Supplementary Tables and Figures

Interventions to Support Adherence to Oral Anticancer Medications: Systematic Review and Meta-Analysis

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Table 1. Taxonomy for Critical Outcomes Reported in this Review and Meta-Analysis

Outcome	**Type of Measure**	**How outcome was reported**
Adherence	Self-reported	Adherence rate
		Categorized as adherent/non-adherent
		Number of weeks adherent
		Oral chemotherapy adherence scale
		Questionnaires asking about whether medication was taken and/or if it was taken correctly
	Objective	Adherence rate (measured using pill count/medication possession ratio/MEMS cap)
		Relative dose intensity
		Medication possession ratio
		Pharmacy refill rate
		Average Z scores of plasma determinations

HRQOL/PROs	Self-reported	FACT-P score
		FACT-G score
		FACT-B score
		EQ-5D score
		EORTC score
Patient satisfaction	Self-reported	FACIT-TS-PS score
		Self-designed scale by authors (Komatsu 2020)
		Proportion satisfied with care
		Questionnaire used to determine if patients found intervention helpful
Cancer-related morbidity	Self-reported	Symptom severity (M.D. Anderson Symptom Inventory)
		Summed symptom severity (symptom experience inventory)
		Global toxicity score
Patient knowledge of regimen	Self-reported/Objective	Proportion able to answer questions about regimen correctly
Self-efficacy to manage	Self-reported	MASES-R

medications		Spoelstra 2017 scale
		General self-efficacy scale
Patient-self efficacy about treatment	Self-reported	MASES-R
		Self-Efficacy Scale

MEMS: medication event monitoring system; FACT-P: Functional Assessment of Cancer Therapy – Prostate; FACT-G: Functional Assessment of Cancer Therapy – General; FACT-B: Functional Assessment of Cancer Therapy – Breast; EQ-5D: standardized measure of health-related quality of life developed by EuroQoL group; EORTC – European Organization for Research and Treatment of Cancer; FACIT-TS-PS: Functional Assessment of Chronic Illness Therapy – Treatment Satisfaction – Patient Satisfaction; MASES-R: Medication Adherence Self-Efficacy - Revision

Search Strategies for PICO 1-4

1	Should standardized assessment for risk for nonadherence/barriers to adherence be used rather than usual care in patients starting a new oral anticancer medication regimen?
2	Should standardized oral anticancer medication educational programs that address adherence be used rather than usual care in patients on an oral anticancer medication regimen?
3	Should standardized, periodic/ongoing assessment of adherence instead of usual care be used for patients on an oral anticancer medication regimen?
4	Should proactive follow-up outside of routine medical visits be done rather than usual care for patients on an oral anticancer medication regimen who have additional risk factors?

PubMed

Inclusive dates searched: 01/01/2000-05/06/2021
Search Date: 05/06/2021

Set #	Search Strategy	Results
1	"Administration, Oral"[Mesh]	
2	oral[tiab]	
3	1 OR 2	686,252
4	"Drug Therapy"[Mesh] OR "drug therapy"[Subheading]	
5	agent*[tiab] OR drug*[tiab] OR medication*[tiab] OR medicine*[tiab]	
6	4 OR 5	

7	antineoplastic*[tiab] OR cancer*[tiab] OR neoplasm*[tiab] OR oncology[tiab]	
8	6 AND 7	
9	"Antineoplastic Agents/therapeutic use"[Mesh] OR "Aromatase Inhibitors/therapeutic use"[Mesh] OR "Aromatase/therapeutic use"[Mesh] OR "Neoplasms/drug therapy"[Mesh] OR "Antineoplastic Agents"[Pharmacological Action] OR "Aromatase Inhibitors"[Pharmacological Action]	
10	"anticancer agent*"[tiab] OR "anticancer drug*"[tiab] OR "antineoplastic agent*"[tiab] OR "antineoplastic drug*"[tiab] OR "antitumor agent*"[tiab] OR "antitumor drug*"[tiab] OR "aromatase inhibitor*"[tiab] OR chemotherap*[tiab]	
11	OR/8-10	1,762,726
12	analys*[tiab] OR analyz*[tiab] OR assess*[tiab] OR evaluat*[tiab] OR monitor*[tiab] OR standardis*[tiab] OR standardiz*[tiab]	
13	"Patient Education as Topic"[Mesh] OR "Education"[Mesh] OR "Learning"[Mesh] OR "Teaching"[Mesh] OR "education"[Subheading]	
14	activit*[tiab] OR barrier*[tiab] OR educat*[tiab] OR learn*[tiab] OR outreach[tiab] OR program*[tiab] OR status[tiab] OR teach*[tiab] OR training[tiab] OR updat*[tiab] OR workshop*[tiab]	
15	"Risk"[Mesh]	
16	(risk*[tiab] OR barrier*[tiab])	
17	15 OR 16	

18	analys*[tiab] OR analyz*[tiab] OR assess*[tiab] OR evaluat*[tiab] OR monitor*[tiab] OR standardis*[tiab] OR standardiz*[tiab]	
19	17 AND 18	
20	"Risk Assessment"[Mesh]	
21	12 OR 13 OR 14 OR 19 OR 20	14,336,024
22	"Medication Adherence"[Mesh] OR "Patient Compliance"[Mesh]	
23	adhere*[tiab] OR compliance[tiab] OR complied[tiab] OR comply*[tiab] OR "pill fatigue"[tiab]	
24	OR/17-21	360,661
25	3 AND 11 AND 21 AND 24	
26	English[lang]	
27	23 AND 24	
28	2000/1/1:3000/12/31[pdat]	
29	25 AND 26	1,410
30	(comparativestudy[Filter] OR meta-analysis[Filter] OR randomizedcontrolledtrial[Filter] OR systematicreview[Filter] OR comparative[tiab] OR comparison[tiab] OR "meta-analysis" [tiab] OR randomized[tiab] OR randomized[tiab] OR "systematic review"[tiab])	
31	27 AND 28	441

EMBASE

Inclusive dates searched: 01/01/2000-05/06/2021
Search Date: 05/06/2021

Set #	Search Strategy	Results
1	oral drug administration'/exp OR 'oral drug administration'/lnk	
2	oral:ti,ab	
3	1 OR 2	1,617,216
4	drug therapy'/exp OR 'drug therapy'/lnk	
5	agent*:ti,ab OR drug*:ti,ab OR medication*:ti,ab OR medicine*:ti,ab	
6	4 OR 5	
7	antineoplastic*:ti,ab OR cancer*:ti,ab OR neoplasm*:ti,ab OR oncology:ti,ab	
8	6 AND 7	
9	antineoplastic agent'/exp/dd_dt OR 'aromatase inhibitor'/exp/dd_dt OR 'aromatase'/exp/dd_dt OR 'neoplasm'/exp/dd_dt	
10	anticancer agent*':ti,ab OR 'anticancer drug*':ti,ab OR 'antineoplastic agent*':ti,ab OR 'antineoplastic drug*':ti,ab OR 'antitumor agent*':ti,ab OR 'antitumor drug*':ti,ab OR 'aromatase inhibitor*':ti,ab OR chemotherap*:ti,ab	
11	OR/8-10	3,880,135

12	analys*:ti,ab OR analyz*:ti,ab OR assess*:ti,ab OR evaluat*:ti,ab OR monitor*:ti,ab OR standardis*:ti,ab OR standardiz*:ti,ab	
13	education'/exp OR 'learning'/exp OR 'patient education'/exp OR 'patient education material'/exp OR 'teaching'/exp	
14	activit*:ti,ab OR barrier*:ti,ab OR educat*:ti,ab OR learn*:ti,ab OR outreach:ti,ab OR program*:ti,ab OR status:ti,ab OR teach*:ti,ab OR training:ti,ab OR updat*:ti,ab OR workshop*:ti,ab	
15	risk'/exp	
16	(risk*:ti,ab OR barrier*:ti,ab)	
17	15 OR 16	
18	analys*:ti,ab OR analyz*:ti,ab OR assess*:ti,ab OR evaluat*:ti,ab OR monitor*:ti,ab OR standardis*:ti,ab OR standardiz*:ti,ab	
19	17 AND 18	
20	risk assessment'/exp	
21	12 OR 13 OR 14 OR 19 OR 20	18,649,323
22	medication compliance'/exp OR 'patient compliance'/exp	
23	adhere*:ti,ab OR compliance:ti,ab OR complied:ti,ab OR comply*:ti,ab OR 'pill fatigue':ti,ab	
24	22 OR 23	555,422

25	3 AND 11 AND 21 AND 24	7,368
26	[english]/lim	
27	25 AND 26	
28	[2000-2021]/py	
29	27 AND 28	6,666
30	clinical trial'/de OR 'comparative effectiveness'/de OR 'comparative study'/de OR 'comparative toxicology'/de OR 'controlled clinical trial'/de OR 'controlled clinical trial topic'/de OR 'controlled study'/de OR 'double blind procedure'/de OR 'major clinical study'/de OR 'meta analysis'/de OR 'meta analysis topic'/de OR 'multicenter study'/de OR 'multicenter study topic'/de OR 'phase 1 clinical trial'/de OR 'phase 1 clinical trial topic'/de OR 'phase 2 clinical trial'/de OR 'phase 2 clinical trial topic'/de OR 'phase 3 clinical trial'/de OR 'phase 3 clinical trial topic'/de OR 'phase 4 clinical trial'/de OR 'phase 4 clinical trial topic'/de OR 'practice guideline'/de OR 'randomized controlled trial'/de OR 'randomized controlled trial topic'/de OR 'systematic review'/de OR 'systematic review topic'/de	
31	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [letter]/lim OR [note]/lim OR [short survey]/lim	
32	30 NOT 31	
33	29 AND 32	3,604

CINAHL

Inclusive dates searched: 01/01/2000-05/06/2021

Search Date: 05/06/2021

Set #	Search Strategy	Results
1	MH "Administration, Oral+"	
2	TI oral OR AB oral	
3	1 OR 2	146,323
4	MH "Drug Therapy+"	
5	TI (agent* OR drug* OR medication* OR medicine*) OR AB (agent* OR drug* OR medication* OR medicine*)	
6	4 OR 5	
7	TI (antineoplastic* OR cancer* OR neoplasm* OR oncology) OR AB (antineoplastic* OR cancer* OR neoplasm* OR oncology)	
8	6 AND 7	
9	MH "Antineoplastic Agents+/TU" OR MH "Aromatase Inhibitors+/TU" OR MH "Aromatase/TU" OR MH "Neoplasms+/DT"	
10	TI ("anticancer agent*" OR "anticancer drug*" OR "antineoplastic agent*" OR "antineoplastic drug*" OR "antitumor agent*" OR "antitumor drug*" OR "aromatase inhibitor*" OR chemotherap*) OR AB ("anticancer agent*" OR "anticancer drug*" OR "antineoplastic agent*" OR "antineoplastic drug*" OR "antitumor agent*" OR "antitumor drug*" OR "aromatase inhibitor*" OR chemotherap*)	

11	OR/8-10	208,027
12	(TI (analys* OR analyz* OR assess* OR evaluat* OR monitor* OR standardis* OR standardiz*)) OR (AB (analys* OR analyz* OR assess* OR evaluat* OR monitor* OR standardis* OR standardiz*))	
13	(MH "Education+") OR (MH "Learning+") OR (MH "Patient Education+") OR (MH "Teaching+")	
14	(TI (activit* OR barrier* OR educat* OR learn* OR outreach OR program* OR status OR teach* OR training OR updat* OR workshop*)) OR (AB (activit* OR barrier* OR educat* OR learn* OR outreach OR program* OR status OR teach* OR training OR updat* OR workshop*))	
15	(((TI (risk* OR barrier*)) OR (AB (risk* OR barrier*)))	
16	((TI (analys* OR analyz* OR assess* OR evaluat* OR monitor* OR standardis* OR standardiz*)) OR (AB (analys* OR analyz* OR assess* OR evaluat* OR monitor* OR standardis* OR standardiz*))))	
17	15 AND 16	
18	(MH "Risk Assessment")	
19	12 OR 13 OR 14 OR 17 OR 18	3,372,665
20	(MH ("Medication Compliance" OR "Patient Compliance+")	
21	(TI (adhere* OR compliance OR complied OR comply* OR "pill fatigue")) OR (AB (adhere* OR compliance OR complied OR comply* OR "pill fatigue"))	

22	20 OR 21	125,392
23	3 AND 11 AND 19 AND 22	610
24	English Language	
25	23 AND 24	
26	Published Date: 20000101-	
27	25 AND 26	574
28	Publication Type: Care Plan, Clinical Trial, Journal Article, Meta Analysis, Meta Synthesis, Practice Acts, Practice Guidelines, Randomized Controlled Trial, Research, Standards, Systematic Review	
29	27 AND 28	506

Search Strategies for PICO 5-6

5	Should a coaching intervention be used instead of usual care for patients on an oral anticancer medication regimen?
6	Should motivational interviewing be used instead of usual care for patients on an oral anticancer medication regimen?

PubMed

Inclusive dates searched: 01/01/2000-05/06/2021
Search Date: 05/06/2021

Set #	Search Strategy	Results
1	"Administration, Oral"[Mesh]	
2	oral[tiab]	
3	1 OR 2	686,252
4	"Drug Therapy"[Mesh] OR "drug therapy"[Subheading]	
5	agent*[tiab] OR drug*[tiab] OR medication*[tiab] OR medicine*[tiab]	
6	4 OR 5	
7	antineoplastic*[tiab] OR cancer*[tiab] OR neoplasm*[tiab] OR oncology[tiab]	
8	6 AND 7	

9	"Antineoplastic Agents/therapeutic use"[Mesh] OR "Aromatase Inhibitors/therapeutic use"[Mesh] OR "Aromatase/therapeutic use"[Mesh] OR "Neoplasms/drug therapy"[Mesh] OR "Antineoplastic Agents"[Pharmacological Action] OR "Aromatase Inhibitors"[Pharmacological Action]	
10	"anticancer agent*"[tiab] OR "anticancer drug*"[tiab] OR "antineoplastic agent*"[tiab] OR "antineoplastic drug*"[tiab] OR "antitumor agent*"[tiab] OR "antitumor drug*"[tiab] OR "aromatase inhibitor*"[tiab] OR chemotherap*[tiab]	
11	OR/8-10	1,762,726
12	"Directive Counseling"[Mesh]	
13	(coach*[tiab] OR directive OR motivate*[tiab] OR prescript*[tiab]) n2 (coach*[tiab] OR counsel*[tiab] OR interven*[tiab] OR interview*[tiab])	
14	activit*[tiab] OR barrier*[tiab] OR outreach[tiab] OR program*[tiab] OR training[tiab] OR workshop*[tiab]	
15	OR/12-14	4,609,797
16	"Medication Adherence"[Mesh] OR "Patient Compliance"[Mesh]	
17	adhere*[tiab] OR compliance[tiab] OR complied[tiab] OR comply*[tiab] OR "pill fatigue"[tiab]	
18	16 OR 17	6,729,467
19	3 AND 11 AND 15 AND 18	505
20	English[lang]	

21	19 AND 20	
22	2000/1/1:3000/12/31[pdat]	
23	21 AND 22	399
24	(comparativestudy[Filter] OR meta-analysis[Filter] OR randomizedcontrolledtrial[Filter] OR systematicreview[Filter] OR comparative[tiab] OR comparison[tiab] OR "meta-analysis" [tiab] OR randomized[tiab] OR randomized[tiab] OR "systematic review"[tiab])	
25	23 AND 24	88

EMBASE

Inclusive dates searched: 01/01/2000-05/06/2021
Search Date: 05/06/2021

Set #	Search Strategy	Results
1	oral drug administration'/exp OR 'oral drug administration'/lnk	
2	oral:ti,ab	
3	1 OR 2	1,617,216
4	drug therapy'/exp OR 'drug therapy'/lnk	
5	agent*:ti,ab OR drug*:ti,ab OR medication*:ti,ab OR medicine*:ti,ab	
6	4 OR 5	

7	antineoplastic*:ti,ab OR cancer*:ti,ab OR neoplasm*:ti,ab OR oncology:ti,ab	
8	6 AND 7	
9	antineoplastic agent'/exp/dd_dt OR 'aromatase inhibitor'/exp/dd_dt OR 'aromatase'/exp/dd_dt OR 'neoplasm'/exp/dd_dt	
10	anticancer agent*':ti,ab OR 'anticancer drug*':ti,ab OR 'antineoplastic agent*':ti,ab OR 'antineoplastic drug*':ti,ab OR 'antitumor agent*':ti,ab OR 'antitumor drug*':ti,ab OR 'aromatase inhibitor*':ti,ab OR chemotherap*:ti,ab	
11	OR/8-10	3,880,135
12	directive counseling'/exp	
13	((coach*:ti,ab OR directive OR motivate*:ti,ab OR prescript*:ti,ab) AND (coach*:ti,ab OR counsel*:ti,ab OR interven*:ti,ab OR interview*:ti,ab))	
14	activit*:ti,ab OR barrier*:ti,ab OR outreach:ti,ab OR program*:ti,ab OR training:ti,ab OR workshop*:ti,ab	
15	OR/12-14	5,826,076
16	medication compliance'/exp OR 'patient compliance'/exp	
17	adhere*:ti,ab OR compliance:ti,ab OR complied:ti,ab OR comply*:ti,ab OR 'pill fatigue':ti,ab	
18	16 OR 17	555,422
19	3 AND 11 AND 15 AND 18	2,171

20	[english]/lim	
21	19 AND 20	
22	[2000-2021]/py	
23	21 AND 22	1,971
24	clinical trial'/de OR 'comparative effectiveness'/de OR 'comparative study'/de OR 'comparative toxicology'/de OR 'controlled clinical trial'/de OR 'controlled clinical trial topic'/de OR 'controlled study'/de OR 'double blind procedure'/de OR 'major clinical study'/de OR 'meta analysis'/de OR 'meta analysis topic'/de OR 'multicenter study'/de OR 'multicenter study topic'/de OR 'phase 1 clinical trial'/de OR 'phase 1 clinical trial topic'/de OR 'phase 2 clinical trial'/de OR 'phase 2 clinical trial topic'/de OR 'phase 3 clinical trial'/de OR 'phase 3 clinical trial topic'/de OR 'phase 4 clinical trial'/de OR 'phase 4 clinical trial topic'/de OR 'practice guideline'/de OR 'randomized controlled trial'/de OR 'randomized controlled trial topic'/de OR 'systematic review'/de OR 'systematic review topic'/de	
25	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [letter]/lim OR [note]/lim OR [short survey]/lim	
26	24 NOT 25	
27	23 AND 26	965

CINAHL

Inclusive dates searched: 01/01/2000-05/06/2021
Search Date: 05/06/2021

Set #	Search Strategy	Results
1	MH "Administration, Oral+"	
2	TI oral OR AB oral	
3	1 OR 2	146,323
4	MH "Drug Therapy+"	
5	TI (agent* OR drug* OR medication* OR medicine*) OR AB (agent* OR drug* OR medication* OR medicine*)	
6	4 OR 5	
7	TI (antineoplastic* OR cancer* OR neoplasm* OR oncology) OR AB (antineoplastic* OR cancer* OR neoplasm* OR oncology)	
8	6 AND 7	
9	MH "Antineoplastic Agents+/TU" OR MH "Aromatase Inhibitors+/TU" OR MH "Aromatase/TU" OR MH "Neoplasms+/DT"	
10	TI ("anticancer agent*" OR "anticancer drug*" OR "antineoplastic agent*" OR "antineoplastic drug*" OR "antitumor agent*" OR "antitumor drug*" OR "aromatase inhibitor*" OR chemotherap*) OR AB ("anticancer agent*" OR "anticancer drug*" OR "antineoplastic agent*" OR "antineoplastic drug*" OR "antitumor agent*" OR "antitumor drug*" OR "aromatase inhibitor*" OR chemotherap*)	
11	OR/8-10	208,027

12	(MH ("Anticipatory Guidance" OR "Motivational Interviewing"))	
13	(TI ((coach* OR directive OR motivate* OR prescript*) AND (coach* OR counsel* OR interven* OR interview*))) OR (AB ((coach* OR directive OR motivate* OR prescript*) AND (coach* OR counsel* OR interven* OR interview*)))	
14	(TI (activit* OR barrier* OR outreach OR program* OR training OR workshop*)) OR (AB (activit* OR barrier* OR outreach OR program* OR training OR workshop*)))	
15	OR/12-14	919,599
16	(MH ("Medication Compliance" OR "Patient Compliance+")	
17	(TI (adhere* OR compliance OR complied OR comply* OR "pill fatigue")) OR (AB (adhere* OR compliance OR complied OR comply* OR "pill fatigue"))	
18	16 OR 17	125,392
19	3 AND 11 AND 15 AND 18	188
20	English Language	
21	19 AND 20	
22	Published Date: 20000101-	
23	21 AND 22	180
24	Publication Type: Care Plan, Clinical Trial, Journal Article, Meta Analysis, Meta Synthesis, Practice Acts, Practice Guidelines, Randomized Controlled Trial, Research, Standards, Systematic Review	

25	23 AND 24	160

Search Strategies for PICO 7-8

7	Should a technological intervention be used rather than usual care for patients on an oral anticancer medication regimen?
8	Should interactive technology rather than non-interactive technology be used for patients on an oral anticancer medication regimen?

