

1 Additional files

2 Additional file 1 - Prisma – Checklist¹

Section/topic	#	Checklist item	Page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	Title
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	Abstract
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	1
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	1-2
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	2
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	2/ Additional file 1
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	2-3
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	2-3; Additional File 2
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	3
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	3
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	3-4
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	3
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	3-4

Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I ²) for each meta-analysis.	3-4
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	3
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	N/A
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	4
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	4-7
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	7/ Additional file 6
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	9-12
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	N/A
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see item 15).	7/ Additional file 6
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression (see item 16)).	N/A
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	12-13
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	13-14
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	14
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	15

Additional file 2 - PICO- Scheme

	Inclusion criteria	Exclusion Criteria
Population	>50% inpatient or intersectoral primary studies	inpatient or intersectoral primary studies $\leq 50\%$;
Intervention	planned structure- and/ or process-related intervention	therapy-change without quality-management-relatable background; patient-education; non-interventional background; macro-changes
Comparison	>50% parallel controlled primary studies; comparison with standards-care or other interventions	parallel controlled primary studies $\leq 50\%$;
Outcome	change of outcome-relevant effects	no measurement of outcome-relevant results
Study type	systematic reviews or meta-analyses in German or English; Publication-date starting 2000/01/01	animal studies; published before 2000/01/01; study protocols; other language than English or German

Additional file 3 - Search strategy per database

#	Medline: 858 Records	Embase: 1218 Records	Cinahl: 247 Records	PsycInfo: 184 Records
1	Meta-Analysis as Topic/ or meta analy\$.tw . or metaanaly\$.tw . or Meta-Analysis/ or (systematic adj (review\$1 or overview\$1)).tw. or exp Review Literature as Topic/	(exp Meta Analysis/ or ((meta adj analy\$) or metaanalys\$).ti. or (systematic adj (review\$1 or overview \$1)).ti.)	Meta analysis/ or TX Meta analys\$ Or TX Metaanaly\$ Or exp Literature review / or TX (systematic adj (review or overview)) NOT PT (Commentary Or Letter Or Editorial) Or Animals/	TX Meta analys\$ Or TX (Metaanaly\$) Or exp (DE "Literature Review " OR DE "Meta Analysis") or TX systematic and (review or overview) NOT (DE "Animals" OR PZ "editorial" or PZ "letter" or PZ "comment/reply")
2	(cochrane or embase or (psychlit or psyclit) or (psychinfo or psycinfo) or (cinahl or cinhal) or science citation index or bids or cancerlit).ab.	(cancerlit.ab. or cochrane.ab. or embase.ab. or (psychlit or psyclit).ab. or (psychinfo or psycinfo).ab. or (cinahl or cinhal).ab. or science citation index.ab. or bids.ab.)	TI (structur* or process*) or AB (structur* or process*)	TI (structur* or process*) or AB (structur* or process*) OR DE "Organizational Characteristics" OR DE "Organizational Climate" OR DE "Organizational Structure" OR DE "Organizational Behavior" OR DE "Organizational Commitment" OR DE "Organizational Learning" OR DE "Organizational Objectives"
3	(reference list\$ or bibliograph\$ or hand-search\$ or relevant journals or manual search\$).ab.	(reference list\$.ab. or bibliograph\$.ab. or hand-search\$.ab. or relevant journals.ab. or manual search\$.ab.)	(MH "Quality of Care Research/AE/EC/ED/ES/EV/OG/ST/TU/UT") OR (MH "Quality of Health Care/UT/ST/MT/MA/EV/ED/EC/AM") OR (MH "Quality Management, Organizational/AM/ED/MA/MT/ST/UT") OR (MH "Quality Assurance/AM/EC/ED/MA/ST/SN") OR TI quality or AB (quality and (healthcare or health-care or health care or patient care or	DE "Quality of Services" OR DE "Quality of Care" or TI quality or AB (quality and (healthcare or health-care or health care or patient care or medical care or treatment or health service*))

			medical care or treatment or health service*))	
4	(selection criteria or data extraction).ab. and Review /	(selection criteria.ab. or data extraction.ab. and Review .pt.)	TI (improve* or intervent* or implement* or donabedian*) OR AB (improve* or intervent* or implement* or donabedian*) OR (MH "Quality Improve-ment/MT/MA/AMED/EC/ST/UT") OR (MH "Management+") OR (MH "Program Implementation") OR (MH "Systems Implementation") OR (MH "Evaluation and Quality Improvement Program")	TI (improve* or intervent* or implement* or donabedian*) OR AB (improve* or intervent* or implement* or donabedian*) OR DE "Quality of Work Life" OR DE "Organizational Change" OR DE "Downsizing" OR DE "Mergers and Acquisitions") OR (DE "Change Strategies" OR DE "Decentralization" OR DE "Organizational Crises" OR DE "Organizational Development" OR (MH "Program Implementation") OR (MH "Systems Implementation") OR (DE "Organizational Politics")
5	(comment/ or letter/ or Editorial/ or animal/ not (animal/ and human/)	(letter.pt. or editorial.pt. or animal/ not (animal/ and human/))	TI outcome or AB (outcome or endpoint*) or (MH "Outcome Assessment") OR (MH "Treatment Outcomes") OR (MH "Nursing Outcomes") OR (MH "Outcomes Research") OR (MH "Outcomes (Health Care)") or (MH "Adverse Health Care Event")	TI outcome or AB (outcome or endpoint*) or (DE "Treatment Outcomes") OR (DE "Side Effects (Treatment)")
6	1 or 2 or 3 or 4	1 or 2 or 3 or 4	TI (indicator* or coherenc* or influenc* or caus* or effect* or correlat* or relat* or cohesio* or associat* or evaluat* or control* or assur*) OR AB (indicator* or coherenc* or influenc* or caus* or effect* or correlat* or relat* or cohesio* or associat* or evaluat* or	TI (indicator* or coherenc* or influenc* or caus* or effect* or correlat* or relat* or cohesio* or associat* or evaluat* or control* or assur*) OR AB (indicator* or coherenc* or influenc* or caus* or effect* or correlat* or relat* or cohesio* or associat* or evaluat* or control* or

