMH relative to usual care	IRR 0.88 (p=.0355)

				Utilization: admissions	Adjusted IRR of hospitalization, PCMH relative to usual care	IRR 0.82 (p=.330)
Markovitz A. et al, 2015 (78)	University of Michigan, MI Adults Blue Cross Blue Shield of Michigan Physician Incentive Group	Pre-test/post-test 36+ months	Good	Utilization: screening	Breast cancer screening rates at 3 years, PCMH relative to usual care	76.1% to 74.6% (not reported)
				Utilization: screening	Cervical cancer screening rates at 3 years, PCMH relative to usual care	76.9% to 73.7% (not reported)
				Utilization: screening	Colorectal cancer screening rates at year 3, PCMH relative to usual care	50.5% to 50.0% (not reported)
Page T. et al, 2015 (53)	Health Choice Network of Florida (FQHC), FL Adults with diabetes Mixed (Self-pay > Medicaid > Medicare > Commercial)	Retrospective pre-test/post-test cohort 12-23 months	Fair	Utilization: screening	Eye exam, percent change from baseline to 1 year, PCMH relative to usual care	5.6% increase (p<.001)
				Utilization: screening	Foot exam, percent change from baseline to 1 year, PCMH relative to usual care	10.9% increase (p<.001)
				Utilization: screening	Dental exam, percent change from baseline to 1 year, PCMH relative to usual care	1.5% increase (p=.1422)
				Utilization: screening	Nephropathy screening (urine protein), percent change from baseline to 1 year, PCMH relative to usual care	4.4% increase (p<.001)
				Utilization: screening	CKD screening (serum Cr), percent change from baseline to 1 year, PCMH relative to usual care	1.9% increase (p=.0158)

				Utilization: screening	Colorectal cancer screening, percent change from baseline to 1 year, PCMH relative to usual care	5.1% increase (p<.001)
				Utilization: screening	Cervical cancer screening, percent change from baseline to 1 year, PCMH relative to usual care	0.3% increase (p=.6097)
				Utilization: screening	Hgb A1c testing, percent change from baseline to 1 year, PCMH relative to usual care	2.4% increase (p<.001)
				Utilization: screening	LDL testing, percent change from baseline to 1 year, PCMH relative to usual care	0.1% decrease (p=.8988)
				Processes of care: vaccines	Flu vaccine, percent change from baseline to 1 year, PCMH relative to usual care	19.3% increase (p<.001)
				Processes of care: vaccines	Pneumovax vaccine, percent change from baseline to 1 year, PCMH relative to usual care	8.6% increase (p<.001)
Carrillo J. et al, 2014 (26)	NY Presbyterian / Columbia - Regional Health Collaborative, NY Adults Mixed insurance	Pre-test/post-test 36+ months	Good	Utilization: ED visits	Mean ED visits/ person from start of intervention to year 3, PMCH relative to usual care	22.9% decrease (p<.001)
				Utilization: admissions	Mean hospitalizations/ person from start of intervention to year 3, PMCH relative to usual care	24.4% decrease (p<.001)
				Utilization: readmissions	30 day readmission rate from start of intervention to year 4, PCMH relative to usual care	36.7% decrease (p<.001)
				Utilization: length of stay	Average LOS from start of intervention to year 4, PCMH relative to usual care	4.9% decrease (p<.001)
				Economic: estimated return on investment	**estimated ROI for each dollar spent	$1.11 return for each $1.00 spent
Higgins S. et al, 2014 (79)	Pennsylvania Chronic Care Initiative, PA	Longitudinal case control	Good	Utilization: admissions	% change in inpatient utilization / 1000 patients at year 3, PCMH relative to usual care	16.6% decrease (p=.1)