PubMed

Inclusive dates searched: 01/01/2000-05/06/2021
Search Date: 04/30/2021

Set #	Search Strategy	Results
1	"Administration, Oral"[Mesh]	
2	oral[tiab]	
3	1 OR 2	685,603
4	"Drug Therapy"[Mesh] OR "drug therapy"[Subheading]	
5	agent*[tiab] OR drug*[tiab] OR medication*[tiab] OR medicine*[tiab]	
6	4 OR 5	
7	antineoplastic*[tiab] OR cancer*[tiab] OR neoplasm*[tiab] OR oncology[tiab]	

8	6 AND 7	
9	"Antineoplastic Agents/therapeutic use"[Mesh] OR "Aromatase Inhibitors/therapeutic use"[Mesh] OR "Aromatase/therapeutic use"[Mesh] OR "Neoplasms/drug therapy"[Mesh] OR "Antineoplastic Agents"[Pharmacological Action] OR "Aromatase Inhibitors"[Pharmacological Action]	
10	"anticancer agent*"[tiab] OR "anticancer drug*"[tiab] OR "antineoplastic agent*"[tiab] OR "antineoplastic drug*"[tiab] OR "antitumor agent*"[tiab] OR "antitumor drug*"[tiab] OR "aromatase inhibitor*"[tiab] OR chemotherap*[tiab]	
11	OR/8-10	1,760,970
12	cell[tiab] OR cellular[tiab] OR mobile[tiab] OR smart[tiab]	
13	device*[tiab] OR phone*[tiab]	
14	12 AND 13	
15	"Cell Phone"[Mesh] OR "Computer Systems"[Mesh] OR "Technology"[Mesh] OR "Wearable Electronic Devices"[Mesh]	
16	biotechnology[tiab] OR computer*[tiab] OR internet[tiab] OR "mobile technology"[tiab] OR online[tiab] OR smartphone[tiab] OR "social media"[tiab] OR technolog*[tiab] OR "technology-based"[tiab] OR "technology-enabled"[tiab] OR "text messag*"[tiab] OR texting[tiab] OR "wearable technology"[tiab] OR "web-based"[tiab]	
17	OR/14-16	
18	electronic[tiab] OR automat*[tiab]	

19	pill*[tiab] OR medicat*[tiab] OR medicin*[tiab]	
20	container*[tiab] OR counter*[tiab] OR dispenser*[tiab] OR manager*[tiab]	
21	AND/18-20	
22	DoPill[tiab] OR e-Pill[tiab] OR "Medication Event Monitoring Systems"[tiab] OR MEMS[tiab]	
23	21 OR 22	
24	17 OR 23	
25	"Medication Adherence"[Mesh] OR "Patient Compliance"[Mesh]	
26	adhere*[tiab] OR interven*[tiab]	
27	25 OR 26	
28	24 AND 28	
29	"Internet-Based Intervention"[Mesh]	
30	28 OR 29	112,612
31	3 AND 11 AND 30	259
32	English[lang]	
33	31 AND 32	253
34	2000/1/1:3000/12/31[pdat]	

35	33 AND 34	243
36	("Animals"[Mesh] NOT "Humans"[Mesh])	
37	35 NOT 36	239
38	comparativestudy[Filter] OR meta-analysis[Filter] OR randomizedcontrolledtrial[Filter] OR systematicreview[Filter] OR comparative[tiab] OR comparison[tiab] OR "meta-analysis" [tiab] OR randomized[tiab] OR randomized[tiab] OR "systematic review"[tiab]	
39	37 AND 38	109

EMBASE

Inclusive dates searched: 01/01/2000-05/06/2021
Search Date: 04/30/2021

Set #	Search Strategy	Results
1	oral drug administration'/exp OR 'oral drug administration'/lnk	
2	oral:ti,ab	
3	1 OR 2	1,617,099
4	drug therapy'/exp OR 'drug therapy'/lnk	
5	agent*:ti,ab OR drug*:ti,ab OR medication*:ti,ab OR medicine*:ti,ab	
6	4 OR 5	

7	antineoplastic*:ti,ab OR cancer*:ti,ab OR neoplasm*:ti,ab OR oncology:ti,ab	
8	6 AND 7	
9	antineoplastic agent'/exp/dd_dt OR 'aromatase inhibitor'/exp/dd_dt OR 'aromatase'/exp/dd_dt OR 'neoplasm'/exp/dd_dt	
10	anticancer agent*':ti,ab OR 'anticancer drug*':ti,ab OR 'antineoplastic agent*':ti,ab OR 'antineoplastic drug*':ti,ab OR 'antitumor agent*':ti,ab OR 'antitumor drug*':ti,ab OR 'aromatase inhibitor*':ti,ab OR chemotherap*:ti,ab	
11	OR/8-10	3,882,803
12	cell:ti,ab OR cellular:ti,ab OR mobile:ti,ab OR smart:ti,ab	
13	device*:ti,ab OR phone*:ti,ab	
14	12 AND 13	
15	mobile phone'/exp OR 'computer system'/exp OR 'technology'/exp OR 'wearable computer'/exp	
16	biotechnology:ti,ab OR computer*:ti,ab OR internet:ti,ab OR 'mobile technology':ti,ab OR online:ti,ab OR smartphone:ti,ab OR 'social media':ti,ab OR technolog*:ti,ab OR 'technology-based':ti,ab OR 'technology-enabled':ti,ab OR 'text messag*':ti,ab OR texting:ti,ab OR 'wearable technology':ti,ab OR 'web-based':ti,ab	
17	OR/14-16	
18	electronic:ti,ab OR automat*:ti,ab	

19	pill:ti,ab OR medicat*:ti,ab OR medicin*:ti,ab	
20	container*:ti,ab OR counter*:ti,ab OR dispenser*:ti,ab OR manager*:ti,ab	
21	AND/18-20	
22	DoPill:ti,ab OR e-Pill:ti,ab OR 'Medication Event Monitoring Systems':ti,ab OR MEMS:ti,ab	
23	21 OR 22	
24	17 OR 23	
25	medication compliance'/exp OR 'patient compliance'/exp	
26	adhere*:ti,ab OR interven*:ti,ab	
27	25 OR 26	
28	24 AND 28	
29	web-based intervention'/exp	
30	28 OR 29	141,247
19	3 AND 11 AND 18	1,008
20	[english]/lim	
21	19 AND 20	996
22	[2000-2021]/py	

23	21 AND 22	966
24	animal'/exp NOT 'human'/exp	
25	21 NOT 22	960
26	clinical trial'/de OR 'comparative effectiveness'/de OR 'comparative study'/de OR 'comparative toxicology'/de OR 'controlled clinical trial'/de OR 'controlled clinical trial topic'/de OR 'controlled study'/de OR 'double blind procedure'/de OR 'major clinical study'/de OR 'meta analysis'/de OR 'meta analysis topic'/de OR 'multicenter study'/de OR 'multicenter study topic'/de OR 'phase 1 clinical trial'/de OR 'phase 1 clinical trial topic'/de OR 'phase 2 clinical trial'/de OR 'phase 2 clinical trial topic'/de OR 'phase 3 clinical trial'/de OR 'phase 3 clinical trial topic'/de OR 'phase 4 clinical trial'/de OR 'phase 4 clinical trial topic'/de OR 'practice guideline'/de OR 'randomized controlled trial'/de OR 'randomized controlled trial topic'/de OR 'systematic review'/de OR 'systematic review topic'/de	
27	[conference abstract]/lim OR [conference paper]/lim OR [conference review]/lim OR [editorial]/lim OR [letter]/lim OR [note]/lim OR [short survey]/lim	
28	26 NOT 27	
29	25 AND 28	402

CINAHL

Inclusive dates searched: 01/01/2000-05/06/2021
Search Date: 04/30/2021

Set #	Search Strategy	Results

1	MH "Administration, Oral+"	
2	TI oral OR AB oral	
3	1 OR 2	146,324
4	MH "Drug Therapy+"	
5	TI (agent* OR drug* OR medication* OR medicine*) OR AB (agent* OR drug* OR medication* OR medicine*)	
6	4 OR 5	
7	TI (antineoplastic* OR cancer* OR neoplasm* OR oncology) OR AB (antineoplastic* OR cancer* OR neoplasm* OR oncology)	
8	6 AND 7	
9	MH "Antineoplastic Agents+/TU" OR MH "Aromatase Inhibitors+/TU" OR MH "Aromatase/TU" OR MH "Neoplasms+/DT"	
10	TI ("anticancer agent*" OR "anticancer drug*" OR "antineoplastic agent*" OR "antineoplastic drug*" OR "antitumor agent*" OR "antitumor drug*" OR "aromatase inhibitor*" OR chemotherap*) OR AB ("anticancer agent*" OR "anticancer drug*" OR "antineoplastic agent*" OR "antineoplastic drug*" OR "antitumor agent*" OR "antitumor drug*" OR "aromatase inhibitor*" OR chemotherap*)	
11	OR/8-10	207,989
12	(TI (cell OR cellular OR mobile OR smart)) OR (AB (cell OR cellular OR mobile OR smart))	

13	(TI (device* OR phone*)) OR (AB (device* OR phone*))
14	12 AND 13
15	(MH ("Cellular Phone+" OR "Computer Systems+" OR MH "Technology+" OR MH "Wearable Sensors+"))
16	(TI (biotechnology OR computer* OR internet OR "mobile technology" OR online OR smartphone OR "social media" OR technolog* OR "technology-based" OR "technology-enabled" OR "text messag*" OR texting OR "wearable technology" OR "web-based")) OR (AB (biotechnology OR computer* OR internet OR "mobile technology" OR online OR smartphone OR "social media" OR technolog* OR "technology-based" OR "technology-enabled" OR "text messag*" OR texting OR "wearable technology" OR "web-based"))
17	OR/14-16
18	(TI (electronic OR automat*)) OR (AB (electronic OR automat*))
19	(TI (pill OR medicat* OR medicin*)) OR (AB (pill OR medicat* OR medicin*))
20	(TI (container* OR counter* OR dispenser* OR manager*)) OR (AB (container* OR counter* OR dispenser* OR manager*))
21	AND/18-20
22	(TI (DoPill OR e-Pill OR "Medication Event Monitoring Systems" OR MEMS)) OR (AB (DoPill OR e-Pill OR "Medication Event Monitoring Systems" OR MEMS))
23	21 OR 22
24	17 OR 23

25	(MH ("Medication Compliance" OR "Patient Compliance+"))	
26	(TI (adhere* OR interven*)) OR (AB (adhere* OR interven*))	
27	25 OR 26	
28	24 AND 27	
29	(MH "Internet-Based Intervention")	
30	28 OR 29	124,522
31	3 AND 11 AND 30	288
32	English Language	
33	31 AND 32	
34	Published Date: 20000101-	
35	33 AND 34	275
36	Publication Type: Care Plan, Clinical Trial, Journal Article, Meta Analysis, Meta Synthesis, Practice Acts, Practice Guidelines, Randomized Controlled Trial, Research, Standards, Systematic Review	
37	35 AND 36	257

Search Strategies for PICO 9

9	Should structured oral anticancer medication programs rather than no structured oral anticancer medication programs be used by institutions providing care to patients on an oral anticancer medication regimen?

PubMed

Inclusive dates searched: 01/01/2000-05/06/2021
Search Date: 05/06/2021

Set #	Search Strategy	Results
1	"Administration, Oral"[Mesh]	
2	oral[tiab]	
3	1 OR 2	686,252
4	"Drug Therapy"[Mesh] OR "drug therapy"[Subheading]	
5	agent*[tiab] OR drug*[tiab] OR medication*[tiab] OR medicine*[tiab]	
6	4 OR 5	
7	antineoplastic*[tiab] OR cancer*[tiab] OR neoplasm*[tiab] OR oncology[tiab]	
8	6 AND 7	

9	"Antineoplastic Agents/therapeutic use"[Mesh] OR "Aromatase Inhibitors/therapeutic use"[Mesh] OR "Aromatase/therapeutic use"[Mesh] OR "Neoplasms/drug therapy"[Mesh] OR "Antineoplastic Agents"[Pharmacological Action] OR "Aromatase Inhibitors"[Pharmacological Action]	
10	"anticancer agent*"[tiab] OR "anticancer drug*"[tiab] OR "antineoplastic agent*"[tiab] OR "antineoplastic drug*"[tiab] OR "antitumor agent*"[tiab] OR "antitumor drug*"[tiab] OR "aromatase inhibitor*"[tiab] OR chemotherap*[tiab]	
11	OR/8-10	1,762,726
12	"Delivery of Health Care"[Mesh] OR "Patient Care Bundles"[Mesh]	
13	"care bundle*"[tiab] OR (("access to"[tiab] OR accessib*[tiab] OR availab*[tiab] OR "institutional-level"[tiab] OR integrat*[tiab] OR "managed care"[tiab] OR "organizational-level"[tiab] OR "provider sponsored"[tiab] OR structure*[tiab] OR "system-level"[tiab]) n2 (deliver*[tiab] OR healthcare[tiab] OR "health care"[tiab] OR "health service*"[tiab] OR initiative*[tiab] OR medication*[tiab] OR medicine*[tiab] OR organiz*[tiab] OR program*[tiab] OR session*[tiab] OR therap*[tiab] OR treatment*[tiab] OR workshop*[tiab]))	
14	12 OR 13	1,128,894
15	"Medication Adherence"[Mesh] OR "Patient Compliance"[Mesh]	
16	adhere*[tiab] OR compliance[tiab] OR complied[tiab] OR comply*[tiab] OR "pill fatigue"[tiab]	
17	15 OR 16	6,729,467
18	3 AND 11 AND 14 AND 17	884

19	2000/1/1:3000/12/31[pdat]	
20	15 AND 16	
21	English[lang]	
22	17 AND 18	700

EMBASE

Inclusive dates searched: 01/01/2000-05/06/2021
Search Date: 05/06/2021

Set #	Search Strategy	Results
1	oral drug administration'/exp OR 'oral drug administration'/lnk	
2	oral:ti,ab	
3	1 OR 2	1,617,216
4	drug therapy'/exp OR 'drug therapy'/lnk	
5	agent*:ti,ab OR drug*:ti,ab OR medication*:ti,ab OR medicine*:ti,ab	
6	4 OR 5	
7	antineoplastic*:ti,ab OR cancer*:ti,ab OR neoplasm*:ti,ab OR oncology:ti,ab	
8	6 AND 7	

9	antineoplastic agent'/exp/dd_dt OR 'aromatase inhibitor'/exp/dd_dt OR 'aromatase'/exp/dd_dt OR 'neoplasm'/exp/dd_dt	
10	anticancer agent*':ti,ab OR 'anticancer drug*':ti,ab OR 'antineoplastic agent*':ti,ab OR 'antineoplastic drug*':ti,ab OR 'antitumor agent*':ti,ab OR 'antitumor drug*':ti,ab OR 'aromatase inhibitor*':ti,ab OR chemotherap*:ti,ab	
11	OR/8-10	3,880,135
12	care bundle'/exp OR 'health care delivery'/exp	
13	"care bundle*":ti,ab OR (("access to":ti,ab OR accessib*:ti,ab OR availab*:ti,ab OR "institutional-level":ti,ab OR integrat*:ti,ab OR "managed care":ti,ab OR "organizational-level":ti,ab OR "provider sponsored":ti,ab OR structure*:ti,ab OR "system-level":ti,ab) NEAR2 (deliver*:ti,ab OR healthcare:ti,ab OR "health care":ti,ab OR "health service*":ti,ab OR initiative*:ti,ab OR medication*:ti,ab OR medicine*:ti,ab OR organiz*:ti,ab OR program*:ti,ab OR session*:ti,ab OR therap*:ti,ab OR treatment*:ti,ab OR workshop*:ti,ab))	
14	12 OR 13	3,585,620
15	medication compliance'/exp OR 'patient compliance'/exp	
16	adhere*:ti,ab OR compliance:ti,ab OR complied:ti,ab OR comply*:ti,ab OR 'pill fatigue':ti,ab	
17	22 OR 23	555,422
18	3 AND 11 AND 14	3,143
19	[english]/lim	

20	15 AND 16	
21	[2000-2021]/py	
22	17 AND 18	2,958

CINAHL

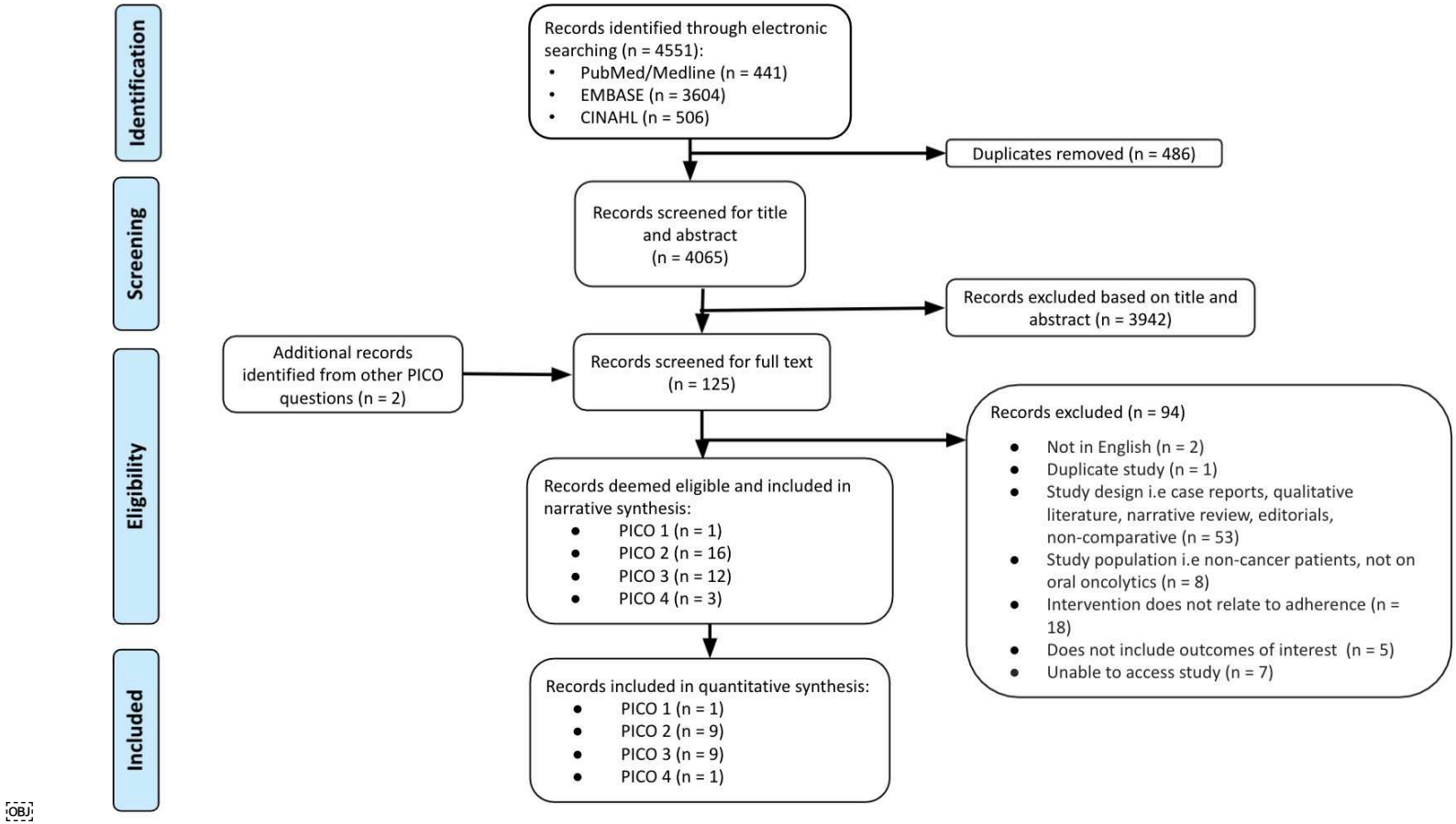
Inclusive dates searched: 01/01/2000-05/06/2021
Search Date: 05/06/2021