			control* or assur*) OR (MH "Clinical Effects") OR (MH "Root Cause Analysis") OR (MH "Variance Analysis")	assur*) OR DE "Statistical Correlation" OR (DE "Multivariate Analysis" OR DE "Statistical Regression" OR DE "Statistical Significance" OR DE "Statistical Variables" OR DE "Personnel Evaluation" OR DE "Program Evaluation" OR DE "Risk Assessment" OR DE "Self-Evaluation")
7	6 not 5	6 not 5	1 and 2 and 3 and 4 and 5 and 6	1 and 2 and 3 and 4 and 5 and 6
8	(structur* or process*).ti. or (structur* or process*).ab.	(structur* or process*).ti. or (structur* or process*).ab.	limit 7 to (english or german)	limit 7 to (english or german)
9	(intervent* or implement* or chang* or donabedian* or improve*).ti. or (intervent* or implement* or chang* or donabedian* or improve*).ab. or (organizations/ or exp "organization and administration"/ or or Organizational Innovation/ or Quality Improvement/)	(intervent* or implement* or chang* or donabedian* or improve*).ti. or (intervent* or implement* or chang* or donabedian* or improve*).ab. or (organizational structure/ or nursing process/ or process control/ or clinical indicator/ or health status indicator/ or nursing intervention/ or management/ or hospital management/ or participatory management/ or patient identification/ or exp personnel management/ or exp resource management/ or time management/ or total quality management/ or work schedule/ or workflow/)	limit 8 to yr="2000 -Current"	limit 8 to yr="2000 -Current"
10	outcome.ti. or (outcome or endpoint*).ab. or "outcome assessment (health care)"/ or	treatment outcome/ or adverse outcome/ or outcome assessment/ or outcome.ti. or (out-		

	Endpoint Determination/	come or endpoint*).ab.		
11	(indicator* or coherenc* or influenc* or caus* or effect* or correlat* or relat* or cohesio* or associat* or evaluat* or control* or assur*).ti. or (indicator* or coherenc* or influenc* or caus* or effect* or correlat* or relat* or cohesio* or associat* or evaluat* or control* or assur*).ab. or ("process assessment (health care)"/ or Quality Effects, Health Care/)	(indicator* or coherenc* or influenc* or caus* or effect* or correlat* or relat* or cohesio* or associat* or evaluat* or control* or assur*).ti. or (indicator* or coherenc* or influenc* or caus* or effect* or correlat* or relat* or cohesio* or associat* or evaluat* or control* or assur*).ab. or (association/ or quality control procedures/ or process control/ or quality control/)		
12	"Quality of Health Care"/ or Quality Control/ or Quality Assurance, Health Care/ or quality.ti. or (quality and (healthcare or health-care or health care or patient care or medical care or treatment or health service*)).ab.	quality.ti. or (quality and (healthcare or health-care or health care or patient care or medical care or treatment or health service*)).ab. or (health care quality/ or "quality of nursing care"/)		
13	7 and 8 and 9 and 10 and 11 and 12	7 and 8 and 9 and 10 and 11 and 12		
14	limit 13 to (english or german)	limit 13 to (english or german)		
15	limit 14 to yr="2000 -Current"	limit 14 to yr="2000 -Current"		

1 Additional file 4 - Step A: Excluded Papers with reasons

Reference	Reason f. Exclusion
Al-Bahar F, Marriott J, Curtis C, Dhillon H. The effects of computer-aided clinical decision support systems on antibiotic prescribing in secondary care: A systematic review. International Journal of Pharmacy Practice. 2015;23:24.	Conference Abstract
Balogh R, McMorris CA, Lunskey Y, Ouellette-Kuntz H, Bourne L, Colantonio A, et al. Organising healthcare services for persons with an intellectual disability. Cochrane Database of Systematic Reviews. 2016;2016(4):no pagination.	Duplet Copy
Bolton LB, Donaldson NE, Rutledge DN, Bennett C, Brown DS. The impact of nursing interventions: Overview of effective interventions, outcomes, measures, and priorities for future research. Medical Care Research and Review. 2007;64(2, Suppl):123S-43S. doi: 10.1177/1077558707299248. PubMed PMID: 2007-05829-007.	Publication Type: Overview
Brand CA, Barker AL, Morello RT, Vitale MR, Evans SM, Scott IA, et al. A review of hospital characteristics associated with improved performance. International Journal for Quality in Health Care. 2012;24(5):483-94. doi: 10.1093/intqhc/mzs044. PubMed PMID: 2012-25513-007.	Uncontrolled
Campanella P, Lovato E, Marone C, Fallacara L, Mancuso A, Ricciardi W, et al. The impact of electronic health records on healthcare quality: a systematic review and meta-analysis. European journal of public health. 2016;26(1):60-4.	Uncontrolled
Chan R, Webster J. End-of-life care pathways for improving outcomes in caring for the dying. Cochrane Database Syst Rev. 2010;(1):Cd008006. Epub 2010/01/22. doi: 10.1002/14651858.CD008006.pub2. PubMed PMID: 20091660.	Duplet Copy
Chan RJ, Webster J. End-of-life care pathways for improving outcomes in caring for the dying. The Cochrane database of systematic reviews. 2013;11:CD008006.	Duplet Copy
Conrad DA, Perry L. Quality-based financial incentives in health care: Can we improve quality by paying for it? Annual Review of Public Health. 2009;30:357-71. doi: 10.1146/annurev.publhealth.031308.100243. PubMed PMID: 2009-04165-012.	Publication Type: Essay
Czoski-Murray C, Lloyd Jones M, McCabe C, Claxton K, Oluboyede Y, Roberts J, et al. What is the value of routinely testing full blood count, electrolytes and urea, and pulmonary function tests before elective surgery in patients with no apparent clinical indication and in subgroups of patients with common comorbidities: a systematic review of the clinical and cost-effective literature. Health technology assessment (Winchester, England). 2012;16(50):i-159.	Uncontrolled
Davey P, Brown E, Fenelon L, Finch R, Gould I, Hartman G, et al. Interventions to improve antibiotic prescribing practices for hospital inpatients. The Cochrane database of systematic reviews. 2005;(4):CD003543.	Duplet Copy
Fung-Kee-Fung M, Watters J, Crossley C, Goubanova E, Abdulla A, Stern H, et al. Regional collaborations as a tool for quality improvements in surgery: A systematic review of the literature. Annals of Surgery. 2009;249(4):565-72.	System/ macro-changes
Govaert JA, van Bommel ACM, van Dijk WA, van Leersum NJ, Tollenaar RAEM, Wouters MWJM. Reducing healthcare costs facilitated by surgical auditing: a systematic re-	Uncontrolled