	Adults Mix of Independence Blue Cross, 3 Medicaid MCOs	36+ months				
				Utilization: ED visits	% change in ED utilization / 1000 patients at year 3, PCMH relative to usual care	18.4% increase (NS)
				Utilization: outpatient visits	% change in specialty utilization / 1000 patients at year 3, PCMH relative to usual care	15.2% increase (NS)
				Economic: total cost	% change in cost, PMPM at year 3, PCMH relative to usual care	2.9% decrease (NS)
				Economic: inpatient cost	% change in cost, PMPM at year 3, PCMH relative to usual care	17.3% decrease (NS)
				Economic: outpatient cost	% change in cost, PMPM at year 3, PCMH relative to usual care	21.5% increase (NS)
				Economic: ED cost	% change in cost, PMPM at year 3, PCMH relative to usual care	17.6% increase (NS)
Heyworth L. et al, 2014 (61)	Harvard Vanguard Medical Associates, MA Adults Mixed insurance	Pre-test/post-test 36+ months	Fair	Patient Satisfaction: reported as difference in difference P value, PCMH relative to usual care at end of intervention	Ease of scheduling	0.55
					Ability to get desired appointment	0.51
					Promptness in returning calls	0.21
					Speed of registration	0.04
					Wait before exam	0.82
					Care provider information from specialist	0.65
					Care provider explanation of problem	0.05
					Time spent with care provider	0.05
					Concern expressed by care provider	0.02
					Care provider instructions for follow up	0.01
					Sensitivity to patient's needs	0.11
					Care provider's knowledge of patient	0.64

					Patient's confidence in care provider	0.1
					Overall assessment of care	0.1
					Recommend care provider	0.28
Fillmore H. et al, 2014 (41)	Community Care of North Carolina, NC Adults Medicaid	Quasi-experimental 36+ months	Fair	Economic: total cost	Estimated cost difference in most-medically complex patients enrolled in PMCH relative to matched controls ($PMPM)	Year 1: $27.14 increase (SE $44.91, p=.54)
						Year 2: $52.54 decrease (SE $18.77, p=.0051)
						Year 3: $80.75 decrease (SE $17.33, p<.001)
						Year 4: $72.65 decrease (SE $17.02, p<.001)
						Year 5: $120.69 decrease (SE $17.16, p<.001)
Rosenthal M. et al, 2013 (54)	Rhode Island Chronic Care Sustainability Initiative, RI Adults Blue Cross Blue Shield of Rhode Island, Neighborhood Health Plan, United Health Care	Quasi-experimental pre/post cohort 24-35 months	Good	Utilization: outpatient visits	PCP visits incidence rate ratio, PCMH relative to usual care	IRR 1.01 (CI .927, 1.089)
				Utilization: outpatient visits	Specialty care incidence rate ratio, PCMH relative to usual care	IRR 1.00 (CI .927, 1.072)
				Utilization: admissions	Inpatient hospitalizations, incidence rate ratio, PCMH relative to usual care	IRR 0.97 (CI .855, 1.092)

				Utilization: admissions	Ambulatory care sensitive Inpatient hospitalizations, incidence rate ratio, PCMH relative to usual care	IRR 0.97 (CI .496, 1.880)
				Utilization: ED visits	ED visits, incidence rate ratio, PCMH relative to usual care	IRR 0.93 (CI .787, 1.095)
				Utilization: ED visits	Ambulatory care sensitive ED visits incidence rate ratio, PCMH relative to usual care	IRR 0.75 (CI .612, .922, p<.05)
				Utilization: prescription days supply	Prescription days of treatment provided, incidence rate ratio, PCMH relative to usual care	IRR 1.02 (CI .958, 1.088)
				Processes of care: screening	Hgb A1c testing for patients with DM, odds ratio, PCMH relative to usual care	OR 1.29 (CI .95, 1.74)
				Processes of care: screening	Lipid testing for patients with DM, odds ratio, PCMH relative to usual care	OR 1.19 (CI .97, 1.45)
				Processes of care: screening	Retinopathy screening for patients with DM, odds ratio, PCMH relative to usual care	OR 1.06 (CI .87, 1.33)
				Processes of care: screening	Colorectal cancer screening, odds ratio, PCMH relative to usual care	OR 1.40 (CI 0.79, 2.47)
				Processes of care: screening	Breast cancer screening, odds ratio, PCMH relative to usual care	OR 0.99 (CI .87, 1.12)
				Processes of care: screening	Cervical cancer screening, odds ratio, PCMH relative to usual care	OR 0.94 (CI 0.80, 1.09)
Hochman M. et al, 2014 (62)	University of Southern California Medical Center, CA Adults Mixed (free care > Medicaid > self pay > other)	Pre-test/post-test 12-23 months	Good	Utilization: ED visits	Difference in difference visit rate, PCMH relative to usual care	1% increase (p=.92)
				Utilization: admissions	Difference in difference visit rate, PCMH relative to usual care	5% increase (p=.02)