Set #	Search Strategy	Results
1	MH "Administration, Oral+"	
2	TI oral OR AB oral	
3	1 OR 2	146,323
4	MH "Drug Therapy+"	
5	TI (agent* OR drug* OR medication* OR medicine*) OR AB (agent* OR drug* OR medication* OR medicine*)	
6	4 OR 5	
7	TI (antineoplastic* OR cancer* OR neoplasm* OR oncology) OR AB (antineoplastic* OR cancer* OR neoplasm* OR oncology)	
8	6 AND 7	

9	MH "Antineoplastic Agents+/TU" OR MH "Aromatase Inhibitors+/TU" OR MH "Aromatase/TU" OR MH "Neoplasms+/DT"	
10	TI ("anticancer agent*" OR "anticancer drug*" OR "antineoplastic agent*" OR "antineoplastic drug*" OR "antitumor agent*" OR "antitumor drug*" OR "aromatase inhibitor*" OR chemotherap*) OR AB ("anticancer agent*" OR "anticancer drug*" OR "antineoplastic agent*" OR "antineoplastic drug*" OR "antitumor agent*" OR "antitumor drug*" OR "aromatase inhibitor*" OR chemotherap*)	
11	OR/8-10	208,027
12	MH "Health Care Delivery+" OR MH "Patient Care Plans+"	
13	TI "care bundle*" OR AB "care bundle*" OR ((TI ("access to" OR accessib* OR availab* OR "institutional-level" OR integrat* OR "managed care" OR "organizational-level" OR "provider sponsored" OR structure* OR "system-level")) N2 (TI (deliver* OR healthcare OR "health care" OR "health service*" OR initiative* OR medication* OR medicine* OR organiz* OR program* OR session* OR therap* OR treatment* OR workshop*))) OR ((AB ("access to" OR accessib* OR availab* OR "institutional-level" OR integrat* OR "managed care" OR "organizational-level" OR "provider sponsored" OR structure* OR "system-level")) N2 (AB (deliver* OR healthcare OR "health care" OR "health service*" OR initiative* OR medication* OR medicine* OR organiz* OR program* OR session* OR therap* OR treatment* OR workshop*)))	
14	12 OR 13	423,818
15	(MH ("Medication Compliance" OR "Patient Compliance+")	

16	(TI (adhere* OR compliance OR complied OR comply* OR "pill fatigue")) OR (AB (adhere* OR compliance OR complied OR comply* OR "pill fatigue"))	
17	15 OR 16	125,392
18	3 AND 11 AND 14 AND 17	77
19	English Language	
20	18 AND 19	
21	Published Date: 20000101-	
22	20 AND 21	75

Figure 1. PRISMA Flow Diagram for PICO 1-4



OBJ

Figure 2. PRISMA Flow Diagram for PICO 5-6

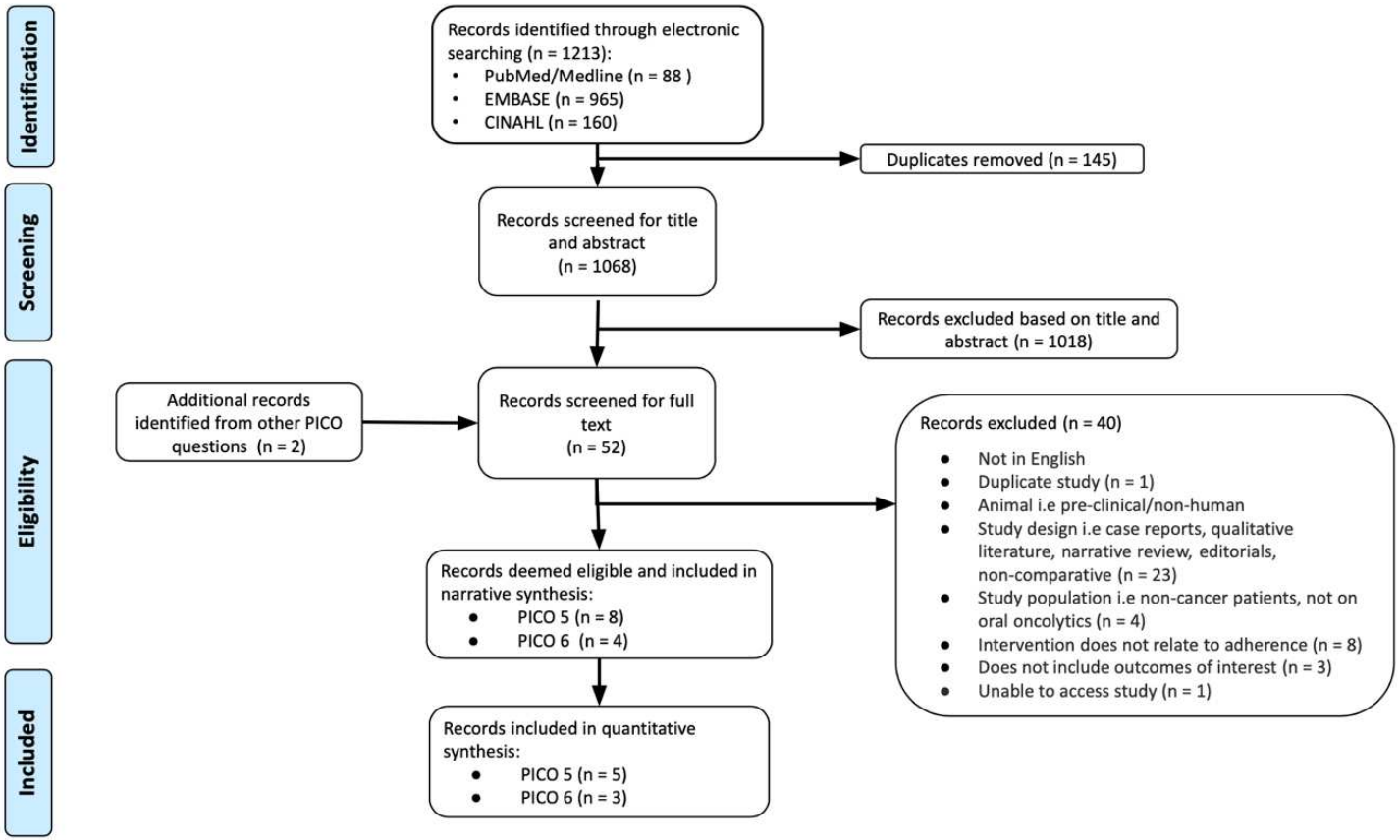


Figure 3. PRISMA Flow Diagram for PICO 7-8

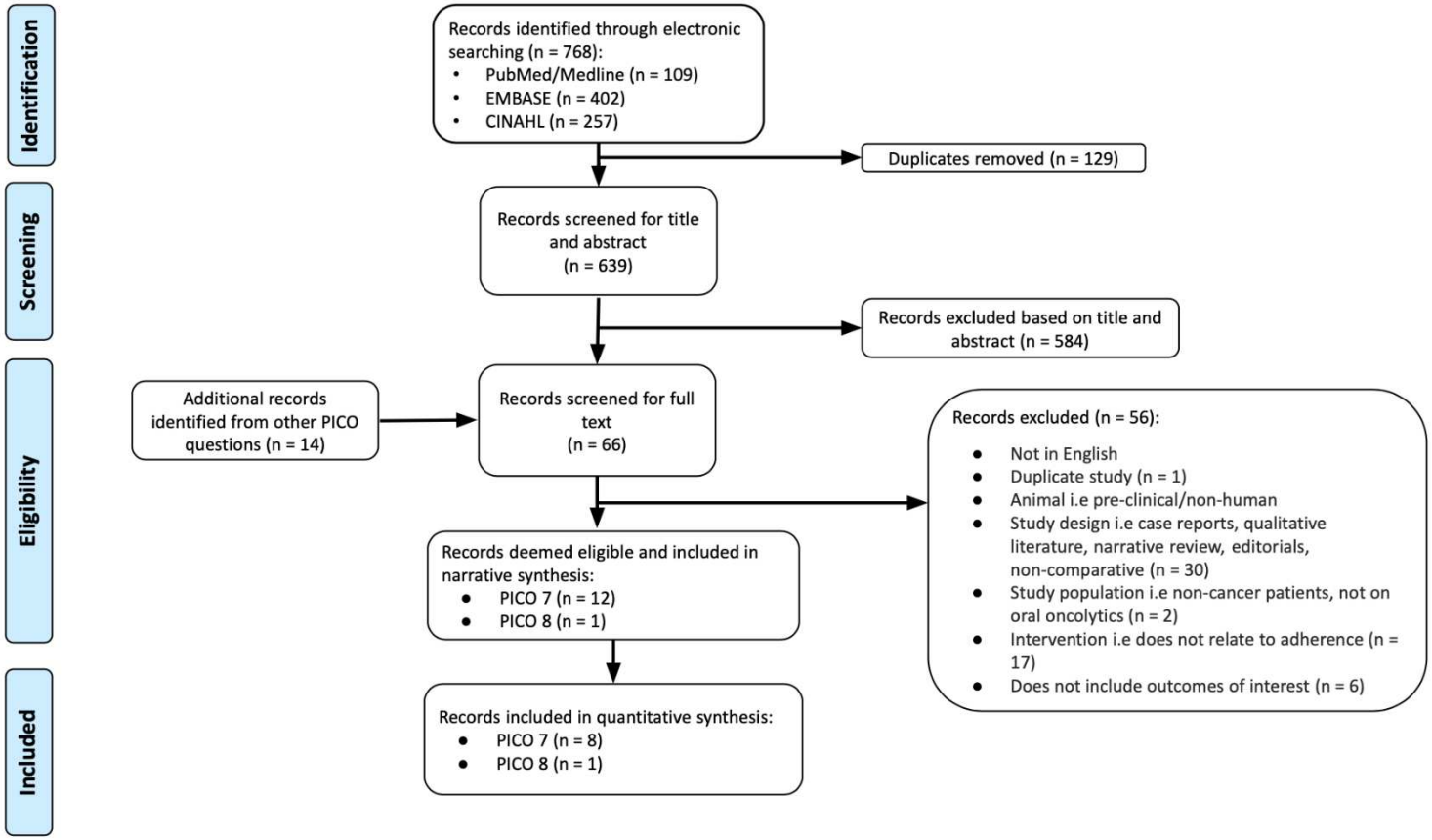


Figure 4. PRISMA Flow Diagram for PICO 9

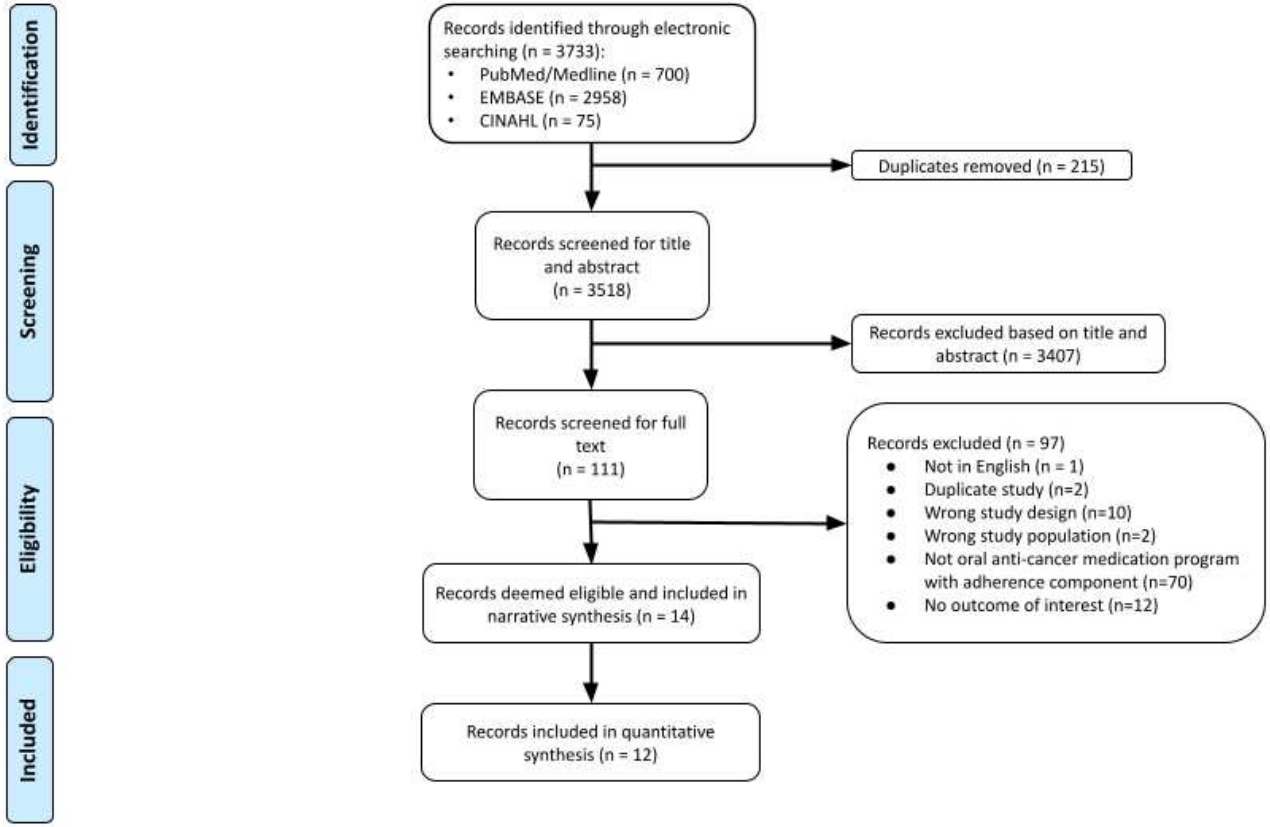


Table 2. Studies ineligible for inclusion in analysis and rationale for exclusion

PICO #	Outcome	Study (First author & Year)	Result (Intervention vs Control)	Interpretation	Reason for exclusion from quantitative synthesis
2	Adherence	Gönderen Çakmak 2021	Adherence rate; Mean (SD): 85 (5.03) vs 68.1 (10.68)	There may be improved adherence scores in patients who received educational follow-up and motivational interviewing compared to those who received only education from nurses as part of usual care.	Differences in the way adherence was reported (adherence measured using oral chemotherapy scale)
		Hendriks 2015	Adherence (increase from baseline compliance): 79% vs 49%	There may be improved adherence in patients who received enhanced education compared to those receiving usual care.	Limited information on the variance of adherence rates
		Morgan 2018	Replied “never” vs “always/freq/sometimes”: 76% vs 24%	There may be improved adherence in patients who received education as part of a program compared to those who received “usual care”.	Differences in the way adherence was reported (adherence measured using self-measure, asking if how often they forget to take your oral chemotherapy)
		Patel 2016	MEMS (mean daily adherence): 96.8% vs 87.2%	There may be improved adherence rates in patients participating in a chemotherapy-monitoring program involving education compared to those not participating in a program.	Limited information on the variance of adherence rates
		Ribed 2016	Adherence rate: 95.0% vs 87.7%	There may be improved adherence rates in patients in a pharmacetutical care program	Limited information on the variance of adherence rates

				involving education compared to those receiving usual care.	
		Schneider 2014	Adherence rate: 95.1% vs 82.4%	There may be improved adherence rates in patients receiving education programs in comparison to patients receiving usual care.	Limited information on the variance of adherence rates
3	Adherence	Bouleftour 2021	% of participants with medium adherence: 81.3% vs 77.2%	There may be improved adherence in patients receiving nurse-led telephone follow-up in comparison to those receiving usual care.	Differences in the way adherence was reported (adherence measured using proportion of participants with medium adherence)
		Dennison 2021	High patient reported adherence: 55% vs 60%	There may be reduced adherence measured in patients receiving a pharmacist-led oral chemotherapy program in comparison to those receiving the usual care when evaluating the number of high patient-reported adherence events per group.	Differences in the way adherence was reported (adherence measured using high patient-reported adherence)
		Eldeib 2019	Overall patients' adherence: 98.99% vs 96.83%	There may be improved adherence rates in patients receiving telephone follow-up in comparison to those receiving usual care.	Limited information on the variance of adherence rates
		Lin 2020	Replied "Almost always" or "always": 97.1% vs 94.6%	There may be improved self-measured adherence in patients participating in pharmacist and medication navigator-led teaching sessions compared to those receiving usual care.	Differences in the way adherence was reported (adherence measured using self-measure, asking if patients had taken their oral anticancer medications the way they were supposed to)

		Mir 2020	Relative dose intensity; Mean (SD): 93.4% (0.26) vs 89.4% (0.19)	There may be improved adherence in patients receiving follow-up calls and a mobile application in comparison to those receiving usual care.	Missing data on the number of patients per arm
		Muluneh 2018	Percent with 100% adherence: 60% vs 48%	There may be improved adherence in those taking part in an integrated, closed-loop, pharmacy-led oral chemotherapy management program in comparison to those receiving usual care.	Differences in the way adherence was reported (adherence measured using percentage of patients with 100% adherence)
		Spoelstra 2017	Number of weeks adherent (out of 6); Mean (SE): 5.45 (0.42) vs 5.26 (0.38)	There may be improved adherence receiving the ADHERE intervention in comparison to those receiving usual care.	Differences in the way adherence was reported (adherence measured using number of adherent weeks in patients)
		Suttmann 2020	% reporting medium/low adherence (95% CI): 7.1% (4.0, 11.4) vs 7.4% (3.9, 12.5)	More patients categorized with medium/low adherence in patients receiving adherence enhancing measures in comparison to those receiving usual care.	Differences in the way adherence was reported (adherence measured using Morisky Medication-Taking Adherence Scale-4)
	Cancer-related morbidity	Greer 2020	MD Anderson Symptom Inventory scores; Mean (SE): 0.01 (0.14) vs 0.05 (0.13)	There may be lower symptom burden reported by patients receiving a mobile app intervention in comparison to those receiving usual care.	Differences in the way cancer-related morbidity was reported (cancer-related morbidity measured using symptom severity)
	Patient satisfaction	Lin 2020	Post intervention vs pre intervention: Helpfulness of meeting with specialty pharmacist and medication navigator: “very”	Patients were less satisfied with the intervention towards the end of the study in comparison to when they first received the intervention.	Used a less direct measure of patient satisfaction (patient satisfaction measured using self-reported helpfulness of various intervention components)

			(76.9% vs 86.5%); "somewhat" (23.1% vs 10.8%); "not at all" (0% vs 2.7%) Helpfulness of medication info sheet: "very" (63.2% vs 75.7%); "somewhat" (29% vs 16.2%); "not at all" (0% vs 5.4%); "never used" (7.9% vs 2.7%) Helpfulness of medication calendar sheet: "very" (52.6% vs 73%); "somewhat" (21.1% vs 18.9%); "not at all" (0% vs 0%); "never used" (26.3% vs 8.1%) Helpfulness of check-in medication navigator: "very" (68.4% vs 91.9%); "somewhat" (29% vs 5.4%); "not at all" (2.6% vs 2.7%)		
		Mir 2020	Patient Assessment of Chronic Illness Care scores (PACIC); Mean (SD): 2.94 (0.83) vs 2.67 (0.89)	There may be greater patient satisfaction in patients receiving follow-up calls and a mobile application when compared to those receiving usual care.	Differences in the way patient satisfaction was reported (patient satisfaction measured by the PACIC scores)
4	Adherence	Eldeib 2019	Overall patients' adherence: 98.99% vs 96.83%	There may be improved adherence rates in patients with additional risk factors receiving proactive follow-up in comparison to patients receiving usual care.	Limited information on the variance of adherence rates
		Hendriks 2015	Adherence rate post and pre intervention: 79% vs 49%	There may be improved compliance to antibiotics in patients with additional risk factors receiving proactive	Limited information on sample sizes and variance of adherence rates

				follow-up in comparison to when they were only receiving usual care.	
5	Adherence	Muluneh 2018	Percent with 100% adherence: 60% vs 48%	There may be improved adherence in the intervention group compared to usual care.	Differences in the way adherence was reported (adherence measured using percentage of patients with 100% adherence)
		Patel 2016	# Adherent to lab monitoring: 10/17 vs 3/14	There may be improved mean daily adherence for those receiving the intervention.	Limited information on the variance of adherence rates
		Schenider 2014	Adherence rate: 95.1% vs 82.4%	There may be improved self-reported adherence rates for patients receiving the intervention.	Limited information on the variance of adherence rates
6	Adherence	Gönderen Çakmak 2021	Adherence rate; Mean (SD): 85 (5.03) vs 68.1 (10.68)	There may be improved adherence scores in patients who received motivational interviewing compared to those who received only education sessions with a nurse.	Differences in the way adherence was reported (adherence measured using oral chemotherapy scale)
		Ribed 2016	Adherence rate: 95% vs 87.7%	There may be improved adherence rated, measured using pill counts, at the six month follow-up mark.	Limited information on the variance of adherence rates
		Spoelstra 2017	Number of weeks adherent (out of 6); Mean (SE): 5.45 (0.42) vs 5.26 (0.38)	Patients receiving motivational interviewing were adherent for more weeks when compared to patients receiving usual care.	Differences in the way adherence was reported (adherence measured using number of adherence weeks in patients
7	Adherence	Fischer 2018	% of participants in high adherence category:	Patients receiving a technology intervention may have lower	Missing data on the number of patients per arm