view . World journal of surgery. 2015;39(7):1672-80.	
Hew son-Conroy KM, Elliott D, Burrell AR. Quality and safety in intensive care-A means to an end is critical. Australian critical care : official journal of the Confederation of Australian Critical Care Nurses. 2010;23(3):109-29.	Uncontrolled
Hopkins U, Itty AS, Nazario H, Pinon M, Slyer J, Singleton J. The effectiveness of delegation interventions by the registered nurse to the unlicensed assistive personnel and their impact on quality of care, patient satisfaction, and RN staff satisfaction: A systematic review . JBI Library of Systematic Reviews. 2012;10(15):895-934.	Study Protocol
Jones AE, Brown MD, Trzeciak S, Shapiro NI, Garrett JS, Heffner AC, et al. The effect of a quantitative resuscitation strategy on mortality in patients with sepsis: a meta-analysis. Critical care medicine. 2008;36(10):2734-9.	Therapy Effectiveness
Jones S, Miller C, Lucas J, Gibson J, Leathley M, Price C, et al. The impact of educational interventions for health care professionals on stroke patient care: An integrative review . International Journal of Stroke. 2014;9:21.	Conference Abstract
Kavalieratos D, Corbelli J, Ernecoff N, Arnold R, Schenker Y. Identifying the impact of palliative care interventions: A systematic review . Journal of Pain and Symptom Management. 2016;51(2):406.	Conference Abstract
Laver K, Lannin NA, Bragge P, Hunter P, Holland AE, Tavender E, et al. Organising health care services for people with an acquired brain injury: an overview of systematic reviews and randomised controlled trials. BMC health services research. 2014;14:397.	System/ macro- changes
Lim CKK, Lim AAF, Ainul Nadziha MH, Roslinah A, Sararak S, Chan SK, et al. Boleh balik! Medical Journal of Malaysia. 2010;65:69.	Conference Abstract
Long SJ, Brown KF, Ames D, Vincent C. What is known about adverse events in older medical hospital inpatients? A systematic review of the literature. International Journal for Quality in Health Care. 2013;25(5):542-54. doi: 10.1093/intqhc/mzt056. PubMed PMID: 2013-35221-007.	No Intervention
Mahar AL, Coburn NG, Karanickolas PJ, Viola R, Helyer LK. Effective palliation and quality of life outcomes in studies of surgery for advanced, non-curative gastric cancer: a systematic review. Gastric cancer : official journal of the International Gastric Cancer Association and the Japanese Gastric Cancer Association. 2012;15 Suppl 1:S138-45.	Uncontrolled
Mason J, Khunti K, Stone M, Farooqi A, Carr S. Educational Interventions in Kidney Disease Care: A Systematic Review of Randomized Trials. American Journal of Kidney Diseases. 2008;51(6):933-51. doi: https://doi.org/10.1053/j.ajkd.2008.01.024 .	Patient Education
McCarthy A, Curtis K, Holland AJA. Paediatric trauma systems and their impact on the health outcomes of severely injured children: An integrative review . Injury. 2016;47(3):574-85.	Uncontrolled
McDonald KM, Matesic B, Contopoulos-Ioannidis DG, Lonhart J, Schmidt E, Pineda N, et al. Patient safety strategies targeted at diagnostic errors: a systematic review. Annals of internal medicine. 2013;158(5 Pt 2):381-9.	no Setting provided
McKibbin KA, Lokker C, Handler SM, Dolovich LR, Holbrook AM, O'Reilly D, et al. Enabling medication management through health information technology (Health IT). Evidence report/technology assessment. 2011;(201):1-951.	publication Type: Book

Mercedes A, Fairman P, Hogan L, Thomas R, Slyer JT. Effectiveness of structured multidisciplinary rounding in acute care units on length of stay and satisfaction of patients and staff: A quantitative systematic review. JBI Database of Systematic Reviews and Implementation Reports. 2016;14(7):131-68.	Study Protocol
Minkman M, Ahaus K, Huijsman R. Performance improvement based on integrated quality management models: what evidence do we have? A systematic literature review. International journal for quality in health care: journal of the International Society for Quality in Health Care. 2007;19(2):90-104.	Uncontrolled
Murphy EV. Clinical decision support: Effectiveness in improving quality processes and clinical outcomes and factors that may influence success. Yale Journal of Biology and Medicine. 2014;87(2):187-97.	publication type: Essay
Nagarajan A, Ramsaroop S, Siegler E, Reid C. Interventions designed to improve transitional care of patients discharged from hospital to home: A systematic review. Journal of the American Geriatrics Society. 2010;58:S224.	Conference Abstract
Olson DM, Bettger JP, Alexander KP, Kendrick AS, Irvine JR, Wing L, et al. Transition of care for acute stroke and myocardial infarction patients: from hospitalization to rehabilitation, recovery, and secondary prevention. Evidence report/technology assessment. 2011;(202):1-197.	Conference Abstract
Ong M-S, Coiera E. A systematic review of failures in handoff communication during intrahospital transfers. Joint Commission journal on quality and patient safety. 2011;37(6):274-84.	No Intervention
Ottevanger PB, De Mulder PHM. The quality of chemotherapy and its quality assurance. European journal of surgical oncology: the journal of the European Society of Surgical Oncology and the British Association of Surgical Oncology. 2005;31(6):656-66.	No Intervention
Papanikolaou PN, Christidi GD, Ioannidis JPA. Patient Outcomes with Teaching Versus Nonteaching Healthcare: A Systematic Review. PLOS Medicine. 2006;3(9):e341. doi: 10.1371/journal.pmed.0030341.	No intervention
Parand A, Dopson S, Renz A, Vincent C. The role of hospital managers in quality and patient safety: A systematic review. BMJ Open. 2014;4:no pagination.	Uncontrolled
Patterson M, Rick J, Wood S, Carroll C, Balain S, Booth A. Systematic review of the links between human resource management practices and performance. Health technology assessment (Winchester, England). 2010;14(51):1-iv.	Publication Type: Book
Ploeg AJ, Flu HC, Lardenoye JHP, Hamming JF, Breslau PJ. Assessing the quality of surgical care in vascular surgery; moving from outcome towards structural and process measures. European journal of vascular and endovascular surgery: the official journal of the European Society for Vascular Surgery. 2010;40(6):696-707.	No Intervention
Ramsay C, Pickard R, Robertson C, Close A, Vale L, Armstrong N, et al. Systematic review and economic modelling of the relative clinical benefit and cost-effectiveness of laparoscopic surgery and robotic surgery for removal of the prostate in men with localised prostate cancer. Health technology assessment (Winchester, England). 2012;16(41):1-313.	Therapy Effectiveness
Rawal N. Fast-track postoperative protocols-how effective are they? Regional Anesthesia and Pain Medicine. 2012;37(5 SUPPL. 1):E134-E5.	Conference Abstract
Reeves S, Zwarenstein M, Goldman J, Barr H, Freeth D, Hammick M, et al. Interprofessional education: effects on professional practice and health care outcomes. The	Duplet copy