				Patient Satisfaction: reported as difference in difference of patients who agree or strongly agree that services are adequate before and after program, PCMH relative to usual care	Test result communication	4% increase (p=.96)
					Ease of completing tests	10% decrease (p=.03)
					Ease of making specialist appointments	5% decrease (p=.99)
					Continuity with regular physician	5% decrease (p=.36)
					Physician knows information about you	11% increase (p=.06)
					Ease of making urgent appointments	36% increase (p<.001)
					Ease of making routine appointments	20% increase (p=.04)
					Telephone access during regular hours	39% increase (p<.001)
					Telephone access after hours	42% increase (p=.02)
					Overall rate of care as good or excellent	21% increase (p<.01)
					Total composite patient satisfaction score	8% increase (p=.04)
Werner R. et al, 2013 (55)	Horizon Blue Cross Blue Shield of New Jersey, NJ Adults Horizon Blue Cross Blue Shield, insurance mix not specified	Pre-test/post-test 24-35 months	Good	Utilization: ED visits	ED visits, adjusted difference in difference estimates, PCMH relative to usual care	0.001 increase (p=.53)
				Utilization: ED visits	Ambulatory care sensitive ED visits, adjusted difference in difference estimates, PCMH relative to usual care	0.000 (p=.73)
				Utilization: admissions	Inpatient admissions, adjusted difference in difference estimates, PCMH relative to usual care	0.000 (p=.78)
				Utilization: admissions	Ambulatory care sensitive inpatient admissions, adjusted difference in	0.000 (p=.71)

					difference estimates, PCMH relative to usual care	
				Utilization: readmissions	30 day readmissions, adjusted difference in difference estimates, PCMH relative to usual care	0.004 (p=.83)
				Economic: total cost	Paid amount PMPQ, adjusted difference in difference estimates, PCMH relative to usual care	0.024 (p=.60)
				Processes of care: screening	Hgb A1c testing in patients with DM, adjusted difference in difference estimates, PCMH relative to usual care	-0.062 (p=.18)
				Processes of care: screening	Retinopathy screening in patients with DM, adjusted difference in difference estimates, PCMH relative to usual care	0.025 (p=.25)
				Processes of care: screening	Lipid testing in patients with DM, adjusted difference in difference estimates, PCMH relative to usual care	-0.055 (p=.16)
				Processes of care: screening	Nephropathy screening in patients with DM, adjusted difference in difference estimates, PCMH relative to usual care	-0.066 (p=.05)
				Processes of care: screening	Colorectal cancer screening, adjusted difference in difference estimates, PCMH relative to usual care	0.017 (p=.18)
				Processes of care: screening	Breast cancer screening, adjusted difference in difference estimates, PCMH relative to usual care	0.022 (p<.0001)
				Processes of care: screening	Cervical cancer screening, adjusted difference in difference estimates, PCMH relative to usual care	-0.006 (p=.46)
				Processes of care: screening	Chlamydia screening, adjusted difference in difference estimates, PCMH relative to usual care	-0.011 (p=.74)
				Processes of care: screening	Lipid testing, adjusted difference in difference estimates, PCMH relative to usual care	-0.072 (p=.16)
Fifield J. et al, 2013 (56)	Emblem Health Inc., NY Adults	RCT 12-23 months	Good	Utilization: ED visits	ED visit count ratio	32% decrease (p=.069)

	Mixed					
				Utilization: admissions	Hospital admission count ratio	60% increase (p=.212)
				Economic: total cost	Total cost	1.1% decrease (p=.952)
				Economic: ED cost	ED costs	25% decrease (p=.214)
				Economic: outpatient cost	Outpatient costs	9% increase (p=.657)
				Economic: administrative cost	Hospital administrative costs	8% decrease (p=.578)
				Process of care: screening	Breast cancer screening	10% increase (p=.029)
				Process of care: screening	Lipid screening	4% increase (p.401)
				Process of care: screening	Nephropathy screening	2% increase (p=.474)
				Process of care: screening	Chlamydia screening	23% increase (p=.323)
				Process of care: screening	Lipid screening in patients with DM	1% increase (p=.757)
				Process of care: screening	Hgb A1c screening in patients with DM	0% change (p=.957)
				Process of care: screening	Blood pressure control	262% increase (p=.02)
				Process of care: screening	Blood pressure control in patients with DM	30% decrease (p=.127)
				Process of care: screening	Lipid control in patients with DM	14% decrease (p=.306)
				Process of care: screening	Hgb A1c control in patients with DM	3% decrease (p=.568)
Schmidt L. et al, 2013 (60)	Safety net clinics in Orleans Parish, New Orleans LA Adults in safety net clinics No insurance mix specified	Pre-test/post-test Not specified	Poor	Patient satisfaction:	% positive score on Accessibility	Low: 74, Medium 65, High 59 (p=.005)