			13.11% vs 17.65%	adherence than those receiving usual care.	
		Hershman 2020	Adherence failure rate: 81.9% vs 85.6%	Those who received the usual care had a slightly higher adherence failure rate in comparison to those who received the text message intervention.	Differences in the way adherence was reported (adherence measured using urine analysis)
		Krok-Schoen 2019	Morisky Adherence score based on single item; Mean (SD): 1.92 (1.70) vs 1.17 (1.32)	Self-reported adherence to adjuvant hormone therapy improved from baseline to end of the study after patients received the technological intervention.	Difference in the way adherence was reported (adherence measured using Morisky Adherence score based on a single item)
		Kim 2018	Adherence score; Mean (SD): 7.6 (0.7) vs 6.5 (0.5)	There may be little or no difference in self-reported adherence between those receiving technology and those in the usual care group.	Difference in the way adherence was reported (adherence measured using Korean version of the Medication Adherence Rating Scale)
		McKay 2019	Number of missed doses: 12/56 vs 5/33 Number of wrong doses: 4/56 vs 1/33 Number of improper doses: 1/56 vs 1/33	Patients receiving the technological intervention may be more likely to report nonadherence in comparison to those receiving usual care.	Used a less direct measure of adherence (adherence measured using self-reported number of missed doses, number of wrong doses and number of improper doses)
		Mir 2020	Relative dose intensity; Mean (SD): 93.4% (0.26) vs 89.4% (0.19)	There may be higher adherence among patients receiving a technology intervention when compared to patients receiving usual care.	Missing data on the number of patients per arm

		Spoelstra 2016	Number of weeks adherent; Mean (SE): 6.5 (0.4) vs 7.2 (0.5)	Patients receiving a technology intervention may be less adherent in comparison to those receiving usual care.	Differences in the way adherence was reported (adherence measured using number of adherent weeks in patients)
	Cancer-related morbidity	Greer 2020	MD Anderson Symptom Inventory scores; Mean (SE): 0.01 (0.14) vs 0.05 (0.13)	There may be lower cancer-related morbidity in patients receiving a technology intervention compared to those receiving usual care.	Differences in the way cancer-related morbidity was reported (cancer-related morbidity measured using symptom severity)
9	Adherence	Gebbia 2013	Adherence rate: 94% vs 92%	There may be improved adherence in patients in an oral anticancer medication program in comparison to those receiving usual care.	Limited information on the variance of adherence rates
		Khandelwal 2012	Medication possession ratio: 44.8% vs 41.5%	There may be improved adherence in patients in an oral anticancer medication program in comparison to those receiving usual care.	Limited information on the variance of adherence rates
		Muluneh 2018	Percent with 100% adherence: 60% vs 48%	There may be improved adherence in those taking part in an integrated, closed-loop, pharmacy-led oral chemotherapy management program in comparison to those receiving usual care.	Differences in the way adherence was reported (adherence measured using percentage of patients with 100% adherence)
		Ribed 2016	% of patients with adherence ≥90%: 80.8% vs 60.5%	There may be improved adherence in patients in an oral anticancer medication program in comparison to those receiving usual care.	Limited information on the variance of adherence rates
	Cancer-related	Bordonaro 2012	EORTC QLQ-C30 symptoms	There are fewer symptoms in	Limited information on the

	morbidity		score: 15.7 vs 34.3	patients after participating in an oral anticancer medication program.	variance of symptoms
		Curry 2020	# of adverse events resulting in emergency room (ER) visits and hospitalization: 11/52 vs 6/54	There may be more adverse events resulting in ER visits and hospitalizations in patients in an oral anticancer medication program in comparison to those receiving usual care.	Used a less direct measure of cancer-related morbidity (cancer-related morbidity measured using adverse events resulting in ER visits and hospitalizations)
		Vacher 2020	# patients experiencing toxicities, post vs pre intervention: Grade 0: 0/14 vs 2/41 Grade 1-2: 10/14 vs 35/45 Grade 3-4: 4/14 vs 4/41	There may be less toxicity in patients on an oral anticancer medication program in comparison to those receiving usual care.	Used a less direct measure of cancer-related morbidity (cancer-related morbidity measured using toxicities)
	Quality of life	Bordonaro 2012	EORTC QLQ-C30 health/QoL global score: 64.5 vs 53.8	There may be improved quality of life in patients after participating in an oral anticancer medication program.	Limited information on the variance of quality of life
	Patient financial toxicity	Middendorff 2018	Average monthly patient costs: $450.97 vs $256.82	There may be an increase in average monthly patient costs for patients in an oral anticancer medication program compared to usual care.	Limited information on the variance of average monthly patient costs

EORTC QLQ-C30: European Organisation for Research and Treatment of Cancer Quality of Life questionnaire

Table 3. Characteristics of PICO 1 Studies

PICO 1: Standardized assessment for risk/barriers in patients starting a new oral anti-cancer medication regimen?

Study	Country	Study Design	N subjects (intervention/comparator)	% female	Age mean (SD) / Median (IQR)	Type of cancer regimen	Intervention (study arms)	Comparator	Outcomes reported	Findings	Assessment tools used	Funding Source
Schneider/ 2014	US	RCT	45 (25/20)	64.6	Mean (SD): 59.85 (12.96)	Diverse cancers on Capecitabine, Tamoxifen, Aromatase inhibitors, and other targeted agents	(1) Personalized assessment and a tailored intervention plan based on the Reynolds adherence model - Baseline measures were assessed during the initial call - Adherence strategies were developed and delivered over the phone during subsequent calls	(2) usual care - standard chemotherapy education provided at the cancer center.	Adherence ● Pharmacy refill ● Self-report Follow-up: 2 months and 4 months	Age, gender, and depression were not found to be associated with adherence.	Demographic data: demographic information form Depression: Beck Depression Inventory-II, Symptoms: Memorial Symptom Assessment Scale	Award No. R15CA 139398 from the National Cancer Institute

Table 4. Characteristics of PICO 2 Studies

PICO 2: Should educational programs vs usual care be used for patients starting a new oral anticancer medication regimen?

Study/ year	Country	Study design	N subjects (intervention/ comparator)	% female	Age mean (SD) / Median (IQR)	Starting a new oral anti-cancer medication (Y or N)	Type of cancer and regimen	Intervention (study arms)	Comparator	Outcomes reported	Funding source
Berry / 2015	US	RCT (Secondary analysis)	70 (21/49) (low and medium adherence/ high adherence)	40	Range: 34-80	Y	Breast, Colorectal, Prostate, Renal cell, Sarcoma, Other	(1) ESRA-C: Web-based education intervention including why and how often a particular symptom and quality of life issue happens, what to do at home for self-care, when to call the clinic	(2) usual care	Adherence ● Proportion with high adherence Follow-up: 9–14 weeks Measurements taken 8 weeks after start date	N/A
Byrne/ 2018	Australia	Cohort	29	58.6	Median: 61	Y	Diverse	(1) -Baseline for understanding measured - education was provided using the MASCC oral agent teaching tool (MOATT) -medication information and a dosing calendar were provided	(2) Pre-intervention control group	Patient knowledge of regimen ● Dosage and frequency ● How to manage missed doses ● Dosage schedule Follow-up: Mid-cycle and Cycle 2	SHPA Celgene-sponsored Cancer Care Research Grant 2014

Göndereren Çakmak/ 2021	Turkey	RCT	80 (40/40)	55	N/A	Mix	Diverse	(1) Educational follow up with motivational interviewing technique - Planning, engaging, focusing, evoking via face-to-face and phone interview done by trained researcher	(2) usual care - 1 educational interview at the start of treatment and routine follow up	Adherence ● Oral chemotherapy adherence rate Patient-self efficacy about treatment ● Self-Efficacy Scale Follow-up: 12 weeks	N/A
Hendricks/ 2015	US	Cohort	N/A	N/A	N/A	N	Breast cancer on antiemetics	(1) Telephone/e-mail -Delivered with enhanced patient education at time of chemotherapy consent before antiemetic administration, implementation of a short patient questionnaire about antiemetics on day 2 of each treatment cycle -telephone or e-mail contact by the nurse practitioner on	(2) Pre-intervention control group	Adherence to antiemetic ● Compliance measured via a questionnaire Follow-up: 24 weeks	Genentech/ Roche (Inst)

								day 4 of each treatment cycle.			
Krikorian/2019	US	RCT	200 (101/99)	77	Intervention - Mean (SD): 61.8 (11.5) Control - Mean (SD): 61.9 (12)	Y	Diverse on antineoplastic	(1) Individually tailored repetitive pharmacist educational and behavioral intervention - Medication counselling session supplemented with educational materials, assessment and identification of barriers to adherence, tips for avoiding/managing medication related side effects, go over the care plan, reinforce importance of medication, evaluate understanding of the medication	(2) Nurse led control group - Patients provided demographic data and completed beliefs about medicines questionnaire and then there was no other interaction until pill count 1	Adherence ● Adherence rate ● Percent adherent greater than 90% Follow-up: 3-5 days, 3-4 weeks, and 7-8 weeks after baseline	N/A
Krolop/2013	Germany	Cohort	73	74	N/A	Y	Breast cancer, Colorectal cancer, and	(1) Modular medication management covering adherence	(2) usual care	Adherence ● Median daily adherence via MEMS	Roche, Basel

							esophageal cancer treated with capecitabine in combination or monotherapy	support, basic pharmaceutical care, and adverse event management		Follow up: measured once after every cycle	
Lin/ 2020	US	Cohort	54	51.9	Mean (SD): 64.4 (12.9)	Y	Solid and hematologic cancers treated with tyrosine kinase inhibitors and others	(1) MASCC Oral Agent Teaching Tool (MOATT) and information sheet	(2) Pre-intervention control group	Adherence ● Self-measure, taking their OAM in the way they were supposed to- ("Very good" or "excellent", "Almost always" or "always") % Satisfaction ● Helpfulness of meeting with specialty pharmacist and medication navigator - % "very", "somewhat", "not at all" ● Helpfulness of medication info sheet - % "very", "somewhat", "not at all", "never used"	Moore/Moreau Cancer Research Project Funding Opportunity (Rodday, A.); Yawkey Foundation (Parsons, S.); National Center for Advancing Translational Sciences, National Institutes of Health, Award Number 1KL2TR002545 (Rodday, A.); National Center for Advancing

										• Helpfulness of medication calendar - % "very", "somewhat", "not at all", "never used" • Helpfulness of check-in with medication navigator - very", "somewhat", "not at all" Follow-up: before start of 3rd cycle or 2nd refill Measurement from cycles 2-4	Translational Sciences, National Institutes of Health, Award Number UL1TR002544 (Fleckner, T.)

Morgan/2018	US	Cohort	66	48.5	N/A	N	Diverse	(1) Phone calls - Frequent phone calls to ensure timely refills, and troubleshooting problems associated with non-compliance	(2) Historical data	Adherence ● Self-reported, never forget to take oral chemotherapy ● Self-reported, never cut back or reduce oral chemotherapy MPR measured over a 90-day period	N/A
Patel/2016	Spain	Cohort	31 (17/ 14)	0	Median: 76	N	metastatic prostate cancer treated with diverse anticancer medications	(1) Education and counselling - The nurse or pharmacist speak about early detection and side effects and manage treatment-related side events when they occurred	(2) usual care	Adherence ● Mean daily adherence Follow-up unknown	N/A
Ribed/2016	Spain	Cohort	249 (134/115)	36.5	N/A	Y	Diverse	(1) Pharmaceutical follow-up - three clinical interviews focused on safety and efficiency outcomes	(2) usual care - no pharmacist monitoring	Adherence ● Adherence rate Follow-up: after 1st and 6th month	N/A
Schneider/2014	US	RCT	45 (25/20)	64.6	Mean (SD): 59.85 (12.96)	Mix	Diverse	(1) Nurse coaching intervention - Baseline measures were	(2) usual care	Adherence ● Pharmacy refill ● self-report	Award No. R15CA139398 from the National

								assessed during the initial call. Adherence strategies were developed and delivered over the phone during subsequent calls. Strategies were classified as either knowledge strategies, behavioral strategies and affective support		Follow-up: 2 and 4 months	Cancer Institute
Simons/ 2011	Germany	Cohort	48 (24/24)	77	N/A	Y	Breast cancer and colorectal cancer treated with capecitabine as a monotherapy or in tandem with additional oral anticancer medications	(1) Pharmacists provide the characteristics of the drug, including mechanism of action, possible adverse events and their appropriate management, and individual treatment regimen. The importance of high adherence and risks of inadequate compliant behavior are aboutlined. A written dosing	(2) usual care	Adherence ● Overall adherence via MEMS ● Daily adherence via MEMS 1 follow-up period Measurement made after 6 cycles	Award No. R15CA139398 from the National Cancer Institute

								schedule is provided.			
Suttmann / 2020	Germany	RCT	675 (360/315)	0	N/A	Previous chemotherapy (n = 102) but unclear if oral	Metastatic Castration-Resistant Prostate Cancer treated with Abiraterone Acetate plus Prednisone	(1) Educational video and dosage card addressing mechanism of action, effectiveness, correct intake, adverse events, and planning of medication intake -Counseling and reminders -Patient diaries	(2) usual care	Adherence ● MMAS-4 (High) - # of events Quality of Life ● FACT-P Follow-up: 3 and 6 months	Janssen-Cilag GmbH (Neuss, Germany)
Vacher/ 2020	France	Cohort	55 (phase 1: 41 adherent/14 non-adherent) (phase 2: 10 in non-adherent received intervention pre/post comparison)	93	Mean (SD): 63.6 (11.8)	Mix	Breast and Colon cancer treated with Capecitabine or Capecitabine/Lapatinib	(1) Therapeutic education program - Educational diagnosis, evaluating the specific needs of the patient, knowledge of the treatment, evaluated the acquisitions (only given to 10 of 14 patients deemed deemed to be nonadherent (adherence rate <80%) after the observational	(2) Pre-intervention control group	Adherence ● Mean adherence rate Cancer-related morbidity ● AEs compared adherent vs non-adherent Follow-up: Two sessions every three cycles, each session is 1.5h Measurements made at some time during the	Centre Jean Perrin

								stage of the study)		observational and interventional phases	
Zerbit/ 2020	France	Cohort	155	43.2	N/A	N	B cell malignancies treated with ibrutinib	(1) Pharmaceutical counselling in addition to the usual care including patient education for self-management in case of toxicities, proactive adherence monitoring, medication-related interventions to reduce drug-drug interactions, and follow up of transition from hospital to community	(2) usual care - monthly oncologist consultations during first 3 months then every 3 months	Adherence ● Adherence based on patient diary self evaluation - Mean (SD) ● Adherence based on MPR - Mean (SD) Follow-up: 3 months until the sixth month of treatment, then every 6 months. Follow-up times for measured outcomes are unknown	N/A
Ziller / 2013	Germany	RCT	171 (57/57/57)	100	Mean (SD): 63.3 (8.9)	N	Primary breast cancer on aromatase inhibitor therapy	(1) Telephone Group - a semi-structured interview technique, patients were reminded, informed and motivated during the phone call	(3) usual care - Patients received baseline information in the hospital and the 12 and 24	Adherence ● Medication possession ratio ● Self-reported adherence rates	Unrestricted research grant by Astra Zeneca Germany

								(2) Letter Group - Patients were addressed personally, reminded of the importance and impact of their disease, as well as the effects and possible side-effects of aromatase inhibitor (AI) treatment	month interviews	Follow-up: 12 months	

MASCC: Multinational Association of Supportive Care in Cancer; MEMS: medication event monitoring system; MMAS-4: Morisky Medication-Taking Adherence Scale (4-item); FACT-P: Functional Assessment of Cancer Therapy – Prostate; AEs: adverse events

Table 5. Characteristics of PICO 3 Studies

PICO 3: Should a standardized, periodic/ongoing assessment of adherence vs usual care be used for patients on an oral anticancer regimen?

Study/year	Country	Study design	N subjects (intervention/comparator)	% female	Age mean (SD) / Median (IQR)	Type of cancer and regimen	Intervention (study arms)	Comparator	Outcomes reported	Funding source
Bordonaro/2014	Italy	Cohort	62	58%	Mean: 67.8	Diverse cancers on diverse treatment	(1) Home-based cancer-treatment program - Weekly home visits are scheduled with a trained nurse who delivers the home-based chemotherapy and reviews patients' compliance and treatment toxicity. An oncologist evaluates patients and modifies the dosage of oral chemotherapy based on toxicity during the previous cycle at bi-weekly patient home visits.	N/A	Health-related quality of life and patient-reported outcomes ● EORTC quality of life questionnaire (QLQ-C30 - global health status/Qol) - Mean/IQR Cancer-related morbidity ● EORTC quality of life questionnaire - Mean/IQR Follow-up: weekly	Novartis

									Measured at baseline and 3 months/2 cycles (whichever one occurred first)	
Boulefto ur/2021	France	RCT	92/91	45.4%	Median: 70 (62-78)	Diverse cancers on Targeted therapy, Oral chemotherapy, Hormonotherap y	(1) Nurse led telephone follow up - Provided by four nurses; the aim of the follow-up was to give management strategies and support patients to better manage the potential toxicities identified during the telephone interview. Adverse effects were documented and nurses asked patients directly about their adherence to oral medication	(2) usual care	Adherence ● MMAS-8 - % of participant s with medium adherence Cancer-related morbidity ● Global toxicity score measured by NCI CTCAE v4.0 classificati on (Common Toxicity Criteria for Adverse Events)	"Le réseau espace santé cancer Rhones-Alpe: INNOV'RA 2014", "La ligue contre le cancer" and "Novartis Pharma SAS" and the financial support of the Institute of Cancerolog y Lucien Neuwirth

									Follow-up: At baseline, 3, 6, 12, and 24 weeks	
Dennison/2021	US	Cohort	20/20	50%	N/A	Chronic Myeloid Leukemia on Imatinib, Dasatinib, Bosutinib, Nilotinib	(1) Pharmacist led oral chemotherapy programs (POCP) - Adverse event education and management, proper administration of tyrosine kinase inhibitors, and follow-up by pharmacists	(2) usual care - Counseling from a pharmacists prior to initiation and pharmacist referral per the physician's discretion	Adherence ● Patient reported using Medication Adherence Scale (# of events per group) Patient satisfaction ● Satisfied with care received (# of events per group) Follow up: 4-6 weeks post initiation, 3 months post initiation Measurements 3 months after initiation	N/A
Eldeib/2019	Egypt	RCT	44/38	63.4%	N/A	Colorectal, colon, rectum, and gastric cancers on Capecitabine	(1) Telephone follow up - Active phone calls performed by the principal investigator on a weekly basis during their treatment period	(2) usual care	Adherence ● Overall patients' adherence rate % Follow-up: weekly	N/A

									Measurements at the end of each cycle	
Greer/2020	US	RCT	91/90	53.6%	Mean (SD): 53.3 (12.91)	Diverse cancers on targeted therapy and chemotherapy	(1) Mobile app intervention - Included a personalized medication dosing schedule, an adherence and symptom reporting module, educational resources for symptom management, and reminders to take oral medication and to complete weekly reports	(2) usual care	Adherence ● Adherence rate per electronic pill caps - Mean/SE Health-related quality of life and patient-reported outcomes ● FACT-G - (SE) Cancer-related morbidity ● MDASI symptom burden - (SE) Follow-up: 12 weeks	Patient-Centered Outcomes Research Institute (PCORI)
Lin/2020	US	Cohort	54	51.9%	Mean (SD): 64.4 (12.9)	Solid and hematologic cancers on TKI and other treatments	(1) Pharmacist and medication navigator led teaching session - Used MASCC Oral Agent Teaching Tool (MOATT) to enhance patient education; the medication	N/A	Adherence ● Self-measure, taking their OAM in the way they were supposed to - (“Very	Moore/Moreau Cancer Research Project Funding Opportunity (Rodday, A.); Yawkey Foundation (Parsons,

							navigator checked in with the patients 7-10 days after the initial session, using the same tool to reinforce understanding and identify issues		good" or "excellent" - % "Almost always" or "always" - %) Patient satisfaction ● Helpfulness of meeting with specialty pharmacist and medication navigator - % "very", "somewhat", "not at all" ● Helpfulness of medication info sheet - % "very", "somewhat", "not at all", "never used"	S.); National Center for Advancing Translational Sciences, National Institutes of Health, (Rodday, A.); National Center for Advancing Translational Sciences, National Institutes of Health (Fleckner, T.)