Cochrane database of systematic reviews. 2008;(1):CD002213.	
Ruetters D, Keinki C, Schroth S, Liebl P, Huebner J. Is there evidence for a better health care for cancer patients after a second opinion? A systematic review . Journal of Cancer Research and Clinical Oncology. 2016;142(7):1521-8.	Uncontrolled
Scarpinata R, Aly EH. Does robotic rectal cancer surgery offer improved early postoperative outcomes? Diseases of the colon and rectum. 2013;56(2):253-62.	Therapy Effectiveness
Seehusen DA. Clinical pathways: Effects on practice, outcomes, and costs. American Family Physician. 2010;82(11):1338-9.	Duplet copy
Sheehan J, Sherman KA. Computerised decision aids: a systematic review of their effectiveness in facilitating high-quality decision-making in various health-related contexts. Patient education and counseling. 2012;88(1):69-86.	no Setting provided
Shepperd S, Parkes J, McClaren J, Phillips C. Discharge planning from hospital to home. Cochrane Database Syst Rev. 2004;(1):CD000313. Epub 2004/02/20. doi: 10.1002/14651858.CD000313.pub2. PubMed PMID: 14973952.	Duplet copy
Spinewine A, Claeys C, Foulon V, Chevalier P. Approaches for improving continuity of care in medication management: a systematic review . International journal for quality in health care : journal of the International Society for Quality in Health Care / ISQua. 2013;25(4):403-17.	No Outcome- Dimension
Tan SB, Williams AF, Kelly D. Effectiveness of multidisciplinary interventions to improve the quality of life for people with Parkinson's disease: a systematic review . International journal of nursing studies. 2014;51(1):166-74.	Patient Education
Thomas L, Cullum N, McColl E, Rousseau N, Soutter J, Steen N. Guidelines in professions allied to medicine. The Cochrane database of systematic reviews. 1999;(2):CD000349.	Published before 01/01/2000
Thomson O'Brien MA, Oxman AD, Davis DA, Haynes RB, Freemantle N, Harvey EL. Audit and feedback: effects on professional practice and health care outcomes. The Cochrane database of systematic reviews. 2000;(2):CD000259.	Duplet copy
Vloothuis JDM, Mulder M, Veerbeek JM, Konijnenbelt M, Visser-Meily JM, Ket JC, et al. Caregiver-mediated exercises for improving outcomes after stroke. Cochrane Database of Systematic Reviews. 2016;2016(12):no pagination.	no Setting provided
Vuokko R, Makela-Bengs P, Hypponen H, Lindqvist M, Doupi P. Impacts of structuring the electronic health record: Results of a systematic literature review from the perspective of secondary use of patient data. International Journal of Medical Informatics. 2017;97:293-303.	Uncontrolled
Walczak A, Butow PN, Bu S, Clayton JM. A systematic review of evidence for end-of-life communication interventions: Who do they target, how are they structured and do they work? Patient Education and Counseling. 2016;99(1):3-16. doi: 10.1016/j.pec.2015.08.017. PubMed PMID: 2015-44106-001.	no Setting provided
White HL, Glazier RH. Do hospitalist physicians improve the quality of inpatient care delivery? A systematic review of process, efficiency and outcome measures. BMC medicine. 2011;9:58.	No Intervention

Wong BM, Etchells EE, Kuper A, Levinson W, Shojania KG. Teaching quality improvement and patient safety to trainees: A systematic review . Academic Medicine. 2010;85(9):1425-39. doi: 10.1097/ACM.0b013e3181e2d0c6. PubMed PMID: 2010-19253-005.	No Outcome-Dimension
Young AS, Chaney E, Shoai R, Bonner L, Cohen AN, Doebbeling B, et al. Information technology to support improved care for chronic illness. Journal of General Internal Medicine. 2007;22(Suppl 3):425-30. doi: 10.1007/s11606-007-0303-4. PubMed PMID: 2010-08102-007.	No Outcome-Dimension
Young MP, Birkmeyer JD. Potential reduction in mortality rates using an intensivist model to manage intensive care units. Effective clinical practice : ECP. 2000;3(6):284-9.	Uncontrolled
Zaidi AKM, Ganatra HA, Syed S, Cousens S, Lee ACC, Black R, et al. Effect of case management on neonatal mortality due to sepsis and pneumonia. Neonatal Intensive Care. 2011;24(7):55-8. PubMed PMID: 108211371. Language: English. Entry Date: 20120217. Revision Date: 20150712. Publication Type: Journal Article.	Therapy Effectiveness
Zw arenstein M, Bryant W. Interventions to promote collaboration betw een nurses and doctors. The Cochrane database of systematic reviews. 2000;(2):CD000072.	Duplet Copy

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4 Additional file 5 - Step B: Excluded Papers with reasons and characteristics