				Bivariate association between patient experience ratings and magnitude of clinic PCMH score	% positive score on coordination	Low: 24, Medium 29, High 37 (p=.006)
					% positive score on confidence in quality/safety	Low: 79, Medium 62, High 69 (p<.001)
Isetts B. et al, 2012 (80)	Fairview Health Services of Minneapolis, MN Adults Mixed	Pre-test/post-test 12-23 months	Fair	Economic: total cost	Difference in difference percent change in total cost $PMPM, PCMH relative to non-PCMH practices	11% ($354 relative to $420 PMPM, p=0.05)
Carrillo J. et al, 2011 (27)	NY Presby Regional Health Collaborative, NY Hispanic adults with DM, asthma, or CHF Mixed (Medicaid > Medicare > Self-pay > commercial > other)	Pre-test/post-test 6-11 months	Fair	Utilization: ED visits	ED visits per patient, PCHM relative to usual care	9.2% decrease (0.59 visits/patient to 0.53 visits/patient, p=0.001)
				Utilization: hospitalization	Hospitalizations per patient, PCHM relative to usual care	5.8% decrease (0.25 visits/patient to 0.24 visits/patient, p=.25)
Gabbay R. et al. 2011 (57)	Pennsylvania Governor's Office Health Care Reform, PA Adults Independence Blue Cross (44.5%),	Quasi-experimental 12-23 months	Fair	Process of care: screening	Change in retinopathy screening rate in patients with DM, PCMH relative to usual care	10.8% increase (from 30.4% to 41.2%, p<.05)

	Keystone Mercy (20.1%), Aetna (19.3%), AmeriChoice (6.3%), HealthPartners (8.8%), and CIGNA (0.8%)					
				Process of care: screening	Change in foot exam screening rate in patients with DM, PCMH relative to usual care	18.4% increase (from 50.6% to 69.6%, p<.05)
				Process of care: screening	Change in nephropathy screening rate in patients with DM, PCMH relative to usual care	6.4% increase (from 62.7% to 69.1%, p<.05)
				Process of care: guideline adherence	Change in rate of aspirin prescription in patients with DM, PCMH relative to usual care	13.4% increase (from 50.8% to 64.2%, p<.05)
				Process of care: guideline adherence	Change in rate of statin prescription in patients with DM, PCMH relative to usual care	21.4% increase (from 36.1% to 57.5%, p<.05)
				Process of care: guideline adherence	Change in rate of ACEi/ARB prescription in patients with DM, PCMH relative to usual care	13.3% increase (from 42.3% to 55.6%, p<.05)
Lee K. et al, 2011 (81)	Jacksonville Urban Disparity Institute, FL Adults Free care / self pay	Retrospective 36+ months	Good	Clinical: Hgb A1c	Difference in Hgb A1c, PCMH relative to usual care	0.41% decrease (p=.275)
Roby D. et al, 2010 (28)	Orange County Health Care Coverage Institute, FL Adults Mixed	Retrospective 36+ months	Good	Utilization: ED visits	Odds of ER visit, longer PCMH enrollment relative to less enrollment time	OR 0.96 (0.92, 1.00, p<.05)

Hassaballa I. et al, 2015 (48)	Whittier Street Health Center, MA Adults Mixed (predominantly self-pay)	Pre-test/post-test 24-35 months	Fair	Clinical: Hgb A1c	Difference in outcome at 16 months in patients with DM, PCMH relative to usual care	0.30 decrease in Hgb A1c, p=.016, ES 0.403
				Clinical: blood pressure	Difference in outcome at 16 months in patients with DM, PCMH relative to usual care	11.60 mmHg decrease in SBP, 2.20 mmHg decrease in DBP, p=0.096, 0.027
				Clinical: lipids	Difference in LDL at 16 months in patients with DM, PCMH relative to usual care	2.20 mg/dL decrease (p=.139)
White B. et al, 2014 (82)	Oregon Health and Science University, OR Adults Mixed	Retrospective 12-23 months	Good	Utilization: readmissions	Unadjusted model estimates of rate of readmission between PCMH intervention and usual care based on slope of linear regression model over time	p=.05

a. Pediatric patients included in study but not included in analysis
b. Included VA and Medicare admissions

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