									• Helpfulness of medication calendar - % "very", "somewhat", "not at all", "never used" • Helpfulness of check-in with medication navigator - very", "somewhat", "not at all" Follow-up: 4 check-ins (initial and times 2-4) Measurements from cycles 2-4	
Mir/2020	France	RCT (abstract only)	609	N/A	Median: 62	N/A	(1) Nurse navigator (NN) follow-up - NNs provided regular phone follow-ups to manage symptoms and assess toxicities, adherence and	(2) usual care	Adherence • Relative dose intensity - Mean/SE Patient satisfaction	Fondation Philanthropia Lombard Odier Other Government Agency

							supportive care needs. A mobile application to record data and contact the nurse was also provided to patients.		• PACIC scores Cancer-related morbidity • % of unplanned hospitalizations No information on follow-up periods; the intervention lasted 6 months	Pharmaceutical/Biotech Company
Muluneh /2018	US	Cohort	107	55%	N/A	Malignant hematology, solid tumor (breast/GI) on diverse treatments	(1) Pharmacist-led oral chemotherapy management program - Patients were provided follow-up telephone calls with the CPP at 7-14 days, 30 days, and monthly for 3-6 months. Patient adherence and toxicity were evaluated at each meeting.	N/A	Adherence • MPR (# patients with 100% adherence) • Follow-up: follow up at 7-14 days, 30 days, and monthly for 3-6 months Measurement at 1 and 2 years	Pfizer (Inst)
Spoelstra/2015	US	RCT	40/40	60%	Mean (SD): 58.5 (10.7)	Diverse cancers and treatment	(1) Mobile health text message intervention - Text messages to confirm intervention continuation, symptom management, and general reminders	(2) usual care - Received AVR symptom weekly assessments	Adherence • Number of weeks adherent - Mean/SE • Relative dose	McKesson Foundation

							requiring patient input	along with the intervention group. Patients were also sent a medication and symptom management toolkit	intensity - Mean/SE Health-related quality of life and patient-reported outcomes ● Total number of symptoms - Mean/SE ● Summed symptom severity - Mean/SE ● Summed symptom interference - Mean/SE Patient self-efficacy about treatment ● MASES-R - Mean/SE Follow-up: 10 weeks	
Spoelstra/2017	US	Cohort	24/30	55.6%	Mean (SD): 63.79 (13.18)	N/A	(1) ADHERE intervention - Face-to-face 30 minute session with the nurse practitioner in the clinic, followed by 3	(2) usual care - Instructions on dosage and	Adherence ● Number of weeks adherent - Mean/SD	ONS Foundation Adherence to Oral Chemotherapy Research Grant

							weekly telephone calls by the nurse practitioner. The nurse practitioner discussed medication adherence, symptom management, safety tips, and provided a toolkit of strategies. There were structured interviews to identify problems with medication and unintentional non-adherence	timing, side effectis, symptom management, ways to remember to take the medication, medication safety, and when to contact a prescriber	Cancer-related morbidity ● Total number of symptoms - Mean (SE) ● Summed symptom severity - Mean (SE) Patient-self efficacy about treatment ● Medication adherence self-efficacy - Mean (SE) Follow-up: weekly starting week 2 Measurements from weeks 2-7	
Suttmann/2020	Germany	RCT	360/315	0%	N/A	Metastatic Castration-Resistant Prostate Cancer on Abiraterone Acetate plus Prednisone	(1) Adherence enhancing measures - 10-min educational video addressing	(2) usual care	Adherence ● MMAS-4 (medium/low) - # of events	Janssen-Cilag GmbH

							mechanism of action, effectiveness, correct intake, and adverse events; calls by a study nurse to identify problems with medication and unintentional non-adherence; optional patient diary, dosage card, and reminder SMS service		Follow-up: During the first 3 months, every 2 weeks alternating with study visits. Afterward, monthly in alteration with study visits Measurements at 3 months and 6 months	
Zerbit/2020	France	Cohort	42/113	43.2%	N/A	B cell malignancies on ibrutinib	(1) Pharmaceutical care program - The PCP was multimodal and included patient education for self-management in case of toxicities, proactive adherence monitoring, medication-related interventions to reduce drug-drug interactions, and follow-up of transition from hospital to community. There were 30-60 minute consultations by the pharmacist every 3 months until the sixth month of	(2) usual care	Adherence ● Adherence based on patient diary self evaluation - Mean (SD) ● Adherence based on MPR - Mean (SD) Health-related quality of life and patient-reported outcomes	N/A

							treatment, and then every 6 months		• Number of all adverse events of grade ≥ 3 Follow-up: every 3 months until the sixth month of treatment, then every 6 months Follow-up times for measured outcomes are unknown	

EORTC: European Organisation for Research and Treatment of Cancer; MMAS-8: Morisky Medication Adherence Scale (8-item); NCI; National Cancer Institute; CTCAE: Common Terminology Criteria for Adverse Events; FACT-G: Functional Assessment of Cancer – General; MDASI: MD Anderson Symptom Inventory; TKI: tyrosine kinase inhibitor; OAM: oral anticancer medication; PACIC: patient assessment of chronic illness care; CPP: clinical pharmacist practitioners; MPR: medication possession ratio; AVR: automated voice response; MASES-R: Medication Adherence Self-Efficacy Scale – Revision; MMAS-4: Morisky Medication Adherence Scale (4-item); PCP: pharmaceutical care program

Table 6. Characteristics of PICO 4 Studies

PICO 4: Should active oral adherence follow-up outside of routine medical visits vs usual care be used for patients on an oral anticancer regimen?

Study/year	Country	Study design	N subjects (intervention /comparator)	% female	Age mean (SD) / Median (IQR)	Additional Risk	Type of cancer and regimen	Intervention (study arms)	Comparator	Outcomes reported	Funding source
Eldeib/2019	Egypt	RCT	82(44/38)	63.4	Intervention: Mean (SD): 49.98 (10.7) Control: Mean (SD): 44.8 (12.65)	Complex medication schedule. Eastern Cooperative Oncology Group (ECOG) Performance Status (PS) less than or equal to two with the newly prescribed capecitabine-based therapy	Colorectal, colon, rectum or gastric cancer treated with capecitabine	(1) Follow up phone calls -Assessment of expected adverse effects was done, management strategies were developed, reinforcement about the importance of adherence was conducted	(2) usual care - Patients were provided with standard information about capecitabine, its related toxicity, and individualized regimen by the treating physician	Adherence ● Overall patients adherence (%) Follow-up: 11 cycles (follow up calls performed on a weekly basis)	N/A
Hendricks/2015	US	Cohort	N/A	N/A	N/A	"This quality improvement project aimed to improve the percentage	Breast cancer on **antiemetics**	(1) Email/phone follow-up -Telephone or e-mail contact by the nurse practitioner on day 4 of	(2) Pre-intervention control group	Adherence to antiemetic ● Adherence rates of 95%+	Genentech/ Roche (Inst)

						of patients with breast cancer receiving moderately or highly emetogenic chemotherapy who took their oral antiemetic agents as prescribed for CINV from 59% to 90%."		each treatment cycle		Follow-up: 24 weeks	
Vacher/2020	France	Cohort	55(41/14)	93	Mean (SD): 63.6 (11.8)	Non-adherent patients included within the education program	Breast and Colon cancer on Capecitabine/Capecitabine/Lapatinib	(1) Educational follow-up - Two therapeutic sessions every 3 cycles	(2) Pre-intervention control group	Adherence ● Mean adherence score Cancer-related morbidity ● List of toxicities provided in Table 3 Follow up: 6 cycles	Centre Jean Perrin

Table 7. Characteristics of PICO 5 Studies

PICO 5: Should coaching vs usual care be used for patients on an oral anticancer regimen?

Study/year	Country	Study design	N subjects (intervention/comparator)	% female	Age mean (SD) / Median (IQR)	Type of cancer and regimen	Intervention (study arms)	Comparator	Outcomes reported	Funding source
Komatsu/2020	Japan	RCT	154 (78/76)	N/A	N/A	Metastatic breast cancer on Capecitabine, Capecitabine and Lapatinib, or Tegafur/gimeracil/oteracil	(1) Nurse- delivered medication self-management program - Two sessions covering self management of oral administration, concepts of concordance and shared decision-making as a patient-centred approach, basic knowledge and optimal management of oral chemotherapy and targeted therapy, and effective communication skills	(2) usual care - Instructions on oral chemotherapy and information on treatment-related toxicity	Adherence ● MPR ≥ 90% after 3 months (events per group) Patient satisfaction ● Self-designed scale (Two 5-point questions) mean/SE Health-related Quality of Life and Patient-reported Outcomes ● FACT-B	Japan Society for the Promotion of Science KAKENHI (A) Grant Number 23249090, and the Japan Society for the Promotion of Science KAKENHI (A) Grant Number 16H02696

									mean/SE Cancer-related morbidity ● M.D. Anderson symptom severity scale mean/SE Patient self-efficacy about treatment ● General self-efficacy (GSE) scale mean/SE Follow-up: monthly for three months	
Krikorian/2019	US	RCT	200 (101/99)	77	N/A	Diverse on antineoplastic	(1) Individually tailored repetitive pharmacist educational and behavioral intervention - Medication counselling session, supplemented with educational materials, assessment and identification of	(2) Nurse led control group - Patients provided demographic data and completed beliefs about medicines	Adherence ● Adherence rate Follow-up: 3-4 weeks and 7-8 weeks after baseline	N/A

							barriers to adherence, tips for avoiding/managing medication related side effects, go over the care plan, reinforce importance of medication, evaluate understanding of the medication	questionnaire and then there was no other interaction until pill count 1		
Lam/2016	US	Cohort	269 (44/225)	38.7	N/A	Myelogenous Leukemia on tyrosine kinase inhibitors (imatinib, dasatinib, nilotinib, bosutinib, ponatinib)	(1) Oncology pharmacist-managed oral anticancer therapy program - "regular phone and secure email counselling" part of pharmacist led program"; mention of counselling very brief not much detail provided on this aspect of the intervention	(2) usual care	Adherence ● Adherence rate (%) measured via MPR Follow-up: end of treatment	N/A
Middendorf/2018	US	Cohort	96 (56/40)	53.12	N/A	Diverse	(1) Case management service - Follow-up phone calls to assess medication adverse effects and adherence; Team of pharmacists, nurses, and case managers facilitate the phone calls -Following implementation of the case management service, several steps were taken in order to address this potential barrier to adherence.	(2) Historical pre-intervention group	Adherence ● MPR ● Percent categorized as adherent (Adherent MPR > 0.8) Follow-up: 6 months	N/A

							In addition to the initial patient counseling session and follow-up phone calls, patients were provided with care packages to help manage and monitor common adverse effects associated with these agents."			
Mulunehh/2018	US	Cohort	107	55.0	N/A	Diverse	(1) An integrated, closed-loop, pharmacy-led oral chemotherapy management program - Oral chemotherapy counseling by the CPP included education on drug name, indication, dose, proper administration, chemotherapy regimen or schedule, oral chemotherapy safe handling, potential adverse effects, prevention or management of adverse effects, and relevant drug-drug or drug-food interactions	(2) Pre-intervention historical patients	Adherence: ● MPR (# patients with 100% adherence) ● Follow-up: each patient visit during treatment	Pfizer (Inst)
Patel/2016	US	Cohort	31	0	Mean: 76	Metastatic prostate cancer treated with Abiraterone and	(1) The nurse or pharmacist provide education and counseling for early detection and side effects and manage treatment-related side	(2) usual care	Adherence ● Mean daily adherence ● Adherence to lab	N/A

						Bicalutamide	events when they occurred		monitoring Follow-up: daily for duration of study period	
Schneider/ 2014	US	RCT	45 (25/20)	64.6	Mean (SD): 59.85 (12.96)	Diverse	(1) Nurse coaching intervention - Baseline measures were assessed during the initial call. Adherence strategies were developed and delivered over the phone during subsequent calls. Strategies were classified as either knowledge strategies, behavioral strategies and affective support	(2) usual care	Adherence ● Pharmacy refill ● self-report Follow up: weekly for the first month and then twice a month for 6 months or until medication completed	Award No. R15CA139398 from the National Cancer Institute
Vacher/ 2020	France	Cohort	55 (phase 1: 41 adherent/14 non-adherent) (phase 2: 10 in non-adherent received intervention pre/post	93	Mean (SD): 63.6 (11.8)	Breast and Colon cancer on Capecitabine/Capecitabine/Lapatinib	(1) Therapeutic education program - Educational diagnosis, evaluating the specific needs of the patient, knowledge of the treatment, evaluated the acquisitions (only given to 10 of 14 patients deemed deemed to be nonadherent (adherence rate <80%) after the observational stage of the study)	(2) Pre-intervention control group	Adherence ● Mean adherence rate Follow-up: daily for three cycles if adherent, six cycles if nonadherent Cancer-related morbidity ● AEs compared adherent vs non-adherent	Centre Jean Perrin

			comparison)						Follow-up: Two times every three cycles	

MPR: medication possession ratio; FACT-B: Functional Assessment of Cancer Therapy – Breast

Table 8. Characteristics of PICO 6 Studies

PICO 6: Should motivational interviewing vs usual care be used for patients on an oral anticancer regimen?

Study/year	Country	Study design	N subjects (intervention/comparator)	% female	Age mean (SD) / Median (IQR)	Type of cancer and regimen	Intervention (study arms)	Comparator	Outcomes reported	Funding source
GönderenÇakmak/2021	Turkey	RCT	80 (40/40)	55.0	N/A	Diverse	(1) Educational follow up with motivational interviewing technique - Planning, engaging, focusing, evoking via face-to-face and phone interview done by trained researcher	(2) usual care - 1 educational interview at the start of treatment and routine follow up	Adherence ● Oral chemotherapy adherence scale Patient-self efficacy about treatment ● Self-Efficacy Scale (SES) Follow-up: 12 weeks	N/A
Ribed/2016	Spain	Cohort	249 (134/115)	36.5	N/A	Diverse	(1) Pharmaceutical follow-up - three clinical interviews focused on safety and efficiency outcomes	(2) usual care - no pharmacist monitoring	Adherence ● Adherence rate Follow-up: after 1st and 6th month	No financial support
Spoelstra/2017	US	Cohort	54 (24/30)	55.55	Mean (SD): 63.79 (13.18)	Diverse	(1) ADHERE intervention - Motivational interviewing, brief CBT and systematic patient education	(2) usual care - Instructions on the OA regimen (dosage and timing),	Adherence ● # of weeks adherent	ONS Foundation Adherence to Oral Chemotherapy Research

								common side effects, symptom management, ways to remember to take the OA, medication safety and when to contact a provider	Cancer- Related Morbidity ● Summed symptom severity Follow-up: 8 weeks	Grant (Re39)
Ziller/2013	Germany	RCT	171 (57/57/57)	100	Mean (SD): 63.3 (8.9)	Primary breast cancer on aromatase inhibitor therapy	(1) Telephone Group - a semi-structured interview technique, patients were reminded, informed and motivated during the phone call	(2) Letter Group - Patients were addressed personally, reminded of the importance and impact of their disease, as well as the effects and possible side-effects of aromatase inhibitor (AI) treatment (3) usual care - Patients received baseline information in the hospital and the 12 and 24	Adherence ● MPR ● Self-reported adherence rates Follow-up: 12 months	Unrestricted research grand by Astra Zeneca Germany

								month interviews		

OA: oral anticancer; MPR: medication possession ratio

Table 9. Characteristics of PICO 7 Studies

PICO 7: Should technology vs usual care be used for patients on an oral anticancer regimen?

Study/year	Country	Study design	N subjects (intervention/comparator)	% female	Age mean (SD) / Median (IQR)	Type of cancer and regimen	Intervention (study arms)	Comparator	Outcomes reported	Funding source
Collado-Borrell/ 2020	Spain	Cohort	101 (50/51)	43.6	Mean (SD): 62.7 (13.6)	Diverse	(1) e-OncoSalud app -interactive app with patients able to set up alerts to take medication. -messaging module to communicate between patient and pharmacist -patient can register progress and side effects	(2) Historical control group with no intervention	Adherence ● Nonadherence and adherence rate Health-related Quality of Life and Patient-reported Outcomes ● HRQoL (EQ-5D) Follow-up: 6 months	iPharma (Pharmacy Innovation Center at the Hospital General Universitario Gregorio Marañón and the European Regional Development Fund (FEDER)
Fischer/ 2018	US	RCT (abstract only)	84	N/A	N/A	N/A	(1) CORA mobile app - Help cancer patients on oral anti-cancer medications manage symptoms, medication, and medication side-effects	(2) usual care	Adherence ● Median MMAS ● % of participants in the high adherence category	N/A

									● % of participants in the medium adherence category ● % of participants in the low adherence category Follow up: daily for 12 weeks	
Greer/2020	US	RCT	181 (91/90)	53.6	Mean (SD): 53.3 (12.91)	Diverse	(1) Smart phone - personalized reminders, educational resources and data mailed to clinicians who can then respond back	(2) usual care - not interactive care as usual	Adherence ● Adherence rate per electronic pill caps mean/SE Patient satisfaction ● Clinician explanations, ● Interpersonal treatment	Patient-Centered Outcomes Research Institute (PCORI) (IHS-1306-03616)

									comprehensive care ● Nursing communication ● Trust and confidence in clinicians) Health-related Quality of Life and Patient-reported Outcomes ● FACT-G mean/sd Follow-up: 12 weeks	
Hershman/2020	US	RCT	702(348/354)	100	Median: 60.9 Range: 30.7-82.4	Breast	(1) Text messages - Two educational text messages/ week sent via CareSpeak Communications. Text messages focused on overcoming potential barriers to medication adherence and included cues to action, statements related to the efficacy of the medication, reinforcements of the physician's recommendation to take this medication,	(2) usual care - No text messaging	Adherence ● Adherence failure rate Follow up: 3 years	National Institutes of Health/National Cancer Institute/ Division of Cancer Prevention grant UG1CA189974 and legacy grant U10CA37429; and by ASCO's Conquer Cancer

							and words of support and encouragement			Foundation and the Breast Cancer Research Foundation
Kim/2018	Korea	RCT	76(36/40)	100	50.9 (7.0)	Breast	(1) Mobile game (ILOVEBREAST) - The game provided education for preventing side effects of anticancer drugs and support for the prevention of side effects of anticancer drugs - It was recommended that participants play the game for >30 minutes a day, 3 times per week	(2) usual care - Conventional education	Adherence ● Korean version of the Medication Adherence Rating Scale Follow-up: 3 weeks	Grant of Nexon 2014 and a grant from the Korea Creative Content Agency, Ministry of Culture, Sports and Tourism (20130404336)
Krok-Schoen/2019	US	Cohort	39	100	Mean(SD): 59.7(7)	Breast on tamoxifen or an aromatase inhibitor	(1) Smartphone app - Participants received daily text messages and weekly app surveys for 90 days - Messaging focused on 3 behaviors: initiation, continuation, and adherence to the prescribed dose, as appropriate	(2) usual care -	Adherence ● Morisky Adherence score Health-related Quality of Life and Patient-reported Outcomes ● Quality of Life Cancer-related Morbidity ● Overall health	National Cancer Institute of the National Institutes of Health under the Award Number UG1CA189823 (Alliance for Clinical Trials in Oncology NCORP Grant) and

									Follow up: 3 months	U10CA180850 and The Ohio State University Comprehensive Cancer Center Pharmacoanalytical Shared Resource, P30CA016058
Mauro/ 2019	US	RCT	40 (20/20)	45	N/A	Multiple myeloma on Lenalidomide	(1) Smart Pill Bottles -Text messages, chimes, light, pharmacist follow-up if adherence rates drop below 80%	(2) Deactivated smart pill bottles	Adherence ● Adherence rate Follow-up: daily for 6 months Patient satisfaction ● Survey	Avella Specialty Pharmacy and AdhereTech
McKay/ 2019	US	RCT	89 (56/33)	N/A	N/A	Renal cell carcinoma and Prostate adenocarcinoma on diverse therapies	(1) Video-based, personalized web page (Postwire platform) -Personalized webpage that provides patients with educational videos and video recordings of clinical trial appointments	(2) usual care	Non-adherence ● Number of improper doses ● Number of improper self-administrations ● Number of missed doses	Fairweather Family Fund, Fat Boys Slim Sisters Fund (MET)