Reference	Intervention	Interven- tion-Di- mension	Included Primary Studies					Reason for exclu- sion	Direction
			Σ	Outpatient		Controlled			
				n	%	n	%		
Ali MK, Shah S, Tandon N. Review of electronic decision-support tools for diabetes care: a viable option for low - and middle-income countries? Journal of diabetes science and technology. 2011;5(3):553-70.	Electronic Decision-Support Tools	structure	26	23	88,0	20	77,0	Setting	intervention
Alkhenizan A, Shaw C. Impact of accreditation on the quality of healthcare services: A systematic review of the literature. Annals of Saudi Medicine. 2011;31(4):407-16.	Accreditation	both	26	0	0,0	1	3,8	Study Type	intervention
Allard P, Maunsell E, Labbe J, Dorval M. Educational interventions to improve cancer pain control: a systematic review . Journal of palliative medicine. 2001;4(2):191-203.	pain control	process	33	22	66,0	6	18,1	Study Type + Setting	intervention
Arditi C, Rege-Walther M, Wyatt JC, Durieux P, Burnand B. Computer-generated reminders delivered on paper to healthcare professionals; effects on professional practice and health care outcomes. The Cochrane database of systematic reviews. 2012;12:CD001175.	Computer-generated reminders	structure	37	26	70,3	37	100,0	Setting	intervention
Baig AA, Wilkes AE, Davis AM, Peek ME, Huang ES, Bell DS, et al. The use of quality improvement and health information technology approaches to improve diabetes outcomes in African American and Hispanic patients. Medical Care Research and Review . 2010;67(5, Suppl):163S-97S. doi: 10.1177/1077558710374621. PubMed PMID: 2010-19337-002.	Quality Improvement and Health Information Technology Approaches	both	18	0	0,0	6	33,0	Study Type	intervention
Balogh R, McMorris CA, Lunskey Y, Ouellette-Kuntz H, Bourne L, Colantonio A, et al. Organising healthcare services for persons with an intellectual disability. Cochrane Database of Systematic Review s. 2016;2016(4):no pagination.	organizational interven- tions	both	7	5	71,4	7	100,0	Setting	Unclear
Banning M. A review of interventions used to improve adherence to medication in older people. International Journal of Nursing Studies. 2009;46(11):1505-15. doi:	interventions used to improve adherence to	both	21	21	100,0	2	9,5	Study Type +	Unclear

10.1016/j.ijnurstu.2009.03.011. PubMed PMID: 2009-16610-006.	medication							Setting	
Bos JM, van den Bernt PM, de Smet PA, Kramers C. The effect of prescriber education on medication-related patient harm in the hospital: A systematic review . British Journal of Clinical Pharmacology. 2017:no pagination.	prescriber education	structure	15	0	0,0	3	20,0	Study Type	standard-care
Brink-Huis A, van Achterberg T, Schoonhoven L. Pain management: a review of organisation models with integrated processes for the management of pain in adult cancer patients. Journal of clinical nursing. 2008;17(15):1986-2000.	Pain management	process	12	5	41,6	1	8,0	Study Type	intervention
Conry MC, Humphries N, Morgan K, McGowan Y, Montgomery A, Vedhara K, et al. A 10 year (2000-2010) systematic review of interventions to improve quality of care in hospitals. BMC health services research. 2012;12:275.	interventions to improve quality of care	both	20	0	0,0	1	5,0	Study Type	Unclear
Cortois PJ, Simoons S, Peetermans W, Willems L, Laekeman G. Implementing a hospital guideline on pneumonia: A semi-quantitative review . International Journal for Quality in Health Care. 2007;19(6):358-67.	hospital guideline	process	27	0	0,0	0	1,0	Study Type	intervention
Davey P, Brown E, Charani E, Fenelon L, Gould IM, Holmes A, et al. Interventions to improve antibiotic prescribing practices for hospital inpatients. The Cochrane database of systematic reviews . 2013;4:CD003543.	improve antibiotic prescribing practices	both	89	0	0,0	36	41,0	Study Type	intervention
Field RA, Fritz Z, Baker A, Grove A, Perkins GD. Systematic review of interventions to improve appropriate use and outcomes associated with do-not-attempt-cardiopulmonary-resuscitation decisions. Resuscitation. 2014;85(11):1418-31.	interventions to improve appropriate use + outcomes associated with do-not-attempt-cardiopulmonary resuscitation decisions	both	37	0	0,0	11	29,0	Study Type	Unclear
Flynn D, Knoedler MA, Hess EP, Murad MH, Erwin PJ, Montori VM, et al. Engaging patients in health care decisions in the emergency department through shared decision-making: a systematic review . Academic emergency medicine : official journal of the Society for Academic Emergency Medicine. 2012;19(8):959-67.	approaches, methods, and tools used to engage patients/surrogates in SDM in the	both	5	0	0,0	2	40,0	Study Type	intervention

	Emergency Department								
Hall J, Peat M, Birks Y, Golder S, Entwistle V, Gilbody S, et al. Effectiveness of interventions designed to promote patient involvement to enhance safety: a systematic review. Quality & Safety in Health Care. 2010;19(5):e10-e. doi: 10.1136/qshc.2009.032748. PubMed PMID: 105014221. Corporate Author: PIPS Group. Language: English. Entry Date: 20101210. Revision Date: 20150711. Publication Type: Journal Article.	interventions used for the explicit intention of promoting patients/ family ...) involvement in their care	both	15	9	60,0	14	93,0	Setting	Unclear
Harding KE, Taylor NF, Leggat SG. Do triage systems in healthcare improve patient flow? A systematic review of the literature. Australian Health Review . 2011;35(3):371-83.	triage/ prioritisation	process	25	0	0,0	6	24,0	Study Type	intervention
Hempel S, Newberry S, Wang Z, Booth M, Shanman R, Johnsen B, et al. Hospital fall prevention: a systematic review of implementation, components, adherence, and effectiveness. Journal of the American Geriatrics Society. 2013;61(4):483-94.	fall prevention interventions	process	59	0	0,0	11	18,0	Study Type	Unclear
Higginson IJ, Finlay I, Goodwin DM, Cook AM, Hood K, Edwards AGK, et al. Do hospital-based palliative teams improve care for patients or families at the end of life? Journal of pain and symptom management. 2002;23(2):96-106.	Hospital-Based Palliative Teams	both	13	0	0,0	2	13,0	Study Type	intervention
Howell A-M, Panesar SS, Burns EM, Donaldson LJ, Darzi A. Reducing the burden of surgical harm: a systematic review of the interventions used to reduce adverse events in surgery. Annals of surgery. 2014;259(4):630-41.	Interventions Used to Reduce Adverse Events	both	92	0	0,0	9	10,0	Study Type	standard-care
Ivers N, Jamtvedt G, Flottorp S, Young JM, Odgaard-Jensen J, French SD, et al. Audit and feedback: effects on professional practice and healthcare outcomes. Cochrane Database of Systematic Reviews. 2012;(6). doi: 10.1002/14651858.CD000259.pub3. PubMed PMID: CD000259.	Audit and feedback	process	140	94	67,0	140	100,0	Setting	intervention
Jamal A, McKenzie K, Clark M. The impact of health information technology on the quality of medical and health care: a systematic review. The HIM journal. 2009;38(3):26-37.	health information technology	structure	23	18	78,0	8	35,0	Study Type + Setting	intervention
Kotronoulas G, Kearney N, Maguire R, Harrow A, DiDomenico D, Croy S, et al. What is the value of the routine use of patient-reported outcome measures toward improvement of	Routine Use of Patient-Reported Outcome	structure	26	22	84,0	26	100,0	Setting	intervention

patient outcomes, processes of care, and health service outcomes in cancer care? A systematic review of controlled trials. Journal of clinical oncology : official journal of the American Society of Clinical Oncology. 2014;32(14):1480-501.	Measures								
Kw an J, Sandercock P. In-hospital care pathw ays for stroke. The Cochrane database of systematic reviews. 2002;(2):CD002924.	care pathw ays	process	15	0	0,0	5	33,0	Study Type	Unclear
Le Grand Rogers R, Narvaez Y, Venkatesh AK, Fleischman W, Hall MK, Taylor RA, et al. Improving emergency physician performance using audit and feedback: a systematic review . The American journal of emergency medicine. 2015;33(10):1505-14.	audit and feedback	both	24	0	0,0	1	4,0	Study Type	intervention
Legare F, Turcotte S, Stacey D, Ratte S, Kryworuchko J, Graham ID. Patients' perceptions of sharing in decisions: a systematic review of interventions to enhance shared decision making in routine clinical practice. The patient. 2012;5(1):1-19.	shared decision making	process	21	18	86,0	21	100,0	Setting	intervention
Lugtenberg M, Burgers JS, Westert GP. Effects of evidence-based clinical practice guide-lines on quality of care: a systematic review . Quality & Safety in Health Care. 2009;18(5):385-92. doi: 10.1136/qshc.2008.028043. PubMed PMID: 105235856. Lan-guage: English. Entry Date: 20100101. Revision Date: 20150711. Publication Type: Journal Article.	evidence-based clinical practice guidelines	process	20	20	100,0	14	70,0	Setting	intervention
Marshall S, Hayw ood K, Fitzpatrick R. Impact of patient-reported outcome measures on routine practice: A structured review . Journal of Evaluation in Clinical Practice. 2006;12(5):559-68. doi: 10.1111/j.1365-2753.2006.00650.x. PubMed PMID: 2006-12561-008.	clinical use of patient-reported outcome measures	structure	38	38	100,0	35	92,0	Setting	Unclear
Moraros J, Lemstra M, Nw ankwo C. Lean interventions in healthcare: Do they actually w ork? A systematic literature review . International Journal for Quality in Health Care. 2016;28(2):150-65.	lean management	process	22	5	23,0	1	5,0	Study Type	standard-care
Mueller SK, Sponsler K, Kripalani S, Schnipper JL. Hospital-based medication reconcilia-tion practices: A systematic review . Archives of Internal Medicine. 2012;172(14):1057-69. doi: 10.1001/archinternmed.2012.2246.	Interprofessional: Medication Reconciliation	both	26	0	0,0	13	50,0	Study Type	intervention

Oluoch T, Santas X, Kw aro D, Were M, Biondich P, Bailey C, et al. The effect of electronic medical record-based clinical decision support on HIV care in resource-constrained settings: a systematic review . International journal of medical informatics. 2012;81(10):e83-92.	medical record-based clinical decision support	structure	12	7	58,0	1	8,0	Study Type + Setting	Unclear
Ospina MB, Taenzer P, Rashid S, MacDermid JC, Carr E, Chojecki D, et al. A systematic review of the effectiveness of knowledge translation interventions for chronic noncancer pain management. Pain research & management : the journal of the Canadian Pain Society = journal de la societe canadienne pour le traitement de la douleur. 2013;18(6):e129-41.	Knowledge translation interventions	both	19	18	95,0	19	100,0	Setting	intervention
Patow CA, Karpovich K, Riesenber LA, Jaeger J, Rosenfeld JC, Wittenbreer M, et al. Residents' engagement in quality improvement: a systematic review of the literature. Academic medicine : journal of the Association of American Medical Colleges. 2009;84(12):1757-64.	residents' participation in QI initiatives	process	28	3	11,0	1	3,5	Study Type	Unclear
Reeves S, Perrier L, Goldman J, Freeth D, Zw arenstein M. Interprofessional education: effects on professional practice and healthcare outcomes (update). The Cochrane database of systematic reviews. 2013;3:CD002213.	Interprofessional education	structure	15	8	53,0	13	86,0	Setting	Unclear
Robertson ER, Morgan L, Bird S, Catchpole K, McCulloch P. Interventions employed to improve intrahospital handover: a systematic review. BMJ quality & safety. 2014;23(7):600-7.	mono-/ multicomponent Interventions employed to improve intrahospital handover	process	29	0	0,0	3	10,0	Study Type	standard-care
Salgado TM, Moles R, Benrimoj SI, Fernandez-Llimos F. Pharmacists' interventions in the management of patients with chronic kidney disease: A systematic review. Nephrology Dialysis Transplantation. 2012;27(1):276-92.	Pharmacists' interventions	process	37	11	29,7	8	22,0	Study Type	intervention
Schouten LMT, Hulscher MEJL, van Everdingen JJE, Huijsman R, Grol RPTM. Evidence for the impact of quality improvement collaboratives: systematic review. BMJ (Clinical research ed). 2008;336(7659):1491-4.	quality improvement collaboratives	both	72	6	8,3	12	17,0	Study Type	intervention
Soban LM, Hempel S, Munjas BA, Miles J, Rubenstein LV. Preventing pressure ulcers in	Nurse-Focused Quality	process	39	0	0,0	3	8,0	Study	Unclear

hospitals: A systematic review of nurse-focused quality improvement interventions. Joint Commission journal on quality and patient safety. 2011;37(6):245-52.	Improvement Interventions							Type	
Tho PC, Ang E. The effectiveness of patient navigation programs for adult cancer patients undergoing treatment: A systematic review . JBI Database of Systematic Reviews and Implementation Reports. 2016;14(2):295-321.	nurse-led patient navigation programs	process	4	0	0,0	2	50,0	Study Type	standard-care
Tjia J, Velten SJ, Parsons C, Valluri S, Briesacher BA. Studies to reduce unnecessary medication use in frail older adults: A systematic review . Drugs and Aging. 2013;30(5):285-307.	Drug Review and Discontinuation Processes	process	39	23	58,0	21	53,0	Setting	Unclear
van der Veer SN, de Keizer NF, Ravelli ACJ, Tenkink S, Jager KJ. Improving quality of care. A systematic review on how medical registries provide information feedback to health care providers. International journal of medical informatics. 2010;79(5):305-23.	information feedback to health care providers	process	53	31	58,4	15	28,0	Study Type	intervention
Van Herck P, Vanhaecht K, Deneckere S, Bellemans J, Panella M, Barbieri A, et al. Key interventions and outcomes in joint arthroplasty clinical pathways: A systematic review . Journal of Evaluation in Clinical Practice. 2010;16(1):39-49.	Key interventions and outcomes in joint arthroplasty	process	34	0	0,0	3	9,0	Study Type	Unclear
van Rosse F, Maat B, Rademaker CMA, van Vught AJ, Egberts ACG, Bollen CW. The effect of computerized physician order entry on medication prescription errors and clinical outcome in pediatric and intensive care: a systematic review . Pediatrics. 2009;123(4):1184-90.	Physician Order Entry	process	12	0	0,0	0	0,0	Study Type	intervention
Weinmann S, Koesters M, Becker T. Effects of implementation of psychiatric guidelines on provider performance and patient outcome: Systematic review . Acta Psychiatrica Scandinavica. 2007;115(6):420-33.	psychiatric guidelines	process	18	12	66,7	15	83,0	Setting	Unclear
Yourman L, Concato J, Agostini JV. Use of computer decision support interventions to improve medication prescribing in older adults: a systematic review . The American journal of geriatric pharmacotherapy. 2008;6(2):119-29.	computer decision support interventions	structure	10	7	70,0	5	50,0	Study Type + Setting	Unclear

5 Additional file 6 - R - Amstar- Score for every systematic review

Ref.		Max. Score	Score	R-Amstar-Item (max. 4 Score-points per item)										
				1	2	3	4	5	6	7	8	9	10	11
No Meta-Analysis														
42		41	36	4	4	4	4	4	4	4	3	1	1	3
39		41	30	3	4	3	2	1	4	4	4	1	1	3
19		41	25	3	4	3	2	1	4	1	4	1	1	1
27		41	24	3	2	4	1	2	4	1	2	1	1	3
21		41	29	3	4	3	2	4	4	1	3	1	1	3
31		41	32	3	4	4	3	4	4	4	2	1	1	2
52		41	34	4	4	4	2	4	4	3	4	1	1	3
28		41	25	3	4	3	2	1	1	3	3	1	1	3
49		41	30	3	2	4	2	2	4	4	4	1	1	3
44		41	31	3	4	4	4	2	4	4	2	1	1	2
50		41	19	2	1	4	2	1	4	1	1	1	1	1
46		41	38	4	4	4	4	4	4	4	4	1	2	3
29		41	28	3	2	4	1	2	4	4	3	1	1	3
51		41	36	4	4	4	3	4	4	4	4	1	1	3
41		41	34	4	4	4	4	4	4	4	1	1	1	3
20		41	29	3	4	4	2	1	4	4	2	1	1	3
16		41	30	3	4	3	3	2	4	1	4	1	2	3
30		41	24	3	2	3	2	1	4	4	1	1	1	2
Mean			29,6											
Meta-Analysis														
43		44	26	2	4	4	2	2	2	2	2	3	1	2
32		44	37	4	4	4	2	4	4	3	4	4	1	3
23		44	37	3	4	4	2	4	4	4	3	4	2	3
38		44	26	3	2	4	1	1	4	3	3	1	1	3
40		44	28	3	1	4	2	2	4	4	4	1	2	1
24		44	21	3	1	3	3	1	4	1	1	1	1	2
35		44	38	4	4	4	3	2	4	4	4	4	2	3
48		44	38	4	4	4	2	2	4	4	4	4	3	3
45		44	43	4	4	4	4	4	4	4	4	4	4	3
33		44	37	4	4	4	3	4	4	4	2	4	1	3
25		44	34	4	4	3	2	2	4	4	2	4	2	3
22		44	32	4	4	4	1	4	4	4	2	1	1	3
37		44	36	4	2	4	4	4	4	4	2	4	1	3

⁴⁷		44	26	3	1	3	3	2	4	3	2	1	1	3
¹⁷		44	38	4	4	3	3	2	4	4	3	4	4	3
¹⁸		44	40	4	4	4	4	4	4	4	4	4	1	3
²⁶		44	28	3	1	3	2	2	4	4	4	1	1	3
³⁴		44	29	3	2	4	1	2	4	4	4	2	1	2
³⁶		44	32	3	2	2	2	2	4	4	3	4	3	3
Mean			33	3,4	3,2	3,6	2,5	2,5	3,9	3,3	2,9	2,9 ¹	1,4	2,7
Reviews with 4/4 points				15	24	25	7	14	35	25	15	11 ¹	2	0

6

7

1: # of included papers = 19

8 Additional file 7 - Characteristics of included systematic reviews

9

Ref	Year	Intervention and Condition/ Setting	Included Studies			Meta-analysis	Primary Endpoint
			Σ	Con-trolled (%)	Inpatient/ Intersec-toral (%)		
		structure- and process-related quality-interventions					
¹⁶	2006	clinical pharmacists for hospitalized adults	36	66	100	no	adverse drug events, medication appropriateness, resource use
¹⁷	2013	Comprehensive geriatric assessment for adults $\geq 60y$	12	100	100	yes	functional status, readmission rate, mortality or length of stay
²⁰	2011	hospital-wide interventions for older patients: 'integrated practices throughout the hospital system of care delivery for older patients, unrestricted to medical departments or specialties'	20	100	100	no	functional performance, length of stay, mortality, discharge destination, readmission, complications, resource use, costs
¹⁸	2013	Organized stroke unit care	28	100	100	yes	death, dependency, institutional care
¹⁹	2009	quality indicators in hospital care	21	100	100	no	improving quality of hospital care
		structure-related quality-interventions					
²¹	2013	personal digital assistants (PDAs) in clinical settings	7	100	71	no	usefulness of PDAs
²⁴	2005	mobile stroke teams vs. 1) General medicine ward; 2) Comprehensive stroke unit	6	100	100	yes	Death, institutional care, dependency
²⁵	2013	stroke unit	8	100	100	yes	Death, dependence, combined outcomes institutionalization;
²²	2005	Clinical decision support systems in neonatal care	2	100	100	yes	Mortality (≤ 28 days, $\leq 1y$ of life); physician/ nursing staff performance
²⁶	2010	Geriatric Evaluation and Management Units for elderly people	7	100	100	yes	mortality, institutionalization, functional decline, readmission, length of stay

23	2013	Computerized advice on drug dosage to improve prescribing practice of healthcare professionals	42	95	71	yes	patient-oriented outcomes
	Process-related quality-interventions						
	<u>Pathw ays</u>						
43	2011	colorectal surgery patients in recovery	6	100	100	yes	morbidity, effectiveness of care
42	2016	dying patients, carers/ providers/ relatives	1	100	100	no	Physical/ Psychological symptom severity; Quality of life; Harms
45	2010	stand-alone- and multi-faceted- pathw ays in different settings/ conditions	27	92	77	yes	Professional practice, patient outcomes, length of stay, hospital costs
44	2012	Pathw ays for hip fracture	15	80	100	no	clinical parameters, process of care, and/or hospitalization costs
	<u>Interprofessional Approaches</u>						
38	2011	comprehensive geriatric assessment for older adults admitted as emergency	22	100	100	yes	living at home
41	2009	interprofessional collaboration of practice-based interventions in unspecified conditions	5	100	100	no	patient/ client health measures; healthcare process; patient/family satisfaction
39	2016	Multifaceted Care for ICU-patients	14	100	100	no	Patient-centered clinical outcomes; care process adoption success; costsavings.
40	2014	team-based models of care for patients w ith an illness that w ill w orsen and eventually cause death.	12	83	66	yes	quality of life; symptom management; patient-/caregiver-/provider- satisfaction; emergency department visits; length of stay; hospital- or intensive care unit-ad-missions; place of death
	<u>Discharge Planning</u>						
36	2004	Comprehensive Discharge Plan, Post-Discharge Support for pa-tients w ith Congestive Heart Failure	18	100	100	yes	proportion of patients readmitted at least once

32	2002	early discharge of healthy mothers and term infants	10	100	100	yes	Infants: readmitted for neonatal morbidity ≤ 7 , ≤ 28 d after birth; women: readmitted for birth-complications ≤ 6 w k after birth, above the cut-off score for measuring depression at 6-8w k, 3mo. and 6 mo. after birth, breastfeeding at 6w k, 12w k and 6 mo. after birth.
29	2011	computer-enabled discharge communication for patients after discharge from acute care hospitals	12	75	100	no	mortality, readmission/ED visits, adverse events
35	2015	ED community transition strategies (ED-CTS) for people ≥ 65 y after emergency department discharge	9	55	100	yes	unplanned ED re-attendance, emergency hospitalization and mortality
30	2013	Transitional Care Interventions of unspecified conditions	47	100	100	no	adverse events, emergency department visits, readmissions after discharge
27	2015	Family-Centered Transition: Hospital to Home for pediatric, adult, elderly patients	16	81	100	no	Patient health outcomes and health care utilization.
34	2000	supporting discharge for people >65 y	9	100	100	yes	-
28	2012	improve patient discharge from hospital to primary care	36	100	100	no	overall effects of these interventions
33	2016	discharge planning for Hospital-patients	30	100	100	yes	Length of stay in hospital; Readmission rate to hospital
31	2012	early patient engagement, patient-caregiver dyad intervention, transitional care, coordinated care, multidisciplinary team approach for Community acquired pneumonia- patients	3	100	100	no	hospital readmission, emergency room visit (not measured), and unscheduled visit (not measured)
37	2012	Services to reduce duration inpatient-care after acute stroke	14	100	100	yes	composite end-point of death or long-term dependency
	<u>Other Process-Interventions</u>						
48	2016	Communication tools for end-of-life decision-making for intensive care unit (ICU)-patients	19	89	100	yes	patients with: documented goals of care discussions + code status; new decisions to withdraw/withhold life-sustaining treatments
47	2008	hospital fall prevention programs of not specified conditions	8	100	100	yes	number of falls or fallers
46	2015	Interventions to reduce medication errors for inpatient-children	7	71	100	no	Medical Errors and related harm

⁵²	2009	interventions to promote adoption of information and communication technologies Healthcare professionals behavior	10	90	60	no	effectiveness of interventions to promote the adoption of ICT
⁴⁹	2008	Shared Decision-Making of not specified conditions	11	100	72	no	treatment adherence, patient satisfaction, well-being, quality of life
⁵⁰	2009	routine use of patient-reported data for cancer patients	6	100	100	no	satisfaction, health status (clinical or self-reported) and resource use
⁵¹	2013	Nutritional screening for patients >15y	3	100	66	no	mortality, morbidity, health quality of life

10 **Additional file 7 - Aggregation and direction of extracted effects**

Effect-Description	N	% ¹	Favors				no difference		unclear	
			Intervention		Standard-care					
			n	% ²	n	% ²	n	%	n	%
Mortality	28	14,4%	20	71,4%	6	21,4%	2	7,1%	0	0,0%
Adverse Event	32	16,5%	18	56,3%	4	12,5%	0	0,0%	10	31,3%
Patient-reported	25	12,9%	18	72,0%	1	4,0%	2	8,0%	4	16,0%
Physician-reported	28	14,4%	19	67,9%	3	10,7%	2	7,1%	4	14,3%
Health economical	13	6,7%	7	53,8%	0	0,0%	1	7,7%	5	38,5%
Treatment Duration	13	6,7%	8	61,5%	0	0,0%	1	7,7%	4	30,8%
Combined endpoint	17	8,8%	14	82,4%	3	17,6%	0	0,0%	0	0,0%
Readmissions	18	9,3%	13	72,2%	1	5,6%	2	11,1%	2	11,1%
Other	20	10,3%	15	75,0%	1	5,0%	0	0,0%	4	20,0%
Σ	194	100%	132	68,0%	19	9,8%	10	5,2%	33	17,0%

11 1: N = 194

12 2: N = Sum of each content