									• Number of wrong doses • Number of doses administered at the wrong time Patient satisfaction • Patient Satisfaction Scores (FACIT questionnaire) Cancer-related morbidity • Perceived stress (PSS-10) Follow-up: every cycle for 6 cycles, matching patient's parent clinical trial treatment cycles	
Mir/2020	N/A	RCT (abstract only)	609	N/A	Median (range): 62 (20-92)	N/A	(1) Follow up calls and a mobile application - Nurse navigators (NNs) provided regular phone follow-ups to	(2) usual care	Adherence • Relative dose intensity	Fondation Philanthropia Lombard Odier

							manage symptoms and assess toxicities, adherence and supportive care needs. Patients had access to a mobile application to record tracking data, contact NNs via secure messaging or a dedicated phone line		Patient Satisfaction ● PACIC scores Cancer-related morbidity ● % of unplanned hospitalizations Follow-up: unspecified times for 6 months	
Sikorski/ 2018	US	RCT	272 (137/135)	50	Mean (SD): 61 (12)	Diverse	(1) Interactive voice response - Non-interactive: Adherence reminder calls; symptom assessment and management calls	(2) No intervention - weekly standard care and symptom assessment calls	Adherence ● Relative dose Intensity Follow-up: 4, 8, and 12 weeks after baseline	National Institutes of Health (National Cancer Institute)
Spoelstra/2016	US	RCT	75 (49/26)	54.67	N/A	Diverse	(1) Theory-based text messages -individuals received short messages to respond to that prompted them to take medication	(2) usual care - care as usual from their oncologist, nurses, or pharmacists regarding the medication regimen	Adherence ● Number of weeks adherent Cancer-related morbidity ● Summed Symptom severity of 18	Grant 1R15CA176595-01 from the National Cancer Institute.

									sympto ms Follow-up: every 7 days for 10 weeks Patient satisfaction ● Survey Follow-up: 4 and 9 weeks after baseline Health-related Quality of Life and Patient-reported Outcomes ● BMQ1 (Brief Medicat ion Questio nnaire 1) ● BMQ2 (Brief Medicat ion Questio nnaire 2) Follow-up: 9 weeks after baseline	

Spoelstra/2015	US	RCT	80 (40/40)	60	Mean (SD): 58.5 (10.7)	Diverse	(1) Text message -Sent medication adherence texts for each done, requiring a response when medication is taken. Symptom texts delivered once weekly.	(2) usual care -care as usual from their oncology clinician, nurses, or pharmacists regarding the medication regimen; completing a baseline and post assessment and weekly AVR calls	Adherence ● Number of weeks adherent ● Relative dose intensity Follow-up: weekly for 8 weeks Health-related Quality of Life and Patient-reported Outcomes ● BMQ1 (Brief Medication Questionnaire 1) ● BMQ2 (Brief Medication Questionnaire 2) Follow-up: 10 weeks after baseline Patient satisfaction ● Survey	McKesson Foundation

HRQoL: health-related quality of life; MMAS: Morisky Medication Adherence Scale; FACT-G: Functional Assessment of Cancer Therapy – General; FACIT: Functional Assessment of Chronic Illness Therapy; PACIC: Patient Assessment of Chronic Illness Care; AVR: automated voice reponse

Table 10. Characteristics of PICO 8 Studies

PICO 8: Should non-interactive vs interactive technology be used for patients on an oral anticancer regimen?

Study/year	Country	Study design	N subjects (intervention/comparator)	% female	Age mean (SD) / Median (IQR)	Type of cancer and regimen	Intervention (study arms)	Comparator	Outcomes reported	Funding source
Spoelstra/2013	US	RCT	119 (40/39/40)	68.9	Mean: 59.6	Breast, Colon/rectal, Lung or Other on capecitabine, erlotinib, lapatinib, temozolomide, imatinib, letrozole, sunitinib, sorafenib, methotrexate, cyclophosphamide or other	(1) AVR system for reminders requiring a response and SMT complemented by nurse strategies to manage unresolved symptoms and improve adherence via reminders and symptom management protocol (enhanced tailored behaviors for each specific symptom, fostering self-care behaviors, problem solving for adherence to the self-care symptom behavior, providing support, coaching and counseling,and decision making) when 1 or more symptoms were scored at a 4 or higher and/or adherence dropped below 100% for 2 consecutive week, completing a baseline and post assessment	(3) Symptom Management Toolkit (SMT) and an AVR phone system for reminders requiring a response alone, completing a baseline and post assessment and weekly AVR calls for symptoms	Adherence: ● Non-adherence Cancer-related morbidity ● Exit symptom severity Follow-up: weekly for 8 weeks	Oncology Nursing Society Foundation

							and weekly AVR calls for symptoms (2)AVR system for reminders requiring a response and SMT complemented by nurse strategies to improve adherence alone (via brief phone call reminders) when adherence dropped below 100 for 2 consecutive weeks, completing a baseline and post assessment and weekly AVR calls for symptoms			

AVR: automated voice response

Table 11. Characteristics of PICO 9 Studies

PICO 9: Should structured oral anti-cancer medication program vs. no structured oral anti-cancer medication program be used for institutions providing care to patients on an oral anti-cancer medication regimen?

Study/year	Country	Study design	N subjects (intervention/comparator)	% female	Age mean (SD) / Median (IQR)	Intervention (study arms)	Comparator	Outcomes reported	Funding source
Bordonaro/2012	Italy	Cohort	30	56.7	Mean: 71 Range: 33-83	(1) Active Home Care program - Weekly home visits, oncologist visits and patient's emergency calls - Duration: 12 weeks	(2) usual care	Cancer-related morbidity ● Symptoms ● EORTC QoL physical function Health related Quality of Life and Patient-reported Outcomes ● EORTC Health/QOL Global Follow-up: every three months for one year	Avola city council
Bordonaro/2014	Italy	Cohort	62	58	Mean: 67.8 Range: 33-83	(1) Active Home Care program - Weekly home visits, oncologist visits and patient's emergency calls - Duration: ongoing	(2) usual care	Cancer-related morbidity ● EORTC QoL physical function Health related Quality of Life and Patient-reported Outcomes ● EORTC Global health status/QoL Patient financial toxicity ● EORTC financial difficulties	Novartis

								Follow-up: every three months for one year	
Curry/2020	US	Cohort	106(52/54)	N/A	N/A	(1) Ambulatory adherence program - Low-cost tools (pillbox and calendar), patient education, toxicity monitoring, drug procurement - Duration: ongoing	(2) usual care	Adherence ● % of patients with measured adherence between 80% to 120% of medication prescribed via MPR Cancer-related morbidity ● Adverse effects resulting in ER visits and hospitalization Follow-up: mid-cycle visits for 3 cycles	Takeda
Dennison/2021	US	Cohort	40(20/20)	50	Intervention Mean (SD): 57.35(13.97) Comparator Mean(SD): 53.25(11.84)	(1) Pharmacist-led Oral Chemotherapy Program (POCP) - Prescription fill, pharmacist-led patient education, pharmacist follow-up - Duration: ongoing	(2) Non POCP - Pharmacist-led education, follow-up by physician referral	Adherence ● High patient-reported adherence (%) Patient Satisfaction ● Satisfied with care received (%) Follow-up: once during or after treatment	N/A
Gebbia/2013	Italy	Cohort	150(100/50)	33	Median: 66 Range: 26-83	(1) Treatment Monitoring Program - Education, expert contact, follow-up - Duration: ongoing	(2) usual care Patients were educated about side effects and at monthly clinical visits. Adherence was	Adherence ● Mean adherence via Basel assessment adherence scale ● Pill counting Follow-up: every four weeks for duration of treatment	Foundation GSTU, Palermo

							assessed monthly		
Khandelwal/2012	US	Cohort	754(377/377)	N/A	N/A	(1) Oral chemotherapy cycle management program (CMP) - Nurse follow-up, pharmacist follow-up, question hotline, split-fill plan - Duration: ongoing	(2) usual care	Adherence ● Mean MPR in months 1-6 Follow-up: monthly for six months	Walgreens Co.
Krolop/2013	Germany	Cohort	73(58/15)	74	N/A	(1) Multiprofessional modular medication management - Basic pharmaceutical care module, adverse event management module, adherence support module - Duration: 6 cycles (3 weeks each)	(2) usual care	Adherence ● Median daily adherence Follow-up: daily for six treatment cycles	Roche, Basel
Lam/2016	US	Cohort	269 (44/225)	38.7	Intervention Median: 57 Comparator Median: 54.9	(1) Oncology pharmacist-managed oral anticancer therapy program - Educational visit, Routine follow-up	(2) usual care	Adherence ● Adherence rate - MPR >= 90% (%) Follow-up: end of treatment	N/A

						- Duration: ongoing (until end of Rx)			
Middendorff/2018	US	Cohort	96(56/40)	53.12	N/A	(1) Specialty pharmacy case management service - Reduction of expenses, education session, side effect management, nurse follow-up, clinical support - Duration: 12 months (2x 6 month intervals)	(2) usual care	Adherence ● MPR ● % of patients with adherence ≥ 80% Patient Financial Toxicity ● Average monthly patient cost Follow-up: 6 months	N/A
Muluneh/2018	US	Cohort	107	55	N/A	(1) Pharmacy-led oral chemotherapy management program - Oral chemotherapy counseling, assessment and enhancement of adherence, medication management services, specialty pharmacy services - Duration: ongoing	(2) Historical cohort	Adherence ● MPR (# patients with 100% adherence) Follow-up: each patient visit during treatment	Pfizer
Ribed/2016	Spain	Cohort	249(134/115)	36.5	Intervention	(1) Comprehensive	(2) usual care	Adherence ● Adherence rate (%)	N/A

					Mean (SD): 68.5 (12.5) Comparator: Mean (SD): 63.9 (15.1)	pharmaceutical care program - Informational brochures, three follow-up clinical interviews - Duration: 6 months		● % of adherent patients (≥ 90%) Follow-up: after 1st and 6th month	
Stokes/2017	US	Cohort	42,366(11,972/30,394)	N/A	Intervention Mean (SD): 63.9 (12.5) Comparator Mean (SD): 64.4 (12.9)	(1) Specialty pharmacy - Therapy Management Services, adverse event monitoring - Duration: 6 months	(2) usual care	Adherence ● Proportion of days covered between first and last fill ● % of patients with adherence ≥ 80% Follow-up: variable period which started at the index date and ended at the date of disenrollment of pharmacy benefits or December 31, 2011 (whichever date came first). Measures were assessed over this period.	Genentech
Tschida/2012	US	Cohort	1458	50.2	Intervention Mean: 54.2 Comparator Mean: 54.8	(1) Specialty pharmacy program - Patient education, monthly adherence program, clinical counselling in case of non-adherence, risk assessment, health resource referral	(2) Retail pharmacy	Adherence ● Weighted MPR Follow-up: at 3, 6, 9, and 12 months	N/A

Vacher/2020	France	Cohort	55(41/14)	93	Mean (SD): 63.6 (11.8)	(1) Therapeutic Education Program - Two educational sessions with a pharmacist every 3 cycles. Sessions included evaluating needs of the patient, providing patients with knowledge about treatment, and maintenance of acquisitions	(2) usual care	Adherence ● Adherence rate Follow-up: daily for three cycles if adherent, six cycles if nonadherent Cancer-related morbidity ● All toxicities grade 0 ● All toxicities grade 1-2 ● All toxicities grade 3-4 Follow-up: Two times every three cycles	Centre Jean Perrin

EORTC QoL: European Organisation for Research and Treatment of Cancer Quality of Life; MPR: medication possession ratio; ER: emergency room; Rx: medical prescription

Table 12. Risk of Bias for PICO 1 Randomized Studies

1	Should standardized assessment for risk for nonadherence/barriers to adherence be used rather than usual care in patients starting a new oral anticancer medication regimen?

Study	Risk of bias arising from the randomization process	Risk of bias due to deviations from the intended interventions	Risk of bias due to missing outcome data	Risk of bias in measurement of the outcome	Risk of bias in selection of the reported result
Schneider 2014	**Some concerns**	**Some concerns**	**Low**	**Low**	**Low**

Low Risk	**Some Concerns**	**High Risk**

Table 13. Risk of Bias for PICO 2 Studies Non-Randomized Studies

2	Should standardized oral anticancer medication educational programs that address adherence be used rather than usual care in patients on an oral anticancer medication regimen?

Study	Bias due to confounding	Bias in selection of participants into the study	Bias in classification of interventions	Bias due to deviations from intended interventions	Bias due to missing data	Bias in measurement of outcomes	Bias in selection of the reported result
Byrne 2018	**Critical**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**

Hendricks 2015	**Critical**	**Low**	**Low**	**Moderate**	**Critical**		**Critical**	**Serious**
Krolop 2013	**Critical**	**Low**	**Low**	**Low**	**Critical**		**Low**	**Low**
Lin 2020	**Critical**	**Moderate**	**Low**	**Low**	**Low**		**Moderate**	**Low**
Morgan 2018	**Critical**	**Low**	**Low**	**Low**	**Serious**		**Low (MPR adherence)**	**Serious (Self-reported adherence)**	**Low**
Patel 2016	**Critical**	**Low**	**Low**	**Low**	**Low**		**Low (Adherence)**	**Moderate (Quality of life)**	**Low**
Ribed 2016	**Critical**	**Low**	**Low**	**Low**	**Moderate**		**Low**	**Low**
Simons 2011	**Critical**	**Serious**	**Low**	**Low**	**Low**		**Low**	**Low**
Vacher 2020	**Critical**	**Low**	**Low**	**Low**	**Low (Cancer-related morbidity)**	**Critical (Adherence)**	**Low (Adherence)**	**Moderate (Cancer-related morbidity)**	**Low**
Zerbit 2020	**Moderate**	**Low**	**Low**	**Low**	**Serious**		**Low (Quality of life)**	**Moderate (Adherence)**	**Low**

Low	**Moderate**	**Serious**	**Critical**

Table 14. Risk of Bias for PICO 2 Studies Randomized Studies

2	Should standardized oral anticancer medication educational programs that address adherence be used rather than usual care in patients on an oral anticancer medication regimen?

Study	Risk of bias arising from the randomization process	Risk of bias due to deviations from the intended interventions	Risk of bias due to missing outcome data	Risk of bias in measurement of the outcome		Risk of bias in selection of the reported result
Berry 2015	**Some concerns**	**Some concerns**	**Low**	**Some concerns**		**Low**
GönderenÇakmak 2021	**Low**	**Some concerns**	**Low**	**Some concerns**		**Low**
Krikorian 2019	**Some concerns**	**Low**	**High**	**Low**		**High**
Schneider 2014	**Some concerns**	**Some concerns**	**Low**	**Low**		**Low**
Suttmann 2020	**Low**	**Some concerns**	**Some concerns**	**Low**		**Low**
Ziller 2013	**Low**	**Low**	**Low**	**Low (MPR adherence)**	**Some concerns (Self-reported adherence)**	**Low**

Low Risk	**Some Concerns**	**High Risk**

Table 15. Risk of Bias for PICO 3 Non-Randomized Studies

3	Should standardized, periodic/ongoing assessment of adherence instead of usual care be used for patients on an oral anticancer medication regimen?

Study	Bias due to confounding	Bias in selection of participants into the study	Bias in classification of interventions	Bias due to deviations from intended interventions	Bias due to missing data	Bias in measurement of outcomes		Bias in selection of the reported result
Bordonaro 2014	Critical	Low	Low	Low	Low	Serious		Low
Dennison 2021	Critical	Low	Low	Low	Low	Moderate		Low
Lin 2020	Critical	Moderate	Low	Low	Low	Moderate		Low
Muluneh 2018	Critical	Low	Low	Low	Low	Critical		Serious
Spolestra 2017	Serious	Serious	Low	Moderate	Serious	Serious		Low
Zerbit 2020	Moderate	Low	Low	Low	Serious	Low (Quality of life)	Moderate (Adherence)	Low

Low	Moderate	Serious	Critical

Table 16. Risk of Bias for PICO 3 Randomized Studies

3	Should standardized, periodic/ongoing assessment of adherence instead of usual care be used for patients on an oral anticancer medication regimen?

Study	Risk of bias arising from the randomization process	Risk of bias due to deviations from the intended interventions	Risk of bias due to missing outcome data	Risk of bias in measurement of the outcome			Risk of bias in selection of the reported result
Bouleftour 2021	**Low**	**Some concerns**	**Low**	**Low (Adherence)**	**Some concerns (Cancer-related morbidity)**		**Low**
Eldeib 2019	**Low**	**Some concerns**	**High**	**Some concerns**			**Some concerns**
Greer 2020	**Low**	**Low**	**Low**	**Low (Adherence)**	**Some concerns (Quality of Life)**	**High (Cancer-related morbidity)**	**Low**
Mir 2020	**Some concerns**	**Some concerns**	**High**	**Some concerns**			**Some concerns**
Spoelstra 2015	**Low**	**Some concerns**	**Low**	**Some concerns (Self reported adherence, Quality of life, Self-efficacy)**	**Low (RDI adherence)**		**Low**

Suttmann 2020	**Low**	**Some concerns**	**Some concerns**	**Low**	**Low**

Low Risk	**Some Concerns**	**High Risk**

Table 17. Risk of Bias for PICO 4 Non-Randomized Studies

4	Should proactive follow-up outside of routine medical visits be done rather than usual care for patients on an oral anticancer medication regimen who have additional risk factors?

Study	**Bias due to confounding**	**Bias in selection of participants into the study**	**Bias in classification of interventions**	**Bias due to deviations from intended interventions**	**Bias due to missing data**		**Bias in measurement of outcomes**		**Bias in selection of the reported result**
Hendricks 2015	**Critical**	**Low**	**Low**	**Moderate**	**Critical**		**Critical**		**Serious**
Vacher 2020	**Critical**	**Low**	**Low**	**Low**	**Low (Cancer-related morbidity)**	**Critical (Adherence)**	**Low (Adherence)**	**Moderate (Cancer-related morbidity)**	**Low**

Low	**Moderate**	**Serious**	**Critical**

Table 18. Risk of Bias for PICO 4 Randomized Studies

4	Should proactive follow-up outside of routine medical visits be done rather than usual care for patients on an oral anticancer medication regimen who have additional risk factors?

Study	Risk of bias arising from the randomization process	Risk of bias due to deviations from the intended interventions	Risk of bias due to missing outcome data	Risk of bias in measurement of the outcome	Risk of bias in selection of the reported result
Eldeib 2019	**Low**	**Some concerns**	**High**	**Some concerns**	**Some concerns**

Low Risk	**Some Concerns**	**High Risk**

Table 19. Risk of Bias for PICO 5 Non-Randomized Studies

5	Should a coaching intervention be used instead of usual care for patients on an oral anticancer medication regimen?

Study	Bias due to confounding	Bias in selection of participants into the study	Bias in classification of interventions	Bias due to deviations from intended interventions	Bias due to missing data	Bias in measurement of outcomes	Bias in selection of the reported result
Lam 2016	**Critical**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**

Middendorf 2018	**Critical**	**Low**	**Low**	**Low**	**Low**		**Low**		**Low**
Muluneh 2018	**Critical**	**Low**	**Low**	**Low**	**Low**		**Critical**		**Serious**
Patel 2016	**Critical**	**Low**	**Low**	**Low**	**Low**		**Low (Adherence)**	**Moderate (Cancer-related morbidity)**	**Low**
Vacher 2020	**Critical**	**Low**	**Low**	**Low**	**Low (Cancer-related morbidity)**	**Critical (Adherence)**	**Low (Adherence)**	**Moderate (Cancer-related morbidity)**	**Low**

Low	**Moderate**	**Serious**	**Critical**

Table 20. Risk of Bias for PICO 5 Randomized Studies

5	Should a coaching intervention be used instead of usual care for patients on an oral anticancer medication regimen?

Study	**Risk of bias arising from the randomization process**	**Risk of bias due to deviations from the intended interventions**	**Risk of bias due to missing outcome data**	**Risk of bias in measurement of the outcome**	**Risk of bias in selection of the reported result**

Komatsu 2020	**Low**	**Low**	**High**	**Low**	**Some concerns**	**Low**
Krikorian 2019	**Some concerns**	**Low**	**High**	**Low**		**High**
Schneider 2014	**Some concerns**	**Some concerns**	**Low**	**Low**		**Low**

Low Risk	**Some Concerns**	**High Risk**

Table 21. Risk of Bias for PICO 6 Non-Randomized Studies

6	Should motivational interviewing be used instead of usual care for patients on an oral anticancer medication regimen?

Study	**Bias due to confounding**	**Bias in selection of participants into the study**	**Bias in classification of interventions**	**Bias due to deviations from intended interventions**	**Bias due to missing data**	**Bias in measurement of outcomes**	**Bias in selection of the reported result**
Ribed 2016	**Critical**	**Low**	**Low**	**Low**	**Moderate**	**Low**	**Low**
Spoelstra 2017	**Serious**	**Serious**	**Low**	**Moderate**	**Serious**	**Serious**	**Low**

Low	**Moderate**	**Serious**	**Critical**

Table 22. Risk of Bias for PICO 6 Randomized Studies

6	Should motivational interviewing be used instead of usual care for patients on an oral anticancer medication regimen?

Study	Risk of bias arising from the randomization process	Risk of bias due to deviations from the intended interventions	Risk of bias due to missing outcome data	Risk of bias in measurement of the outcome		Risk of bias in selection of the reported result
GönderenÇakmak 2021	**Low**	**Some concerns**	**Low**	**Some concerns**		**Low**
Ziller 2013	**Low**	**Low**	**Low**	**Low (MPR adherence)**	**Some concerns (Self-reported adherence)**	**Low**

Low Risk	Some Concerns	High Risk

Table 23. Risk of Bias for PICO 7 Non-Randomized Studies

7	Should a technological intervention be used rather than usual care for patients on an oral anticancer medication regimen?

Study	Bias due to confounding	Bias in selection of participants	Bias in classification of	Bias due to deviations from	Bias due to missing data	Bias in measurement of outcomes	Bias in selection of the reported

		into the study	**interventions**	**intended interventions**				**result**
Collado-Borrell 2020	**Critical**	**Low**	**Low**	**Low**	**Serious**	**Low (Adherence)**	**Serious (Quality of life)**	**Low**
Krok-Schoen 2019	**Critical**	**Low**	**Low**	**Low**	**Serious**	**Serious**		**Low**

Low	**Moderate**	**Serious**	**Critical**

Table 24. Risk of Bias for PICO 7 Randomized Studies

7	Should a technological intervention be used rather than usual care for patients on an oral anticancer medication regimen?

Study	**Risk of bias arising from the randomization process**	**Risk of bias due to deviations from the intended interventions**	**Risk of bias due to missing outcome data**	**Risk of bias in measurement of the outcome**		**Risk of bias in selection of the reported result**
Fischer 2018	**Some concerns**	**Some concerns**	**High**	**Some concerns**		**Some concerns**
Greer 2020	**Low**	**Low**	**Low**	**Low**	**Some concerns (Quality of Life,**	**Low**

				(Adherence)	**Cancer-related morbidity)**	
Hershman 2020	**Some concerns**	**Low**	**High**	**Low**		**Low**
Kim 2018	**Low**	**Some concerns**	**Low**	**Some concerns**		**Low**
Mauro 2019	**Low**	**Some concerns**	**Low**	**Low**		**Low**
McKay 2019	**Low**	**Some concerns**	**Low**	**High (Adherence)**	**Some concerns (Patient satisfaction, Cancer-related morbidity)**	**Low**
Mir 2020	**Some concerns**	**Some concerns**	**High**	**Some concerns**		**Some concerns**
Sikorskii 2018	**Low**	**Low**	**Low**	**Low**		**Low**
Spoelstra 2015	**Low**	**Some concerns**	**Low**	**Some concerns (Self reported adherence, Quality of life, Self-efficacy)**	**Low (RDI adherence)**	**Low**
Spoelstra 2016	**Low**	**Low**	**Low**	**Low**		**Low**

Low Risk	**Some Concerns**	**High Risk**

Table 25. Risk of Bias for PICO 8 Randomized Studies

8	Should interactive technology rather than non-interactive technology be used for patients on an oral anticancer medication regimen?

Study	Risk of bias arising from the randomization process	Risk of bias due to deviations from the intended interventions	Risk of bias due to missing outcome data	Risk of bias in measurement of the outcome		Risk of bias in selection of the reported result	
Spoelstra 2013	**High**	**Low**	**Low**	**High (Adherence)**	**Low (Cancer-related morbidity)**	**High (Adherence)**	**Low (Cancer-related morbidity)**

Low Risk	**Some Concerns**	**High Risk**

Table 26. Risk of Bias for PICO 9 Non-Randomized Studies

9	Should structured oral anticancer medication programs rather than no structured oral anticancer medication programs be used by institutions providing care to patients on an oral anticancer medication regimen?

Study	Bias due to confounding	Bias in selection of participants into the study	Bias in classification of interventions	Bias due to deviations from intended interventions	Bias due to missing data	Bias in measurement of outcomes	Bias in selection of the reported result
Bordonaro 2012	Critical	Low	Low	Low	Low	Low	Low
Bordonaro 2014	Critical	Low	Low	Low	Low	Serious	Low
Curry 2020	Critical	Low	Low	Low	Low	Low	Low
Dennison 2021	Critical	Low	Low	Low	Low	Moderate	Low
Gebbia 2013	Critical	Low	Low	Low	Serious	Low	Low
Khandelwal 2012	Critical	Low	Low	Low	Low	Low	Low
Krolop 2013	Critical	Low	Low	Low	Critical	Low	Low

Lam 2016	**Critical**	**Low**	**Low**	**Low**	**Low**		**Low**		**Low**
Middendorf f 2018	**Critical**	**Low**	**Low**	**Low**	**Low**		**Low**		**Low**
Muluneh 2018	**Critical**	**Low**	**Low**	**Low**	**Low**		**Critical**		**Serious**
Ribed 2016	**Critical**	**Low**	**Low**	**Low**	**Moderate**		**Low**		**Low**
Stokes 2017	**Critical**	**Moderate**	**Low**	**Low**	**Low**		**Low**		**Low**
Tschida 2012	**Moderate**	**Moderate**	**Low**	**Low**	**Low**		**Low**		**Low**
Vacher 2020	**Critical**	**Low**	**Low**	**Low**	**Low (Cancer-related morbidity)**	**Critical (Adherence)**	**Low (Adherence)**	**Moderate (Cancer-related morbidity)**	**Low**

Low	**Moderate**	**Serious**	**Critical**

Table 27. Evidence Profile for PICO 1

Question: Standardized assessment for risk/barriers compared to usual care for patients starting a new oral anti-cancer medication regimen
Setting: Outpatient

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	standardized assessment for risk/barriers	usual care	Relative (95% CI)	Absolute (95% CI)		
Adherence rate (follow up: 4 months; assessed with: self-report)												
1 [1]	randomised trials	not serious [a]	not serious	serious [b]	very serious [c,d]	none	25 participants who received risk assessment plus tailored intervention had an adherence rate of 95.1% vs 20 participants in the control arm with an adherence rate of 82.4%.				⨁◯◯◯ VERY LOW	CRITICAL
Self-efficacy to manage medications - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	IMPORTANT
Health-related Quality of Life and Patient-reported Outcomes (HRQOL/PROs) - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	CRITICAL
Patient satisfaction - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	CRITICAL

CI: Confidence interval

Explanations

a. Minimal information provided about randomization and allocation concealment.
b. Intervention included tailored coaching intervention in addition to risk assessment.
c. Sample doesn't meet optimal information size. Concerns with fragility.

d. The possibility of no difference cannot be excluded due to limited information.

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Table 28. Evidence Profile for PICO 2

Question: Educational programs compared to usual care for patients starting a new oral anticancer medication regimen
Setting: Outpatient

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	**Study design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**educational programs**	**usual care**	**Relative (95% CI)**	**Absolute (95% CI)**		
Adherence rate (follow up: 3-48 weeks; assessed with: self-report and pill count)												
2 [1,2]	randomised trials	serious [a]	not serious	not serious	very serious [b,c]	none	215	156	-	MD **0.4 % higher** (1.87 lower to 2.68 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Adherence rate (follow up: 2-24 weeks; assessed with: self-report and medication event monitoring system pillboxes)												
4 [3,4,5,6]	observational studies	very serious [d]	not serious	not serious	serious [b]	none	83	100	-	MD **10.61 % higher** (7.21 higher to 14.01 higher)	⨁◯◯◯ VERY LOW	CRITICAL

Proportion with high adherence (follow up: 14-24 weeks; assessed with: MMAS-4 and MMAS-8)

2 [7,8]	randomised trials	serious [e]	not serious	not serious	not serious	none	222/391 (56.8%)	175/354 (49.4%)	**RR 1.16** (1.01 to 1.33)	**79 more per 1,000** (from 5 more to 163 more)	⨁⨁⨁◯ MODERATE	CRITICAL

Patient satisfaction (assessed with: Helpfulness of meeting with specialty pharmacist and medication navigator - % “very”)

1 [9]	observational studies	very serious [f,g]	not serious	not serious	very serious [c,h]	none	30/39 (76.9%)	32/37 (86.5%)	**RR 0.89** (0.72 to 1.10)	**95 fewer per 1,000** (from 242 fewer to 86 more)	⨁◯◯◯ VERY LOW	CRITICAL

Patient satisfaction (assessed with: Helpfulness of medication info sheet - % “very”)

1 [9]	observational studies	very serious [f,g]	not serious	not serious	very serious [c,h]	none	25/39 (64.1%)	28/37 (75.7%)	**RR 0.85** (0.63 to 1.14)	**114 fewer per 1,000** (from 280 fewer to 106 more)	⨁◯◯◯ VERY LOW	CRITICAL

Patient satisfaction (assessed with: Helpfulness of check-in with medication navigator - % very”)

1 [9]	observational studies	very serious [f,g]	not serious	not serious	serious [b]	none	27/39 (69.2%)	34/37 (91.9%)	**RR 0.75** (0.60 to 0.95)	**230 fewer per 1,000** (from 368	⨁◯◯◯ VERY LOW	CRITICAL

										fewer to 46 fewer)		
Patient knowledge of regimen (follow up: 2 cycles; assessed with: Dosage and frequency)												
1 [10]	observational studies	very serious [i]	not serious	not serious	serious [b]	none	29/29 (100.0%)	23/29 (79.3%)	**RR 1.26** (1.03 to 1.52)	**206 more per 1,000** (from 24 more to 412 more)	⨁◯◯◯ VERY LOW	CRITICAL
Patient knowledge of regimen (follow up: 2 cycles; assessed with: How to manage missed doses)												
1 [10]	observational studies	very serious [i]	not serious	not serious	serious [b]	none	29/29 (100.0%)	19/29 (65.5%)	**RR 1.51** (1.16 to 1.98)	**334 more per 1,000** (from 105 more to 642 more)	⨁◯◯◯ VERY LOW	CRITICAL
Patient knowledge of regimen (follow up: 2 cycles; assessed with: Dosage schedule)												
1 [10]	observational studies	very serious [i]	not serious	not serious	serious [b]	none	29/29 (100.0%)	22/29 (75.9%)	**RR 1.31** (1.06 to 1.62)	**235 more per 1,000** (from 46 more to 470 more)	⨁◯◯◯ VERY LOW	CRITICAL
Quality of life - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	CRITICAL

CI: Confidence interval; **MD:** Mean difference; **RR:** Risk ratio

Explanations

a. Some concern with measurement of outcome due to subjectivity in self-report. Serious concern with missing outcome data and selection of the reported result.
b. Small sample, concerns with fragility.
c. The 95% CI cannot exclude the potential for no difference.
d. Critical concern with confounding and missing data. Serious concern with bias in the selection of participants.
e. Some concerns with randomization, effect of assignment to intervention, missing outcome data and measurement of the outcome.
f. Critical concern with confounding, moderate concern in selection of participants and measurement of outcome.
g. Not measuring satisfaction before and after intervention, instead looks at satisfaction a little after start of intervention and end of intervention.
h. Few events reported do not meet the optimal information size and suggest fragility of the estimate.
i. Critical concern with confounding.

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Table 29. Evidence Profile for PICO 3

Question: Standardized, periodic/ongoing assessment of adherence compared to usual care for patients on an oral anti-cancer medication regimen
Setting: Outpatient

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	**Study design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**standardized, periodic/ongoing assessment of adherence**	**usual care**	**Relative (95% CI)**	**Absolute (95% CI)**		
Adherence rate (follow up: 12 weeks; assessed with: electronic pill caps)												
1 [1]	randomised trials	not serious	not serious	not serious	very serious [a,b]	none	75	83	-	MD **2.34 % higher** (5.58 lower to 10.26 higher)	⨁⨁◯◯ LOW	CRITICAL
Adherence rate (follow up: 6 months; assessed with: self-report)												
1 [2]	observational studies	very serious [c]	not serious	not serious	serious [a]	none	34	51	-	MD **7 % higher** (0.66 higher to 13.34 higher)	⨁◯◯◯ VERY LOW [d]	CRITICAL
Adherence (follow up: 21-28 days; assessed with: relative dose intensity)												
1 [3]	randomised trials	serious [e]	not serious	not serious	very serious [a,b]	none	31	37	-	MD **0.32 % higher** (0.08 lower to	⨁◯◯◯ VERY LOW	CRITICAL

										0.72 higher)		
Quality of life (follow up: 12 weeks; assessed with: FACT-G; higher=better; MID 5-7; Scale from: 0 to 108)												
1 [1]	randomised trials	not serious [f]	not serious	not serious	serious [a]	none	77	85	-	MD **2.28 points higher** (1.93 higher to 2.63 higher)	⨁⨁⨁◯ MODERATE	CRITICAL
Quality of life (follow up: 3 months; assessed with: EORTC; higher=better; MID 4-11)												
1 [4]	observational studies	serious [g]	not serious	not serious	serious [a]	none	56	56	-	MD **15.7 points higher** (8.84 higher to 22.56 higher)	⨁⨁◯◯ LOW	CRITICAL
Patient satisfaction (follow up: 3 months; assessed with: self-report (single question on satisfaction))												
1 [5]	observational studies	very serious [h]	not serious	not serious	very serious [i]	none	20/20 (100.0%)	15/20 (75.0%)	**RR 1.32** (1.02 to 1.72)	**240 more per 1,000** (from 15 more to 540 more)	⨁◯◯◯ VERY LOW	CRITICAL
Cancer-related morbidity (follow up: 24 weeks; assessed with: global toxicity score; higher=worse; Scale from: 0 to 36)												
1 [6]	randomised trials	serious [j]	not serious	not serious	very serious [a,b]	none	92	91	-	MD **1 points higher** (1.72 lower to	⨁◯◯◯ VERY LOW	CRITICAL

										3.72 higher)		
Cancer-related morbidity (follow up: 21-28 days; assessed with: Symptom Experience Inventory; higher=worse; Scale from: 0 to 190)												
1 [3]	randomised trials	serious [e]	not serious	not serious	very serious [a,b]	none	31	37	-	MD **1.75 points lower** (9.48 lower to 5.98 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Cancer-related morbidity (follow up: 8 weeks; assessed with: Symptom Experience Inventory; higher=worse; Scale from: 0 to 190)												
1 [7]	observational studies	very serious [k]	not serious	not serious	serious [a]	none	24	30	-	MD **4.78 points lower** (7.8 lower to 1.76 lower)	⨁◯◯◯ VERY LOW	CRITICAL
Self-efficacy (follow up: 21-28 days; assessed with: MASES-R; higher=better; Scale from: 1 to 4)												
1 [3]	randomised trials	serious [e]	not serious	not serious	very serious [a,b]	none	31	37	-	MD **0.51 points lower** (1.3 lower to 0.28 higher)	⨁◯◯◯ VERY LOW	IMPORTANT
Self-efficacy (follow up: 8 weeks; assessed with: MASES; higher=better; Scale from: 1 to 4)												
1 [7]	observational studies	very serious [k]	not serious	not serious	very serious [a,b]	none	24	30	-	MD **0.01 points lower** (0.36 lower to	⨁◯◯◯ VERY LOW	IMPORTANT

										0.34 higher)		
Adherence to supportive care/lab monitoring - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	IMPORTANT

CI: Confidence interval; **MD:** Mean difference; **MID:** Minimally important difference; **RR:** Risk ratio; **MASES-R:** Medication Adherence Self-Efficacy Scale – Revision

Explanations

a. Small sample, concerns with fragility.
b. 95% CI cannot exclude the possibility of no effect.
c. Moderate concern with confounding. and measurement of outcome due to subjective measure. Serious concern with missing data.
d. An additional study reported a risk ratio of 0.92; 95% CI: 0.54, 1.56 comparing on-going assessment to no assessment measured with self-reported adherence at 3 months.
e. Some concerns due to deviations from the intended interventions.
f. Self-reported outcome measurement could lead to some concerns with risk of bias but not serious.
g. Critical concern with confounding and serious concern with subjectivity of outcome.
h. Critical concern for confounding and moderate concern with measurement of outcome due to self-report.
i. Few events reported do not meet the optimal information size and suggest fragility of the estimate.
j. Some concerns due to deviations from the intended interventions and self-reported outcome measurement.
k. Serious concern with confounding, bias in selection of participants, missing data and measurement of outcome. Moderate concern with deviations from intervention.

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Table 30. Evidence Profile for PICO 4

Question: Active follow-up compared to usual care for patients on an oral anticancer medication regimen who have additional risk factors
Setting: Outpatient

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	active follow-up	usual care	Relative (95% CI)	Absolute (95% CI)		
Adherence rate (follow up: 6 cycles; assessed with: MEMS (medication event monitoring system) pillboxes)												
1 [1]	observational studies	very serious [a]	not serious	not serious	very serious [b]	none	10	10	-	MD **17.8 % higher** (6.43 higher to 29.17 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Cancer-related morbidity - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	CRITICAL
Quality of life - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	CRITICAL
Patient satisfaction - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	CRITICAL
Patient self-efficacy about treatment - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	IMPORTANT

CI: Confidence interval; **MD:** Mean difference

Explanations

a. Critical concern with confounding.
b. Small sample, concerns with fragility.

References

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Table 31. Evidence Profile for PICO 5

Question: Coaching compared to usual care for patients on an oral anti-cancer medication regimen who have additional risk factors
Setting: Outpatient

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	**Study design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Coaching**	**usual care**	**Relative (95% CI)**	**Absolute (95% CI)**		
Adherence rate (follow up: 3-4 weeks; assessed with: pill count)												
1 [1]	randomised trials	serious [a]	not serious	not serious	very serious [b,c]	none	101	99	-	MD **0.8 % higher** (2.24 lower to 3.84 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Adherence rate (follow up: 2 educational sessions every three cycles; assessed with: MEMS pillboxes)[d]												
1 [2]	observational studies	very serious [e]	not serious	not serious	serious [c]	none	10	10	-	MD **17.8 % higher**	⨁◯◯◯ VERY LOW	CRITICAL

										(6.43 higher to 29.17 higher)		
Adherence (follow up: 3 months; assessed with: MPR greater than or equal to 90%)												
1 [3]	randomised trials	serious [f]	not serious	serious [g]	very serious [b,h]	none	59/64 (92.2%)	54/59 (91.5%)	**RR 1.01** (0.91 to 1.12)	**9 more per 1,000** (from 82 fewer to 110 more)	⨁◯◯◯ VERY LOW	CRITICAL
Adherence (follow up: 6-31.9 months; assessed with: MPR)												
2 [4,5]	observational studies	very serious [i]	serious [j]	serious [g]	serious [c]	none	84	281	-	MD **2.98 % higher** (2.95 higher to 3.01 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Cancer-related morbidity -Symptom severity (follow up: 3 months; assessed with: 13 item M.D. Anderson Symptom Inventory; higher=worse; MID 1.0 per 10 point scale; Scale from: 0 to 130)												
1 [3]	randomised trials	serious [f]	not serious	not serious	very serious [b,c]	none	64	62	-	MD **0 points** (0.55 lower to 0.55 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Patient self-efficacy (follow up: 3 months; assessed with: General self-efficacy scale; higher=better; Scale from: 1 to 40)												
1 [3]	randomised trials	serious [f]	not serious	not serious	very serious [b,c,h]	none	64	62	-	MD **1.8 points higher** (0.01 lower to	⨁◯◯◯ VERY LOW	IMPORTANT

										3.61 higher)		
Quality of life (follow up: 3 months; assessed with: FACT-B; higher=better; MID 7-8 points; Scale from: 0 to 144)												
1 [3]	randomised trials	serious [f]	not serious	not serious	very serious [b,c]	none	64	62	-	MD **0.2 points higher** (6.18 lower to 6.58 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Patient satisfaction (follow up: 3 months; assessed with: self-designed scale; higher=better; Scale from: 0 to 5)												
1 [3]	randomised trials	serious [f]	not serious	not serious	very serious [b,c]	none	64	62	-	MD **0.1 points higher** (0.9 lower to 1.1 higher)	⨁◯◯◯ VERY LOW	CRITICAL

CI: Confidence interval; **MD:** Mean difference; **MEMS:** Medication event monitoring system; **MPR:** Medication possession ratio; **RR:** Risk ratio; **MID:** Minimally important difference

Explanations

a. Serious concern with missing outcome data and selection of the reported result.
b. The 95% CI cannot exclude the potential for no difference.
c. Small sample, concerns with fragility.
d. Reflects the mean of the daily adherence scores which correspond to the proportion of pills actually taken (recorded opening by MEMS) in comparison with prescribed amounts (expected openings).
e. Critical concern with confounding and missing outcome data.
f. Serious concerns with missing outcome data.
g. MPR is surrogate for adherence.
h. Few events reported do not meet the optimal information size and suggest fragility of the estimate.
i. Critical concern with confounding.
j. Concerns with heterogeneity due to I2 value of 100%.

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Table 32. Evidence Profile for PICO 6

Question: Motivational interviewing compared to usual care for patients on an oral anti-cancer medication regimen who have additional risk factors
Setting: Outpatient

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	motivational interviewing	usual care	Relative (95% CI)	Absolute (95% CI)		
Adherence rate (follow up: 12 months; assessed with: self-report)												
1 [1]	randomised trials	not serious	not serious	not serious	very serious [a,b]	none	57	114	-	MD **3.23 % higher** (0.45 higher to 6.02 higher)	⨁⨁◯◯ LOW	CRITICAL
Cancer-related morbidity - Summed symptom severity (follow up: 8 weeks; assessed with: Symptom Experience Inventory; Higher=worse; Scale from: 0 to 190)												
1 [2]	observational studies	very serious [c]	not serious	not serious	serious [a]	none	24	30	-	MD **4.78 points lower**	⨁◯◯◯ VERY LOW	CRITICAL

										(7.8 lower to 1.76 lower)		
Patient-self efficacy about treatment (follow up: 12 weeks; assessed with: MASES; higher=better; Scale from: 1 to 96)												
1 [3]	randomised trials	serious [d]	not serious	not serious	serious [a]	none	40	40	-	MD **9.9 points higher** (9.68 higher to 10.12 higher)	⨁⨁◯◯ LOW	IMPORTANT
Patient-self efficacy about treatment (follow up: 8 weeks; assessed with: MASES; higher=better; Scale from: 1 to 4)												
1 [2]	observational studies	observational studies	very serious [c,e]	not serious	not serious	serious [a,f]	none	24	30	-	MD **0.01 points lower** (0.36 lower to 0.34 higher)	⨁◯◯◯ VERY LOW
Quality of life - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	
Patient satisfaction - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	

CI: Confidence interval; **MD:** Mean difference; **MASES:** Medication Adherence Self-Efficacy Scale

Explanations

a. Small sample reported does not meet the optimal information size and suggests fragility of the estimate.
b. Cannot exclude no meaningful improvement in adherence.
c. Serious concern with confounding, selection of participants, missing data and measurement of outcome. Moderate concerns due to deviations from intended interventions.
d. Some concerns with bias due to subjectivity of outcome measurement and limited information provided about analysis used to estimate the effect of assignment to intervention.
e. Scale used to measure outcome not specified.
f. CI does not have a meaningful difference thus not docked down for CI.

References

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Table 33. Evidence Profile for PICO 7

Question: Technology compared to usual care for patients on an oral anti-cancer medication regimen
Setting: Outpatient

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	**Study design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**technology**	**usual care**	**Relative (95% CI)**	**Absolute (95% CI)**		
Adherence rate (follow up: 3-6 months; assessed with: self-report and smart bottle openings)												
2 [1,2]	randomised trials	serious [a]	serious [b]	not serious	serious [c]	none	91	99	-	MD **8.23 % higher** (2.9 higher to 13.55 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Adherence rate (follow up: 6 months; assessed with: MPR)												
1 [3]	observational studies	very serious [d]	not serious	not serious	serious [c]	none	50	51	-	MD **4.7 % higher** (1.19 higher	⨁◯◯◯ VERY LOW	CRITICAL

										to 8.21 higher)		
Adherence - Relative dose intensity (follow up: 3-13 weeks; assessed with: pill counts)												
2 [4,5]	randomised trials	serious [e]	not serious [f]	not serious	very serious [c,g]	none	149	152	-	MD **0.01 % lower** (0.04 lower to 0.02 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Cancer related morbidity - Summed symptom severity (follow up: 21 days; assessed with: Symptom Experience Inventory; higher=worse; Scale from: 0 to 190)												
1 [6]	randomised trials	not serious	not serious	not serious	very serious [c,g]	none	49	26	-	MD **3.5 points lower** (12.48 lower to 5.48 higher)	⨁⨁◯◯ LOW	CRITICAL
Quality of Life (follow up: 3-12 weeks; assessed with: FACT-G and WHO Quality of Life-BREF Scale; higher=better)												
2 [1,7]	randomised trials	serious [a]	serious [h]	not serious	serious [c]	none	77	85	-	SMD **1.44 SD higher** (1.15 higher to 1.74 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Quality of Life (follow up: 6 months; assessed with: assessed using the EuroQol-5D (EQ-5D); MID 0.061; higher=better)												
1 [3]	observational studies	very serious [d]	not serious	not serious	serious [c]	none	50	51	-	MD **0.13 points higher** (0.07 lower to 0.2 higher)	⨁◯◯◯ VERY LOW	CRITICAL

Patient satisfaction (follow up: 6 cycles (ranging from 21 day to 90 day cycles); assessed with: FACIT-TS-PS; higher=better; Scale from: 0 to 73)

1 [8]	randomised trials	serious [i]	not serious	not serious	very serious [c,g]	none	56	33	-	MD **0 points** (1.31 lower to 1.31 higher)	⨁◯◯◯ VERY LOW	CRITICAL

CI: Confidence interval; **MD:** Mean difference; **MPR:** Medication possession ratio; **SMD:** Standardised mean difference

Explanations

a. Limited information on effect of assignment to intervention and some concerns with measurement of the outcome.
b. Rated down due to I2 value of 74%.
c. Small sample, concerns with fragility.
d. Critical concerns with confounding. Serious concerns with missing data.
e. Some concerns with bias due to deviations from the intended interventions.
f. I2 value is 61%; however, rating down for imprecision accounts for the variability between study findings.
g. 95% CI cannot exclude the possibility of no effect.
h. Rated down due to the I2 value of 95%.
i. Some concerns with effect of assignment to intervention and measurement of outcome.

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Table 34. Evidence Profile for PICO 8

Question: Interactive technology compared to non-interactive technology for patients on an oral anti-cancer medication regimen
Setting: Outpatient

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	interactive technology	non-interactive technology	Relative (95% CI)	Absolute (95% CI)		
Adherence (follow up: 8 weeks; assessed with: only adherence rate ≥80%)												
1 [1]	randomised trials	very serious [a]	not serious	not serious	very serious [b,c]	none	56/79 (70.9%)	33/40 (82.5%)	**RR 0.86** (0.70 to 1.05)	**116 fewer per 1,000** (from 248 fewer to 41 more)	⨁◯◯◯ VERY LOW	CRITICAL
Cancer related morbidity - Exit symptom severity (follow up: 8 weeks; assessed with: Symptom Experience Inventory range 0-150; higher = worse)												
1 [1]	randomised trials	serious [d]	not serious	not serious	very serious [b,e]	none	79	40	-	MD **4.12 points higher** (0.4 lower to 8.64 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Health-related Quality of Life and Patient-reported Outcomes (HRQOL/PROs) - not reported												
-	-	-	-	-	-	-	-	-	-	-	-	CRITICAL

Patient satisfaction - not reported

-	-	-	-	-	-	-	-	-	-	-	-	CRITICAL

CI: Confidence interval; **RR:** Risk ratio; **MD:** Mean difference

Explanations

a. Serious concerns with randomization, measurement of outcome and bias in selection of the reported result.
b. 95% CI cannot exclude no difference.
c. Few events reported do not meet the optimal information size and suggest fragility of the estimate.
d. Serious concerns with randomization.
e. Small sample, concerns with fragility.

References

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Table 35. Evidence Profile for PICO 9

Question: Structured oral anti-cancer medication program compared to no structured oral anti-cancer medication program for institutions providing care to patients on an oral anti-cancer medication regimen
Setting: Outpatient

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	structured oral anti-cancer medication program	no structured oral anti-cancer medication program	Relative (95% CI)	Absolute (95% CI)		
Adherence rate (follow up: 6 cycles; assessed with: medication event monitoring system)												
2 [1,2]	observational studies	very serious [a]	not serious	not serious	serious [b]	none	18	29	-	MD **12.22**	⨁◯◯◯ VERY LOW	CRITICAL

										% higher (9.19 higher to 15.24 higher)		
Adherence rate (follow up: 6 months - end of treatment; assessed with: medication possession ratio)												
4 [3,4,5,6]	observational studies	very serious [c]	not serious	serious [d]	not serious	none	12536	31123	-	MD **6 % higher** (4 higher to 8 higher)	⨁◯◯◯ VERY LOW	CRITICAL
Adherence (follow up: end of treatment; assessed with: pill counting)												
1 [7]	observational studies	very serious [e]	not serious	serious [d]	very serious [b,f]	none	87/100 (87.0%)	38/50 (76.0%)	**RR 1.14** (0.96 to 1.36)	**106 more per 1,000** (from 30 fewer to 274 more)	⨁◯◯◯ VERY LOW	CRITICAL
Cancer-related morbidity - Physical functioning (follow up: 1 year; assessed with: EORTC QoL physical function; higher = better; MID 6 points; Scale from: 0 to 100)												
1 [8]	observational studies	very serious [e]	not serious	serious [g]	serious [b]	none	56	56	-	MD **11.1 points higher** (7.45 higher to 14.75 higher)	⨁◯◯◯ VERY LOW	CRITICAL

Quality of Life (follow up: 1 year; assessed with: EORTC Health/QoL Global; higher = better; MID 4 to 11 points; Scale from: 0 to 100)

1 [8]	observational studies	very serious [e]	not serious	not serious	serious [b]	none	56	56	-	MD **15.7 points higher** (12.7 higher to 18.7 higher)	⊕◯◯◯ VERY LOW	CRITICAL

Patient satisfaction (follow up: once during or after treatment; assessed with: telephone survey)

1 [9]	observational studies	very serious [h]	not serious	not serious	serious [b]	none	20/20 (100.0%)	15/20 (75.0%)	**RR 1.32** (1.02 to 1.72)	**240 more per 1,000** (from 15 more to 540 more)	⊕◯◯◯ VERY LOW	CRITICAL

Patient financial toxicity (follow up: 1 year; assessed with: EORTC financial difficulties; higher = worse; Scale from: 0 to 100)

1 [8]	observational studies	very serious [e]	not serious	not serious	very serious [b,f]	none	56	56	-	MD **0** (1.57 lower to 1.57 higher)	⊕◯◯◯ VERY LOW	CRITICAL

Time to obtain medication - not reported

-	-	-	-	-	-	-	-	-	-	-	-	CRITICAL

OCM model/value-based care - not reported

-	-	-	-	-	-	-	-	-	-	-	-	CRITICAL

CI: Confidence interval; **MD:** Mean difference; **RR:** Risk ratio

Explanations

a. Critical concerns with confounding and missing data. Moderate concern with measurement of outcome.
b. Small sample, concerns with fragility.
c. Critical concerns with confounding. Moderate concerns with selection of participants.
d. Indirect measure of adherence.
e. Critical concerns with confounding.
f. The 95% CI cannot exclude the potential for no difference.
g. Indirect measure of morbidity.
h. Critical concerns with confounding. Serious concerns with selection of participants.

References

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Figures 5-19. Forest Plots

PICO 2

2	Should standardized oral anticancer medication educational programs that address adherence be used rather than usual care in patients on an oral anticancer medication regimen?

RCT

Figure 5. Adherence rate:

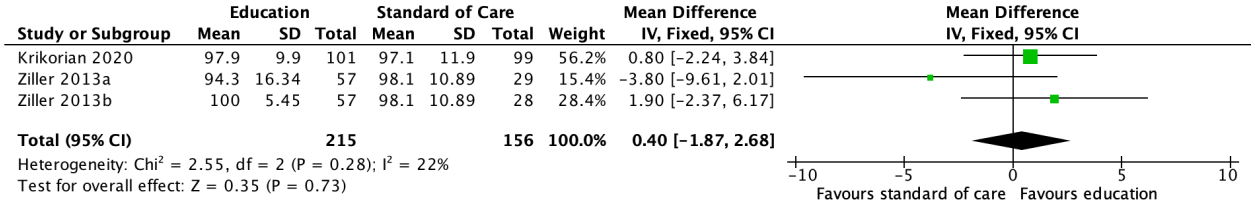
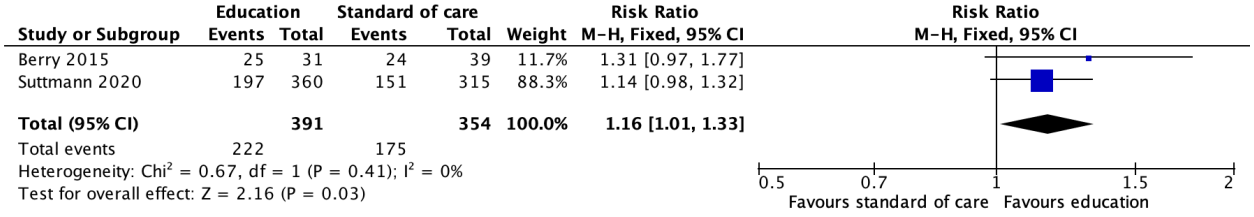
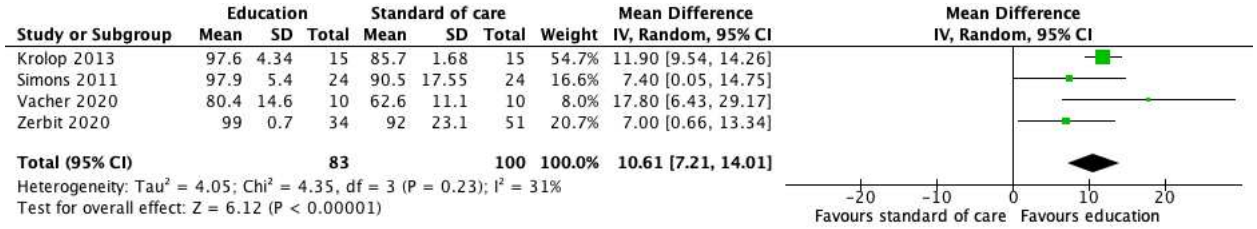


Figure 6. Proportion with high adherence:



Cohort

Figure 7. Adherence rate:

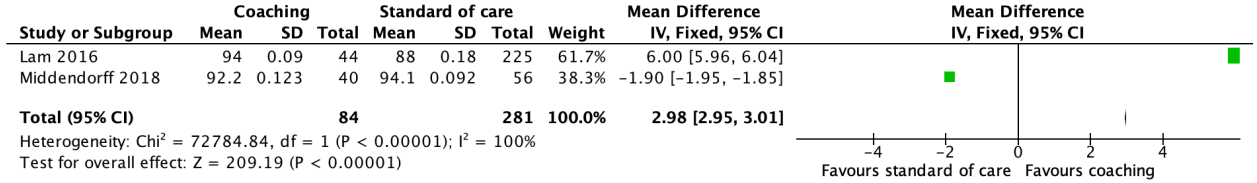


PICO 5

5	Should a coaching intervention be used instead of usual care for patients on an oral anticancer medication regimen?

Cohort

Figure 8. MPR:



PICO 6

6	Should motivational interviewing be used instead of usual care for patients on an oral anticancer medication regimen?

RCT

Figure 9. MPR:

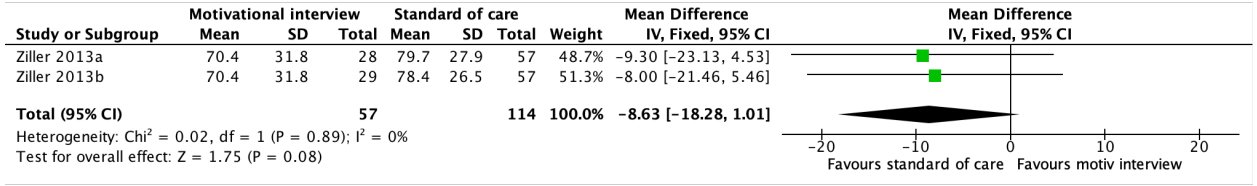
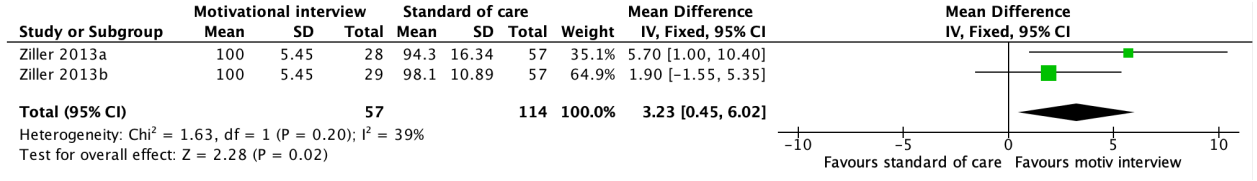


Figure 10. Self-reported adherence rates:



PICO 7

7	Should a technological intervention be used rather than usual care for patients on an oral anticancer medication regimen?

RCT

Figure 11. Adherence rate:

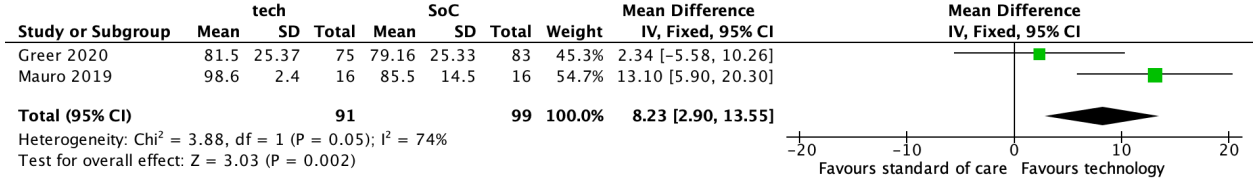


Figure 12. Relative dose intensity:

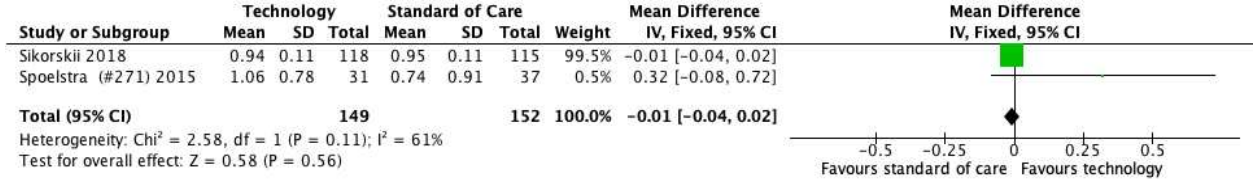
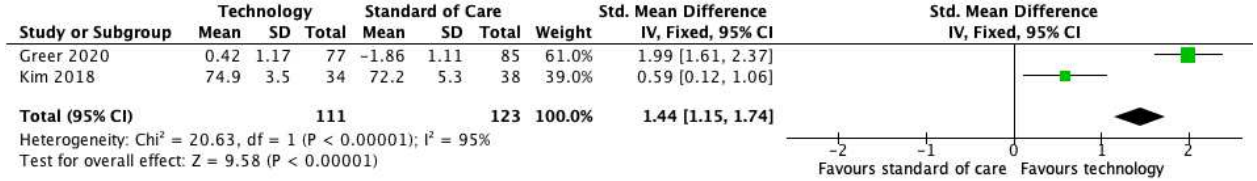


Figure 13. Quality of life assessed with the FACT-G (Geer et al., 2020) and Quality of Life-BREF (Kim et al., 2018) scales



PICO 9

9	Should structured oral anticancer medication programs rather than no structured oral anticancer medication programs be used by institutions providing care to patients on an oral anticancer medication regimen?

Cohort

Figure 18. Adherence rate assessed with MEMS:

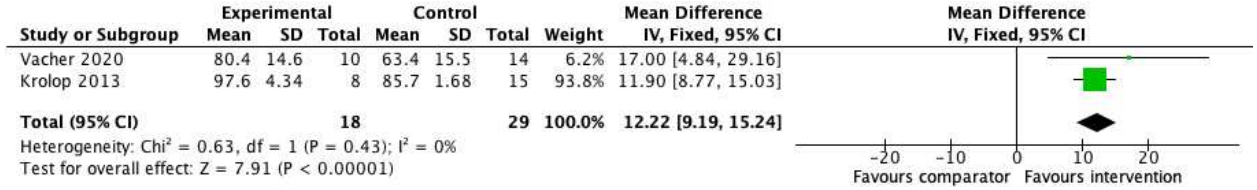


Figure 19. Adherence assessed with MPR: