Evidence Synthesis Program

Automated Nutrition Delivery

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U.S. Department of Veterans Affairs
Veterans Health Administration
Health Systems Research

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Appendices

SEARCH STRATEGIES

KQ1 SEARCH STRATEGIES

Database: MEDLINE (via Ovid, ALL 1946 to January 14, 2022)

Search Set	Search Strategy	Results
#1 *Nutritional Support Terms*	exp Nutritional Support/ OR exp Enteral Nutrition/ OR exp Parenteral Nutrition/ OR exp Dietary Supplements/ OR Food, Formulated/ OR exp Parenteral Nutrition Solutions/ OR (enteral OR parenteral OR enteric OR TPN OR enteral?parenteral OR parenteral?enteral OR "artificial feeding" OR "nose feeding" OR "elemental diet").ti,ab. OR ((oral OR orally OR tube OR tubes OR tubal OR nasogastric* OR gastrostom* OR gastric* OR jejunostom* OR jejunostomy-gastrostom* OR force OR forced OR IV OR intravenous*) ADJ3 (nutrition* OR feed OR feeds OR feeding OR fed)).ti,ab. OR (food* ADJ3 supplement*).ti,ab. OR ((vitamin* OR dietary OR diet OR diets OR nutrition* OR nutrient* OR micronutrient* OR micro-nutrient*) ADJ3 (supplement* OR support* OR replac*)).ti,ab. OR (formulated ADJ food*).ti,ab. OR ((gastro?intestin* OR "digestive tract" OR duodenum OR esophag* OR oesophag* OR stomach OR gastric) ADJ intubat*).ti,ab.	273792
#2 *Automation Terms*	exp Medical Records Systems, Computerized/ OR exp Medical Order Entry Systems/ OR exp Electronic Health Records/ OR exp Automation/ OR exp Electronic Prescribing/ OR (automate OR automated OR automates OR automation OR automatic OR automating OR barcod* OR bar?cod* OR electronic health record* OR electronic medical record* OR computerized health record* OR computerised health record* OR computerized medical record* OR computerised medical record* OR EMR OR EHR OR EMRs OR EHRs OR medical order entry system*).ti,ab. OR ((computerized OR computerised OR electronic OR electronically OR reflex* OR pre?set* OR pre?program* OR standing) ADJ3 (order* OR prescrib* OR prescript*)).ti,ab. OR ((medication* OR nutrition* OR vitamin*) ADJ administrat* ADJ (system* OR record* OR deliver*)).ti,ab.	338,884
#3	1 and 2	1423
#4 *Nutrition Automation Terms*	((nutrition* OR nutrient* OR micronutrient* OR vitamin* OR food OR dietary) ADJ3 (automate OR automated OR automates OR automation OR automatic OR automating OR barcod* OR bar?cod*)).ti,ab. OR ((computerized OR computerised OR electronic OR electronically OR reflex* OR pre?set* OR pre?program*) ADJ3 (nutrition* OR nutrient* OR micronutrient* OR micro-nutrient* OR vitamin* OR food OR dietary OR diet OR diets) ADJ3 (system* OR record* OR deliver*)).ti,ab.	448
#5	3 or 4	1826
#6 *Animal-only exclusion*	5 not (exp animals/ not exp humans/)	1621
#7 *Study design exclusion*	6 not (case reports OR editorial OR letter OR comment OR congress OR meeting abstract).pt.	1557

Database: Embase (via Elsevier)

Search Set	Search Strategy	Results
#1	'nutritional support'/exp OR 'artificial feeding'/exp OR 'enteric feeding'/exp OR 'parenteral nutrition'/exp OR 'dietary supplement'/exp OR 'elemental diet'/exp OR 'parenteral solution'/exp OR enteral:ti,ab OR parenteral:ti,ab OR enteric:ti,ab OR tpn:ti,ab OR enteral$parenteral:ti,ab OR parenteral$enteral:ti,ab OR 'artificial feeding':ti,ab OR 'nose feeding':ti,ab OR 'elemental diet':ti,ab OR (((oral OR orally OR tube OR tubes OR tubal OR nasogastric* OR gastrostom* OR gastric* OR jejunostom* OR jejunostomy$gastrostom* OR force OR forced OR iv OR intravenous*) NEAR/3 (nutrition* OR feed OR feeds OR feeding OR fed)):ti,ab) OR ((food* NEAR/3 supplement*):ti,ab) OR (((vitamin* OR dietary OR diet OR diets OR nutrition* OR nutrient* OR micronutrient* OR micro$nutrient*) NEAR/3 (supplement* OR support* OR replac*)):ti,ab) OR ((formulated NEXT/1 food*):ti,ab) OR (((gastro$intestin* OR 'digestive tract' OR duodenum OR esophag* OR oesophag* OR stomach OR gastric) NEXT/1 intubat*):ti,ab)	377555
#2	'Electronic medical record system'/exp OR 'physician order entry system'/exp OR 'electronic health record'/exp OR 'Automation'/de OR 'computerized provider order entry'/exp OR 'Electronic Prescribing'/exp OR (automate OR automated OR automates OR automation OR automatic OR automating OR barcod* OR bar$cod* OR 'electronic health record' OR 'electronic health records' OR 'electronic medical record' OR 'electronic medical records' OR 'computerized health record' OR 'computerized health records' OR 'computerised health record' OR 'computerised health records' OR 'computerized medical record' OR 'computerized medical records' OR 'computerised medical record' OR 'computerised medical records' OR EMR OR EHR OR EMRs OR EHRs OR 'medical order entry system' OR 'medical order entry systems'):ti,ab OR ((computerized OR computerised OR electronic OR electronically OR reflex* OR pre$set* OR pre$program* OR standing) NEAR/3 (order* OR prescrib* OR prescript*)):ti,ab OR ((medication* OR nutrition* OR vitamin*) NEXT/1 administrat* NEXT/1 (system* OR record* OR deliver*)):ti,ab	438992
#3	#1 AND #2	2933
#4	((nutrition* OR nutrient* OR micronutrient* OR vitamin* OR food OR dietary) NEAR/3 (automate OR automated OR automates OR automation OR automatic OR automating OR barcod* OR bar$cod*)):ti,ab OR ((computerized OR computerised OR electronic OR electronically OR reflex* OR pre$set* OR pre$program*) NEAR/3 (nutrition* OR nutrient* OR micronutrient* OR micro-nutrient* OR vitamin* OR food OR dietary OR diet OR diets) NEAR/3 (system* OR record* OR deliver*)):ti,ab	597
#5	#3 OR #4	3469
#6	#5 AND [humans]/lim	2615
#7	#6 NOT ('case report'/exp OR 'case study'/exp OR 'editorial'/exp OR [editorial]/lim OR 'letter'/exp OR [letter]/lim OR 'note'/exp OR [note]/lim OR [conference abstract]/lim OR 'conference abstract'/exp OR 'conference abstract'/it)	1307

Database: CINAHL Complete (via EBSCO)

Search Set	Search Strategy	Results
#1	(MH "Nutritional Support+") OR (MH "Dietary Supplementation") OR (MH "Enteral Nutrition") OR (MH "Parenteral Nutrition+") OR (MH "Parenteral Nutrition Solutions") OR (MH "Total Parenteral Nutrition") OR (MH "Peripheral Parenteral Nutrition") OR (MH "Intradialytic Parenteral Nutrition") OR (MH "Total Parenteral Nutrition Administration (Iowa NIC)") OR (MH "Dietary Supplements+") OR (MH "Food, Formulated") OR ((TI enteral OR AB enteral) OR (TI parenteral OR AB parenteral) OR (TI enteric OR AB enteric) OR (TI TPN OR AB TPN) OR (TI enteral#parenteral OR AB enteral#parenteral) OR (TI parenteral#enteral OR AB parenteral#enteral) OR (TI "artificial feeding" OR AB "artificial feeding") OR (TI "nose feeding" OR AB "nose feeding") OR (TI "elemental diet" OR AB "elemental diet")) OR (((TI oral OR AB oral) OR (TI orally OR AB orally) OR (TI tube OR AB tube) OR (TI tubes OR AB tubes) OR (TI tubal OR AB tubal) OR (TI nasogastric* OR AB nasogastric*) OR (TI gastrostom* OR AB gastrostom*) OR (TI gastric* OR AB gastric*) OR (TI jejunostom* OR AB jejunostom*) OR (TI jejunostomy-gastrostom* OR AB jejunostomy-gastrostom*) OR (TI force OR AB force) OR (TI forced OR AB forced) OR (TI IV OR AB IV) OR (TI intravenous* OR AB intravenous*)) N3 ((TI nutrition* OR AB nutrition*) OR (TI feed OR AB feed) OR (TI feeds OR AB feeds) OR (TI feeding OR AB feeding) OR (TI fed OR AB fed))) OR ((TI food* OR AB food*) N3 (TI supplement* OR AB supplement*)) OR (((TI vitamin* OR AB vitamin*) OR (TI dietary OR AB dietary) OR (TI diet OR AB diet) OR (TI diets OR AB diets) OR (TI nutrition* OR AB nutrition*) OR (TI nutrient* OR AB nutrient*) OR (TI micronutrient* OR AB micronutrient*) OR (TI micro-nutrient* OR AB micro-nutrient*)) N3 ((TI supplement* OR AB supplement*) OR (TI support* OR AB support*) OR (TI replac* OR AB replac*))) OR ((TI formulated OR AB formulated) W1 (TI food* OR AB food*)) OR (((TI gastro#intestin* OR AB gastro#intestin*) OR (TI "digestive tract" OR AB "digestive tract") OR (TI duodenum OR AB duodenum) OR (TI esophag* OR AB esophag*) OR (TI oesophag* OR AB oesophag*) OR (TI stomach OR AB stomach) OR (TI gastric OR AB gastric)) W1 (TI intubat* OR AB intubat*))	107,845
#2	(MH "Electronic Health Records+") OR (MH "Electronic Order Entry") OR (MH "Patient Record Systems") OR (MH "Automation+") OR ((TI automate OR AB automate) OR (TI automated OR AB automated) OR (TI automates OR AB automates) OR (TI automation OR AB automation) OR (TI automatic OR AB automatic) OR (TI automating OR AB automating) OR (TI barcod* OR AB barcod*) OR (TI bar#cod* OR AB bar#cod*) OR (TI "electronic health record*" OR AB "electronic health record*") OR (TI "electronic medical record*" OR AB "electronic medical record*") OR (TI "computerized health record*" OR AB "computerized health record*") OR (TI "computerised health record*" OR AB "computerised health record*") OR (TI "computerized medical record*" OR AB "computerized medical record*") OR (TI "computerised medical record*" OR AB "computerised medical record*") OR (TI EMR OR AB EMR) OR (TI EHR OR AB EHR) OR (TI EMRs OR AB EMRs) OR (TI EHRs OR AB EHRs) OR (TI "medical order entry system*" OR AB "medical order entry system*")) OR (((TI computerized OR AB computerized) OR (TI computerised OR AB computerised) OR (TI electronic OR AB electronic) OR (TI electronically OR AB electronically) OR (TI reflex* OR AB reflex*) OR (TI pre#set* OR AB pre#set*) OR (TI pre#program* OR AB pre#program*) OR (TI standing OR AB standing)) N3 ((TI order* OR AB order*) OR (TI prescrib* OR AB prescrib*) OR (TI prescript* OR AB prescript*))) OR (((TI medication* OR AB medication*) OR (TI nutrition* OR AB nutrition*) OR (TI vitamin* OR AB vitamin*)) W1 (TI administrat* OR AB administrat*) W1 ((TI system* OR AB system*) OR (TI record* OR AB record*) OR (TI deliver* OR AB deliver*)))	102,637
#3	S1 AND S2	603

#4	(((TI nutrition* OR AB nutrition*) OR (TI nutrient* OR AB nutrient*) OR (TI micronutrient* OR AB micronutrient*) OR (TI vitamin* OR AB vitamin*) OR (TI food OR AB food) OR (TI dietary OR AB dietary)) N3 ((TI automate OR AB automate) OR (TI automated OR AB automated) OR (TI automates OR AB automates) OR (TI automation OR AB automation) OR (TI automatic OR AB automatic) OR (TI automating OR AB automating) OR (TI barcod* OR AB barcod*) OR (TI bar#cod* OR AB bar#cod*))) OR (((TI computerized OR AB computerized) OR (TI computerised OR AB computerised) OR (TI electronic OR AB electronic) OR (TI electronically OR AB electronically) OR (TI reflex* OR AB reflex*) OR (TI pre#set* OR AB pre#set*) OR (TI pre#program* OR AB pre#program*)) N3 ((TI nutrition* OR AB nutrition*) OR (TI nutrient* OR AB nutrient*) OR (TI micronutrient* OR AB micronutrient*) OR (TI micro-nutrient* OR AB micro-nutrient*) OR (TI vitamin* OR AB vitamin*) OR (TI food OR AB food) OR (TI dietary OR AB dietary) OR (TI diet OR AB diet) OR (TI diets OR AB diets)) N3 ((TI system* OR AB system*) OR (TI record* OR AB record*) OR (TI deliver* OR AB deliver*)))	236
#5	S3 OR S4	802
#6	S5 NOT (((MH "Animals+") OR (MH "Animal Studies") OR (TI "animal model*")) NOT (MH "human"))	793
#7	S6 NOT PT (Abstract OR Book OR Book Chapter OR Book Review OR Case Study OR Commentary OR Editorial OR Letter OR Masters Thesis OR Pamphlet OR Pamphlet Chapter OR Poetry)	721

KQ2 SEARCH STRATEGIES

Database: MEDLINE (via Ovid, ALL 1946 to January 14, 2022)

Search Set	Search Strategy	Results
#1 *Nutritional Support Terms*	exp Nutritional Support/ OR exp Enteral Nutrition/ OR exp Parenteral Nutrition/ OR exp Dietary Supplements/ OR Food, Formulated/ OR exp Parenteral Nutrition Solutions/ OR (enteral OR parenteral OR enteric OR TPN OR enteral?parenteral OR parenteral?enteral OR "artificial feeding" OR "nose feeding" OR "elemental diet").ti,ab. OR ((oral OR orally OR tube OR tubes OR tubal OR nasogastric* OR gastrostom* OR gastric* OR jejunostom* OR jejunostomy-gastrostom* OR force OR forced OR IV OR intravenous*) ADJ3 (nutrition* OR feed OR feeds OR feeding OR fed)).ti,ab. OR (food* ADJ3 supplement*).ti,ab. OR ((vitamin* OR dietary OR diet OR diets OR nutrition* OR nutrient* OR micronutrient* OR micro-nutrient*) ADJ3 (supplement* OR support* OR replac*)).ti,ab. OR (formulated ADJ food*).ti,ab. OR ((gastro?intestin* OR "digestive tract" OR duodenum OR esophag* OR oesophag* OR stomach OR gastric) ADJ intubat*).ti,ab.	273792
#2 *Automation Terms*	exp Medical Records Systems, Computerized/ OR exp Medical Order Entry Systems/ OR exp Electronic Health Records/ OR exp Automation/ OR exp Electronic Prescribing/ OR (automate OR automated OR automates OR automation OR automatic OR automating OR barcod* OR bar?cod* OR electronic health record* OR electronic medical record* OR computerized health record* OR computerised health record* OR computerized medical record* OR computerised medical record* OR EMR OR EHR OR EMRs OR EHRs OR medical order entry system*).ti,ab. OR ((computerized OR computerised OR electronic OR electronically OR reflex* OR pre?set* OR pre?program* OR standing) ADJ3 (order* OR prescrib* OR prescript*)).ti,ab. OR ((medication* OR nutrition* OR vitamin*) ADJ administrat* ADJ (system* OR record* OR deliver*)).ti,ab.	338,884
#3	1 and 2	1423

#4 *Nutrition Automation Terms*	((nutrition* OR nutrient* OR micronutrient* OR vitamin* OR food OR dietary) ADJ3 (automate OR automated OR automates OR automation OR automatic OR automating OR barcod* OR bar?cod*)).ti,ab. OR ((computerized OR computerised OR electronic OR electronically OR reflex* OR pre?set* OR pre?program*) ADJ3 (nutrition* OR nutrient* OR micronutrient* OR micro-nutrient* OR vitamin* OR food OR dietary OR diet OR diets) ADJ3 (system* OR record* OR deliver*)).ti,ab.	448
#5	3 or 4	1826
#6 *Animal-only exclusion*	5 not (exp animals/ not exp humans/)	1621
#7 *Qualitative designs*	exp Qualitative Research/ OR exp Focus Groups/ OR exp Interviews as Topic/ OR exp Narration/ OR exp personal narratives as topic/ OR "case reports".pt. OR (qualitative or qualitatively or interview or interviewed or interviews or interviewing or interviewer or interviewers or "focus group" or "focus groups" or "mixed method" or "mixed methods" or theme or themes or thematic or "group discussion" or "group discussions" or "grounded theory" or phenomenology or phenomenological or "lived experience" or "lived experiences" or ethnograph or ethnographic or ethnography or ethnographies or autoethnography or autoethnographies or autoethnographic or fieldwork or "field work" or "thematic analysis" or "content analysis" or "oral history" or "oral histories" or "case report" OR "case reports" OR "case study" OR "case studies").ti,ab.	3155049
#8	6 and 7	129
#9 *study design exclusions*	8 not (editorial OR letter OR comment OR congress OR meeting abstract).pt.	129

Database: Embase (via Elsevier)

Search Set	Search Strategy	Results
#1	'nutritional support'/exp OR 'artificial feeding'/exp OR 'enteric feeding'/exp OR 'parenteral nutrition'/exp OR 'dietary supplement'/exp OR 'elemental diet'/exp OR 'parenteral solution'/exp OR enteral:ti,ab OR parenteral:ti,ab OR enteric:ti,ab OR tpn:ti,ab OR enteral$parenteral:ti,ab OR parenteral$enteral:ti,ab OR 'artificial feeding':ti,ab OR 'nose feeding':ti,ab OR 'elemental diet':ti,ab OR (((oral OR orally OR tube OR tubes OR tubal OR nasogastric* OR gastrostom* OR gastric* OR jejunostom* OR jejunostomy$gastrostom* OR force OR forced OR iv OR intravenous*) NEAR/3 (nutrition* OR feed OR feeds OR feeding OR fed)):ti,ab) OR ((food* NEAR/3 supplement*):ti,ab) OR (((vitamin* OR dietary OR diet OR diets OR nutrition* OR nutrient* OR micronutrient* OR micro$nutrient*) NEAR/3 (supplement* OR support* OR replac*)):ti,ab) OR ((formulated NEXT/1 food*):ti,ab) OR (((gastro$intestin* OR 'digestive tract' OR duodenum OR esophag* OR oesophag* OR stomach OR gastric) NEXT/1 intubat*):ti,ab)	377555
#2	'Electronic medical record system'/exp OR 'physician order entry system'/exp OR 'electronic health record'/exp OR 'Automation'/de OR 'computerized provider order entry'/exp OR 'Electronic Prescribing'/exp OR (automate OR automated OR automates OR automation OR automatic OR automating OR barcod* OR bar$cod* OR 'electronic health record' OR 'electronic health records' OR 'electronic medical record' OR 'electronic medical records' OR 'computerized health record' OR 'computerized health records' OR 'computerised health record' OR 'computerised health records' OR 'computerized medical record' OR 'computerized medical records' OR 'computerised medical record' OR 'computerised medical records' OR EMR OR EHR OR EMRs OR EHRs OR 'medical order entry system' OR 'medical order entry systems'):ti,ab OR ((computerized OR computerised OR electronic OR electronically OR reflex* OR pre$set* OR pre$program* OR standing) NEAR/3 (order* OR prescrib* OR prescript*)):ti,ab OR ((medication* OR nutrition* OR vitamin*) NEXT/1 administrat* NEXT/1 (system* OR record* OR deliver*)):ti,ab	438992
#3	#1 AND #2	2933
#4	((nutrition* OR nutrient* OR micronutrient* OR vitamin* OR food OR dietary) NEAR/3 (automate OR automated OR automates OR automation OR automatic OR automating OR barcod* OR bar$cod*)):ti,ab OR ((computerized OR computerised OR electronic OR electronically OR reflex* OR pre$set* OR pre$program*) NEAR/3 (nutrition* OR nutrient* OR micronutrient* OR micro-nutrient* OR vitamin* OR food OR dietary OR diet OR diets) NEAR/3 (system* OR record* OR deliver*)):ti,ab	597
#5	#3 OR #4	3469
#6	#5 AND [humans]/lim	2615

#7	'qualitative research'/exp OR 'interview'/exp OR 'case report'/exp OR 'case study'/exp OR (qualitative or qualitatively or interview or interviewed or interviews or interviewing or interviewer or interviewers or 'focus group' or 'focus groups' or 'mixed method' or 'mixed methods' or theme or themes or thematic or 'group discussion' or 'group discussions' or 'grounded theory' or phenomenology or phenomenological or 'lived experience' or 'lived experiences' or ethnograph or ethnographic or ethnography or ethnographies or autoethnography or autoethnographies or autoethnographic or fieldwork or 'field work' or 'thematic analysis' or 'content analysis' or 'oral history' or 'oral histories' or 'case report' OR 'case reports' OR 'case study' OR 'case studies'):ti,ab	4015767
#8	#6 AND #7	259
#9	#8 NOT ('editorial'/exp OR [editorial]/lim OR 'letter'/exp OR [letter]/lim OR 'note'/exp OR [note]/lim OR [conference abstract]/lim OR 'conference abstract'/exp OR 'conference abstract'/it)	125

Database: CINAHL Complete (via EBSCO)

Search Set	Search Strategy	Results
#1	(MH "Nutritional Support+") OR (MH "Dietary Supplementation") OR (MH "Enteral Nutrition") OR (MH "Parenteral Nutrition+") OR (MH "Parenteral Nutrition Solutions") OR (MH "Total Parenteral Nutrition") OR (MH "Peripheral Parenteral Nutrition") OR (MH "Intradialytic Parenteral Nutrition") OR (MH "Total Parenteral Nutrition Administration (Iowa NIC)") OR (MH "Dietary Supplements+") OR (MH "Food, Formulated") OR ((TI enteral OR AB enteral) OR (TI parenteral OR AB parenteral) OR (TI enteric OR AB enteric) OR (TI TPN OR AB TPN) OR (TI enteral#parenteral OR AB enteral#parenteral) OR (TI parenteral#enteral OR AB parenteral#enteral) OR (TI "artificial feeding" OR AB "artificial feeding") OR (TI "nose feeding" OR AB "nose feeding") OR (TI "elemental diet" OR AB "elemental diet")) OR (((TI oral OR AB oral) OR (TI orally OR AB orally) OR (TI tube OR AB tube) OR (TI tubes OR AB tubes) OR (TI tubal OR AB tubal) OR (TI nasogastric* OR AB nasogastric*) OR (TI gastrostom* OR AB gastrostom*) OR (TI gastric* OR AB gastric*) OR (TI jejunostom* OR AB jejunostom*) OR (TI jejunostomy-gastrostom* OR AB jejunostomy-gastrostom*) OR (TI force OR AB force) OR (TI forced OR AB forced) OR (TI IV OR AB IV) OR (TI intravenous* OR AB intravenous*)) N3 ((TI nutrition* OR AB nutrition*) OR (TI feed OR AB feed) OR (TI feeds OR AB feeds) OR (TI feeding OR AB feeding) OR (TI fed OR AB fed))) OR ((TI food* OR AB food*) N3 (TI supplement* OR AB supplement*)) OR (((TI vitamin* OR AB vitamin*) OR (TI dietary OR AB dietary) OR (TI diet OR AB diet) OR (TI diets OR AB diets) OR (TI nutrition* OR AB nutrition*) OR (TI nutrient* OR AB nutrient*) OR (TI micronutrient* OR AB micronutrient*) OR (TI micro-nutrient* OR AB micro-nutrient*)) N3 ((TI supplement* OR AB supplement*) OR (TI support* OR AB support*) OR (TI replac* OR AB replac*))) OR ((TI formulated OR AB formulated) W1 (TI food* OR AB food*)) OR (((TI gastro#intestin* OR AB gastro#intestin*) OR (TI "digestive tract" OR AB "digestive tract") OR (TI duodenum OR AB duodenum) OR (TI esophag* OR AB esophag*) OR (TI oesophag* OR AB oesophag*) OR (TI stomach OR AB stomach) OR (TI gastric OR AB gastric)) W1 (TI intubat* OR AB intubat*))	107,845

#2	(MH "Electronic Health Records+") OR (MH "Electronic Order Entry") OR (MH "Patient Record Systems") OR (MH "Automation+") OR ((TI automate OR AB automate) OR (TI automated OR AB automated) OR (TI automates OR AB automates) OR (TI automation OR AB automation) OR (TI automatic OR AB automatic) OR (TI automating OR AB automating) OR (TI barcod* OR AB barcod*) OR (TI bar#cod* OR AB bar#cod*) OR (TI "electronic health record*" OR AB "electronic health record*") OR (TI "electronic medical record*" OR AB "electronic medical record*") OR (TI "computerized health record*" OR AB "computerized health record*") OR (TI "computerised health record*" OR AB "computerised health record*") OR (TI "computerized medical record*" OR AB "computerized medical record*") OR (TI "computerised medical record*" OR AB "computerised medical record*") OR (TI EMR OR AB EMR) OR (TI EHR OR AB EHR) OR (TI EMRs OR AB EMRs) OR (TI EHRs OR AB EHRs) OR (TI "medical order entry system*" OR AB "medical order entry system*")) OR (((TI computerized OR AB computerized) OR (TI computerised OR AB computerised) OR (TI electronic OR AB electronic) OR (TI electronically OR AB electronically) OR (TI reflex* OR AB reflex*) OR (TI pre#set* OR AB pre#set*) OR (TI pre#program* OR AB pre#program*) OR (TI standing OR AB standing)) N3 ((TI order* OR AB order*) OR (TI prescrib* OR AB prescrib*) OR (TI prescript* OR AB prescript*))) OR (((TI medication* OR AB medication*) OR (TI nutrition* OR AB nutrition*) OR (TI vitamin* OR AB vitamin*)) W1 (TI administrat* OR AB administrat*) W1 ((TI system* OR AB system*) OR (TI record* OR AB record*) OR (TI deliver* OR AB deliver*)))	102,637
#3	S1 AND S2	603
#4	(((TI nutrition* OR AB nutrition*) OR (TI nutrient* OR AB nutrient*) OR (TI micronutrient* OR AB micronutrient*) OR (TI vitamin* OR AB vitamin*) OR (TI food OR AB food) OR (TI dietary OR AB dietary)) N3 ((TI automate OR AB automate) OR (TI automated OR AB automated) OR (TI automates OR AB automates) OR (TI automation OR AB automation) OR (TI automatic OR AB automatic) OR (TI automating OR AB automating) OR (TI barcod* OR AB barcod*) OR (TI bar#cod* OR AB bar#cod*))) OR (((TI computerized OR AB computerized) OR (TI computerised OR AB computerised) OR (TI electronic OR AB electronic) OR (TI electronically OR AB electronically) OR (TI reflex* OR AB reflex*) OR (TI pre#set* OR AB pre#set*) OR (TI pre#program* OR AB pre#program*)) N3 ((TI nutrition* OR AB nutrition*) OR (TI nutrient* OR AB nutrient*) OR (TI micronutrient* OR AB micronutrient*) OR (TI micro-nutrient* OR AB micro-nutrient*) OR (TI vitamin* OR AB vitamin*) OR (TI food OR AB food) OR (TI dietary OR AB dietary) OR (TI diet OR AB diet) OR (TI diets OR AB diets)) N3 ((TI system* OR AB system*) OR (TI record* OR AB record*) OR (TI deliver* OR AB deliver*)))	236
#5	S3 OR S4	802
#6	S5 NOT (((MH "Animals+") OR (MH "Animal Studies") OR (TI "animal model*")) NOT (MH "human"))	793

#7	(MH "Qualitative Studies+") OR (MH "Focus Groups") OR (MH "Interviews+") OR (MH "Narratives") OR ((TI qualitative OR AB qualitative) OR (TI qualitatively OR AB qualitatively) OR (TI interview OR AB interview) OR (TI interviewed OR AB interviewed) OR (TI interviews OR AB interviews) OR (TI interviewing OR AB interviewing) OR (TI interviewer OR AB interviewer) OR (TI interviewers OR AB interviewers) OR (TI "focus group" OR AB "focus group") OR (TI "focus groups" OR AB "focus groups") OR (TI "mixed method" OR AB "mixed method") OR (TI "mixed methods" OR AB "mixed methods") OR (TI theme OR AB theme) OR (TI themes OR AB themes) OR (TI thematic OR AB thematic) OR (TI "group discussion" OR AB "group discussion") OR (TI "group discussions" OR AB "group discussions") OR (TI "grounded theory" OR AB "grounded theory") OR (TI phenomenology OR AB phenomenology) OR (TI phenomenological OR AB phenomenological) OR (TI "lived experience" OR AB "lived experience") OR (TI "lived experiences" OR AB "lived experiences") OR (TI ethnograph OR AB ethnograph) OR (TI ethnographic OR AB ethnographic) OR (TI ethnography OR AB ethnography) OR (TI ethnographies OR AB ethnographies) OR (TI autoethnography OR AB autoethnography) OR (TI autoethnographies OR AB autoethnographies) OR (TI autoethnographic OR AB autoethnographic) OR (TI fieldwork OR AB fieldwork) OR (TI "field work" OR AB "field work") OR (TI "thematic analysis" OR AB "thematic analysis") OR (TI "content analysis" OR AB "content analysis") OR (TI "oral history" OR AB "oral history") OR (TI "oral histories" OR AB "oral histories") OR (TI "case report" OR AB "case report") OR (TI "case reports" OR AB "case reports") OR (TI "case study" OR AB "case study") OR (TI "case studies" OR AB "case studies"))	636017
#8	S6 AND S7	61
#7	S8 NOT PT (Abstract OR Book OR Book Chapter OR Book Review OR Commentary OR Editorial OR Letter OR Masters Thesis OR Pamphlet OR Pamphlet Chapter OR Poetry)	59

STUDIES EXCLUDED DURING FULL-TEXT SCREENING

Citation	Exclude Reason
Maunder, 2021[1]	7
Lamers-Johnson, 2021[2]	3
Willemsen, 2022[3]	3
Gibbs, 2021[4]	2
de Vargas Cony, 2021[5]	1
Velotta, 2021[6]	3
Mackay, 2009[7]	3
Harnack, 2008[8]	2
Contreras-Guillen, 2021[9]	1
Sommer, 2021[10]	3
Alghamdi, 2020[11]	1
Hochsmann, 2020[12]	7
Quartarolo, 2021[13]	3
Lashinsky, 2021[14]	7
Alves, 2021[15]	1
Silva, 2020[16]	1
Maranhao, 2020[17]	5
Kenworthy, 2020[18]	3
Makhsous, 2020[19]	7
Day, 2020[20]	3
McGrath, 2020[21]	3
MacKenzie-Shalders, 2020[22]	7
Phillips, 2020[23]	3
Fahey, 2020[24]	3
Boughton, 2019[25]	5
Prgomet, 2019[26]	7
Meyer, 2019[27]	3
Zin, 2019[28]	1
Mader, 2019[29]	3
Mullin, 2019[30]	3
Wai, 2019[31]	3
Arney, 2019[32]	3

Citation	Exclude Reason
Wang, 2019[33]	1
Curtis, 2018[34]	7
Jauregui, 2017[35]	1
Daus, 2017[36]	1
Hershkovich, 2017[37]	3
Pfisterer, 2019[38]	2
Oka, 2019[39]	7
Sherry, 2017[40]	3
Fan, 2017[41]	3
Hermanspann, 2017[42]	3
Garcia Marco, 2016[43]	3
Pope, 2016[44]	3
Siquier Homar, 2015[45]	5
Luton, 2015[46]	7
Watnick, 2015[47]	3
Kaufman, 2015[48]	3
Knight, 2015[49]	3
Khanna, 2014[50]	2
Villalobos Gamez, 2014[51]	3
Abbott, 2014[52]	2
Duprat Ceniccola, 2014[53]	1
Touzet, 2013[54]	3
Gomez-Candela, 2013[55]	3
Alfaro Martinez, 2013[56]	5
David, 2013[57]	3
Hilmas, 2012[58]	3
Bava, 2010[59]	7
Piston, 2006[60]	1
Tang, 2011[61]	1
Hoggle, 2010[62]	7
Weiss, 2010[63]	7
Skouroliakou, 2009[64]	3
Sacks, 2009[65]	3
Mirtallo, 2009[66]	5

Citation	Exclude Reason
Porcelli, 2007[67]	2
Bermejo Vicedo, 2005[68]	5
Aguila, 2005[69]	3
Hilmas, 2004[70]	3
Horn, 2002[71]	3
Urschitz, 1998[72]	7
Sobotka, 1997[73]	5
Puangco, 1997[74]	5
Driscoll, 1996[75]	5
ChrisAnderson, 1996[76]	3
Thomas, 1987[77]	3
Vanderveen, 1986[78]	3
Canciani, 1985[79]	3
Rich, 1982[80]	3
Hart, 1978[81]	3
Fitzgerald, 2021[82]	3
Westmoreland, 2021[83]	3
Ivey, 2019[84]	7
Barrington, 2018[85]	3
Fournier, 2016[86]	3
Williams, 2014[87]	7
Marienfeld, 2013[88]	3
Kastrup, 2012[89]	3
Verbrugge, 2010[90]	3
Brown, 2007[91]	3
Nazworthy, 2003[92]	3
Buckley, 2021[93]	3
Giovannelli, 2015[94]	5
Imfeld, 2012[95]	3
Kleemeyer, 2021[96]	3
MacKay, 2000[97]	6
McDonald, 2001[98]	3
Morello, 2009[99]	3
Park, 2018[100]	2

Citation	Exclude Reason
Quercia, 1998[101]	6
Sheean, 2004[102]	3
Vest, 2018[103]	3
Berger, 2006[104]	3
Conseil, 2013[105]	3
van Schijndel, 2009[106]	3

Exclude reasons: 1=Non-OECD Country, 2=Ineligible population, 3=Ineligible intervention, 4=Ineligible setting, 5=Ineligible outcomes, 6=Ineligible comparator, 7=Ineligible study design.

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STUDY CHARACTERISTICS

Please refer to the main report's reference list for full study citations.

Study Design Intervention Type	Country Sample Size	Population	Study Characteristics	Outcomes	Risk of Bias
Steele, 2021[45] **Cross-sectional** **Barcode Scanner**	USA 801700	Female: NR Age: Infant Race: NR	Human milk and fortifier/formula delivered to infants who were patients of the NICU at Children Hospital of Orange County. Located in Orange County, California.	Process outcomes (delivery errors) Performance outcomes (Perceived ease of ONS administration and documentation)	Fair
Shliakhtsitsava, 2021[40] **Uncontrolled before-after** **EMR Alerts**	USA 59	Baseline Female: 62% Intervention Female: 43% Baseline mean age: 8.9 years (SD 5.4) Intervention mean age: 8.6 years (SD 5.2) Race: NR	Children with newly diagnosed cancer 2–18 years of age who needed treatment with chemotherapy and/or radiation	Performance outcomes (Provider satisfaction) Process outcomes (Delivered)	Moderate
Citty, 2017[42] **Uncontrolled before-after** **MAR** **Companion paper: Kamel, 2021[51]**	USA 111	Female: NR Mean age: NR Race: NR	Patients in 4 hospital units who had orders of oral nutrition supports (ONS) during the baseline (pre-implementation) measurement phase and after implementation of PDSA cycle 4	Process outcomes (Delivered) Performance outcomes (perceived ease of ONS administration and documentation and Provider satisfaction)[a] Process outcomes (Documentation and delivered)[a]	Moderate
Meehan, 2016[44] **Uncontrolled before-after** **MAR**	USA 19867	Female: 57% Mean age: 59 years (range: 18, 111) Race: NR	Adults over 18, patient must have been admitted to the hospital between July-December 2011 and July and December 2013.	Patient outcomes (LOS, cost, and Readmission) Process outcomes (Delivered and Time) Patient-level harms	Serious

Study Design Intervention Type	Country Sample Size	Population	Study Characteristics	Outcomes	Risk of Bias
Crews, 2018[50] **Uncontrolled before-after** **CPOE**	USA 2467	Female: NR Mean age: NR Race: NR	The patient must have been between birth and 21 years of age. Must have been in the NICU, PICU and general hospital wards. Neonatal patients had to be greater than 30 weeks gestation and weighting greater than 1,500 g, and who had not received TPN at another institution and pediatric patients neither receiving home TPN nor with electrolyte imbalances.	Performance outcomes (Use of standardized TPN solutions) Process outcomes (Order error rate and time)	Serious
Eleni-dit-Trolli, 2009[55] **Uncontrolled before-after** **CPOE**	France 40	Female: NR Mean gestational age: 27.9 weeks (SD 0.9) Race: NR	Gestational age less than or equal to 28 weeks and admission to unit from the first day of life. Infants who had congenital malformations or metabolic disease, were transferred to another hospital, or died before the 28th day of life were excluded from the study.	Patient outcomes (Calories or nutrients consumed and Body weight) Patient-level harms	Serious
Franco, 2016[48] **Uncontrolled before-after** **CPOE**	USA 91	Female: 54% Mean gestational age intervention group: 28.2 (SD 2.4) Mean gestational age control group: 28.7 (SD 2.1) Race: NR	Admission date is an enrollment criteria, documented birth weight lower than 1750 g and were given PN within the first 7 days of life and received it for 72 hours	Patient outcomes (Calories or nutrients consumed) Process outcomes (Time and delivery errors)	Moderate
de Rueda, 2015[43] **Uncontrolled before-after** **CPOE**	Spain 3530	Female: NR Age range: 14 to 90 years Race: NR	The electronic prescriptions of parenteral nutrition between the years 2013 and 2014	Performance outcomes (cost) Process outcomes (Number of parenteral nutrition prescriptions prescribed)	Serious

Study Design Intervention Type	Country Sample Size	Population	Study Characteristics	Outcomes	Risk of Bias
Oczujda, 2021[56] **Uncontrolled before-after** **CPOE**	Poland 94	Female: 48% Mean gestational age intervention: 27 weeks(SD 2.81 Mean gestational age control: 27 weeks (SD 2.47) Race: NR	Patients who were considered to be extremely low birth weight neonates in a tertiary NICU. Patients were born in the institution or admitted to the NICU within the first DOL. Reasons for exclusion were abdominal surgery, congenital malformations, inborn errors of metabolism, and death before the seventh DOL.	Patient outcomes (Body weight and calories or nutrients consumed)	Critical
Sriram, 2017[57] **Controlled before-after (active control)** **CPOE**	USA 7199	Female: 56.5% Mean age: 66.6 years (SD 17.2) White: 70.4% Black: 21.8% Hispanic: 6.6% Other/unknown: 1.2%	Eligible participants were hospitalized patients with any diagnosis, 18 years of age or older, at risk for malnutrition (MST score ≥2) at admission, and able to consume foods and beverages orally. Patients were excluded for pregnancy, intubation, tube feeding or parenteral nutrition (PN), advanced cancer with brain metastases, neurological or psychiatric disorders, and other conditions that could interfere with ONS consumption	Patient outcomes (Readmission and LOS)	Serious
Alrifai, 2018 [39] **RCT** **Calculator + CPOE**	USA 42	Female: 61% intervention median gestational age: 28.3 weeks (IQR 27.5-29.2) control median gestational age: 28.4 weeks (IQR 26.4-30.2) Race: NR	Patients had to be admitted to the NICU and were less than or equal to 3 days old with a birth weight of less than or equal to 1500 grams. Patients had no inborn error of metabolism and received PN before achieving full enteral feeding.	Patient outcomes (Calories or nutrients consumed and body weight)	Some Concerns

Study Design Intervention Type	Country Sample Size	Population	Study Characteristics	Outcomes	Risk of Bias
Huston, 2013 [49] **Uncontrolled before-after** **Calculator + CPOE**	USA 164	Female: NR Mean gestational age (SD) by birth weight category and year: 2007 (≤1000 g): 26.7 (2.0) 2009 (≤1000 g): 26.4 (2.0) 2007 (1001–1500 g): 29.7 (1.7) 2009 (1001–1500 g): 29.1 (1.7) 2007 (>1500 g): 37.2 (2.1) 2009 (>1500 g): 36.6 (2.3) Race: NR	Patients with a BW of ≤1500 g and larger infants with GI abnormalities which required surgical intervention and received PN for at least 5 days and survived for 8 days of life.	Patient outcomes (calories or nutrients consumed) Process outcomes (delivery errors)	Moderate
Rochow, 2012 [54] **Uncontrolled before-after** **Calculator + CPOE**	Germany 238	Female: 53% Intervention postmenstrual age mean: 28.7 weeks(SD 2.6) Control postmenstrual age mean: 29.0 weeks(SD 2.6) Race: NR	Preterm infants with a birth weight <1500 g and born at postmenstrual age (PMA) 34 weeks, treated during the 6.5 years from June 2001 to December 2007 at the neonatal intensive care unit of the University of Greifswald, Germany.	Patient outcomes (body weight)	Serious
Ziemba, 2019[41] **Uncontrolled before-after** **Decision Support + CPOE**	USA 648	Female: 39% Intervention median age: 3 months Control median age: 2 months White: 62% Black: 22% Hispanic: 6% Asian: 0.8% Other: 11%	Children <1 year of age with diagnoses of respiratory distress and/or insufficiency admitted to the PICU	Patient outcomes (change in nutrition status and LOS) Process outcomes (Delivered) Patient-level harms	Moderate

Study Design Intervention Type	Country Sample Size	Population	Study Characteristics	Outcomes	Risk of Bias
MacKay, 2016 [46] **Cross-sectional** **CPOE + Compounding + Decision Support**	USA 84,503	Female: NR Mean age: NR Race: NR	Errors among patients at Primary Children's hospital requiring PN	Process outcomes (delivery errors)	Poor
Skouroliakou, 2005 [47] **Cross-sectional** **CPOE + Compounding**	Greece 941	Female: NR Mean age: NR Race: NR	Randomly chosen pre-term and sick-term infants requiring TPN, at IASO hospital.	Process outcomes (Time and delivery errors)	Poor

Notes. [a] Outcomes reported in companion paper Kamel, 2021.[51]

INTERVENTION CHARACTERISTICS

Please refer to the main report's reference list for full study citations.

Study Design	Route of Supplement Delivery	Intervention Description	Intervention Category(S)	Comparator	Staff Technology	Outcomes Assessed
Steele, 2021[45] **Cross-sectional**	Oral and Enteral	The purpose of this study was to evaluate the impact of barcode scanning for HM (Human Milk), DHM (Donor Human Milk), fortifiers, and infant/enteral formula on patient safety in one children's hospital. Scanning was used at the time of feeding preparation to confirm feeding matches the provider order, record lot numbers, and to ensure expired items are not used. The system is configured to interface with the hospital's electronic health record (EHR). Orders are entered into the EHR interface with the barcode scanning system, which then automatically calculates the recipes for both fortified HM or DHM feeds and facility-prepared formulas by indicating milliliters for all liquid ingredients and gram quantities for all powdered ingredients for either 12- or 24-h batches.	Ordering; Documenting ordering; Verifying; Documenting verification; Administration/delivery of nutrition; Documenting administration/delivery	No comparator	MD, NP or PA, RN, Dietician Barcode Scanning and EHR	Process outcomes (delivery errors)
Skouroliakou, 2005[47] **Cross-sectional**		Computer program for calculating TPN solution based on infant's clinical state and gestational age. Article notes that 4 protocols developed for gestational age of the infant (<26 weeks, 26-28 weeks, 29-32 weeks, 33-40 weeks). Computer program produces recommended constituent values for TPN solution. Constituents not reported. Physician fills out a form for the TFAA data input. TFAA linked to automating dispensing and mixing device to automatically prepare the TPN formula (aka automated compounding).	Nutrition assessment, preparation	Manual Calculation	MD Calculator, compounder	Performance outcomes (Time)

Franco, 2016[48] **Uncontrolled before-after study**	Implementation of a Computer Provider Order Entry (CPOE), to replace handwritten order sets, for Parenteral Nutrition (PN) in a Neonatal Intensive Care Unit (NICU). With the prior handwritten order sets, the provider would need to indicate the desired components of the order. The PN order set within the CPOE, the amino acid and lipid goals were set to default, rather than starting at a lower amount and titrating up over several days. The new PN order set includes and order summary with information regarding the volume of nutrition ordered, the glucose infusion rate, calories for all components and individual components of the order, and normal dose ranges for electrolytes. Multivitamins, minerals, and trace elements are defaulted to the appropriate doses. Additives such as heparin are defaulted for central intravenous access. Laboratory values for the previous 48 hours are included in the order entry screen, and a PN report is available that trends the previous 4 days' PN order details.	Ordering	No comparator	MD Computerized Provider Order Entry in EHR	Patient outcomes (calories or nutrients consumed)
Rochow, 2012[54] **Uncontrolled before-after study**	An electronic pre-structured prescription ordering system containing a W-LAN-based nutrition calculator with ready to use print outs for pharmacy and bedside and electronic charts.	Nutrition assessment, ordering	No comparator	Other W-Lan calculator	Patient outcomes (body weight)
Alrifai, 2018[39] **RCT**	The PCC is a software program integrated into the computerized order entry system and its purpose is to increase accuracy of ordering and delivery of parenteral protein for premature infants. This program takes into account both enteral and parental nutrition in calculating infant protein requirements.	Ordering, documenting ordering	CPOE only	MD, Pharmacist, clinical informatics, neonatology fellow, Pediatrician New software integration	Patient outcomes (calories or nutrients consumed)

Huston, 2013[49] **Uncontrolled before-after study**	Excel spreadsheet containing recommended doses and limits for amino acids, minerals, electrolytes, and osmolality of parenteral nutrition solution with patient data input blocks that are used to calculate recommended total intakes for fluids, calories, amino acids, protein, and electrolytes based on the choice of milk. All input blocks have set limits for data validation.	Nutrition assessment,	No comparator	MD, NP, PA, RN, Dietician, Pharmacist	Patient outcomes (calories or nutrients consumed)
Sriram, 2017[57] **Controlled before-after (active control)**	A nutrition focused quality improvement program (QIP) was developed that included (1) malnutrition risk screening conducted by nursing staff upon admission via an electronic medical record (EMR)-cued Malnutrition Screening Tool (MST), (2) follow-up consultation by a dietitian, (3) prompt ordering an oral nutrition supplement (ONS), and (4) patient and caregiver nutrition education both in-hospital and post-discharge nutrition care. The MST was integrated into the EMR which replaced an internally developed, non-validated nutrition assessment tool that was previously used. The EMR upgrade to include the MST was also designed to trigger appropriate follow-up dietitian consultations and selection of standard or disease-specific ONS for all at-risk patients. Patients screening with MST scores >=2 were provided 2 bottles of ONS daily.	Ordering	MAR no CPOE	MD, RN, Dietician Malnutrition screening tool integrated into the electronic medical record	Patient outcomes (readmission)
Eleni-dit-Trolli, 2009[55] **Uncontrolled before-after study**	Computerized parenteral nutrition ordering process described as an automated computerized calculation for each infant-optimal daily parenteral nutrition solution per nutrition protocol. Exact protocol not described. Prior to innovation, parenteral nutrition orders calculated at beside. Innovation was desired parenteral nutrition calculated using a standardized spreadsheet (Excel).	Nutrition assessment, Ordering	No comparator	Other - language that "we implemented"- authors are all department of neonatal nutrition affiliated Calculator	Patient outcomes (calories or nutrients consumed and body weight)

Oczujda, 2021[56] **Uncontrolled before-after study**	The process of manually calculated parenteral nutrition (PN) orders that were handwritten by the physician and then prescribed by another person was replaced by a customized Computerized Provider Order Entry (CPOE) program. The CPOE program integrated PN orders with individual doses calculated automatically, based on the infants age and body weight. The CPOE suggests optimal ranges for nutrient amounts, calculates and displays stability parameters such as compound osmolarity, precipitation factor, critical aggregation factor, and calcium/phosphorus ratio. Additionally, the PN orders were electronically transmitted to the pharmacy department.	Ordering	No comparator	MD, Pharmacist	Patient outcomes (body weight and calories or nutrients consumed)
de Rueda, 2015[43] **Uncontrolled before-after**	A computerized nutrition prescription program was implemented for parenteral nutrition (PN) ordering for adult (>=14 years old) patients in a hospital setting.	Ordering	No comparator	MD Computerized nutrition prescription program	Performance outcomes (cost) and Process outcomes (Number of parenteral nutrition prescriptions prescribed)
Crews, 2018[50] **Uncontrolled before-after**	This is involved a transition from TPN paper orders to electronic health record. The researchers integrated electronic TPN order set in the EHR for a standardized TPN solution for those in the NICU, PICU, and pediatric wards.	Ordering, documenting ordering, monitoring administration	No comparator	MD, NP, PA, Dietician, Pharmacist EHR order set for TPN solutions	Performance outcomes (time) and process outcomes (delivery errors)

MacKay, 2016[46] **Cross-sectional**	A CPOE program that incorporates dosing with soft and hard stop recommendations and simultaneously eliminates the need for paper transcription. The CPOE acts as a workflow manager by controlling the transcription through compounding, ensuring ordering and compounding safety, and controlling wastage with the end result of increased productivity. The program checks compatibility with hard stop recommendations and educational promptings are in place to assist the practitioner. A final check is completed by a pharmacist prior to compounding and that order is sent electronically to an ACD, thus eliminating that manual transcription stem.	Ordering, preparation, documenting administration/delivery, monitoring administration	No comparator	MD, NP, PA, RN, Dietician, Pharmacist, Biomedical informatics and laboratory experts	Process outcomes (delivery errors)
Ziemba, 2019[41] **Uncontrolled before-after study**	An enteral feeding (EN) feeding protocol, including the clinical decision support tools (CDSTs) and standardized feeding order set.	Ordering	No comparator	MD, NP, PA, RN CDSTs and standardized order sets	Process outcomes (delivered)
Shliakhtsitsava, 2021[40] **Uncontrolled before-after**	1) hospital guideline for Vitamin D testing 2) education on Vitamin D deficiency and supplementation for oncology providers 3) clinical decision making tree 4) EMR triggers and automated Vitamin D testing options 5) Vitamin D lab orders included in existing oncology order sets 6) Best practice advisory (BPA) alert if Vitamin D testing not performed or testing done but Vitamin D not prescribed	Nutrition assessment, ordering, documenting ordering	No comparator	MD, RN, Pharmacist, Psychologist, "QI advisors" and "Information technology (IT)"	Performance outcomes (provider satisfaction)

Citty, 2017[42] **Uncontrolled before-after**	An electronic nutrition administration record (ENAR) tab was created and added within the medical administration record (MAR) platform. The ENAR was established to standardize enteral nutrition (EN) documentation and administration. The information technology (IT) team built separate order panels for specific EN formulas, which included panels for infusion modalities, such as continuous, cyclic, or bolus EN tube feed. Linked panels were also created to account for additional orders, including tube feeding flushes, supplemental protein, fiber, and other additives, as needed. The ENAR linked the EN record to the nursing flow sheet documentation of the patient's "intake and output". Flow sheets are a customizable document tool to capture a variety of discrete information. Flow sheets make data entry easier by allowing clinicians to enter values into a table rather than requiring them to type text into a note. When information is stored in flow sheets, clinicians can view the information in reports which helps them observe trends and identify potential problems from one centralized location in the EHR. Linking the EN record to flow sheets enabled more accurate documentation of a patient's fluid status by accounting for all EN volume administered.	Verifying, documenting verification, documenting administration/delivery, monitoring administration	No comparator	MD, RN, Dietician, Pharmacist, IT, administrators	Process outcomes (documentation)

Citty, 2017[42] **Uncontrolled before-after**	"OVERALL: process improvement project that redesigned the ordering, administration and documentation process of oral nutrition supports in the electronic health record adding nutrition products to the medication order sets and adding an electronic nutrition administration record (ENAR) tab, to standardize nutrition supplement ordering, documentation and administration at prescribed intervals. Reduce human touches: burden of ordering and ordering documentation, administration, and documentation of ONS Staff involved: RD, nursing, IT Changes in IT: development of ENAR"	Ordering, documenting ordering, administration/delivery of nutrition, documenting administration/delivery, monitoring administration, documenting monitoring	No comparator	RN, IT	Process outcomes (delivered)
Meehan, 2016[44] **Uncontrolled before-after**	This was a QI-designed nursing nutrition protocol for hospitalized patients. After screening patients' nutrition status on admission using the Malnutrition Screening Tool (MST) , the nurses prescribed oral nutrition supports (ONS) for those at malnutrition risk. The ONS prescription was recorded in the electronic medical record (EMR) and was linked to the medication administration record (MAR), which, in turn, sent cues to the nurse for ONS dose, delivery, and record of compliance. The order entered by nursing also triggered a consult for a dietitian to perform a full assessment and evaluation.	Ordering, documenting ordering, documenting administration/delivery, monitoring administration, documenting monitoring	No comparator	MD, RN, Dietician, Pharmacist, information technology, data analysis and research	Process outcomes (delivered)

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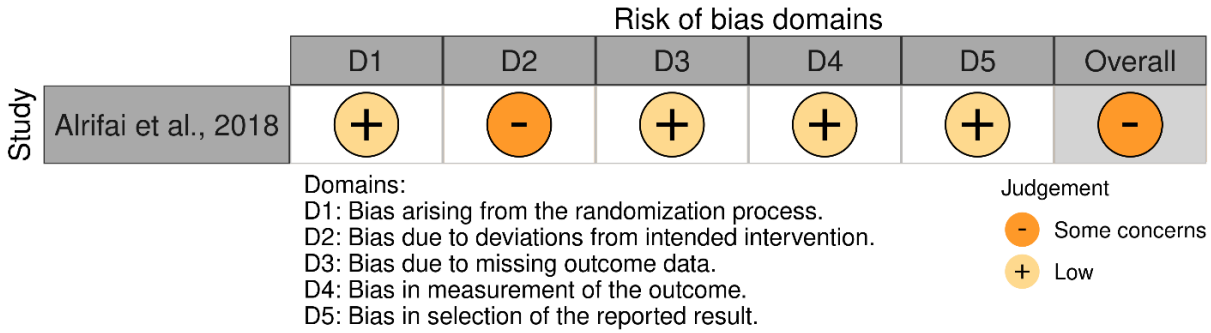
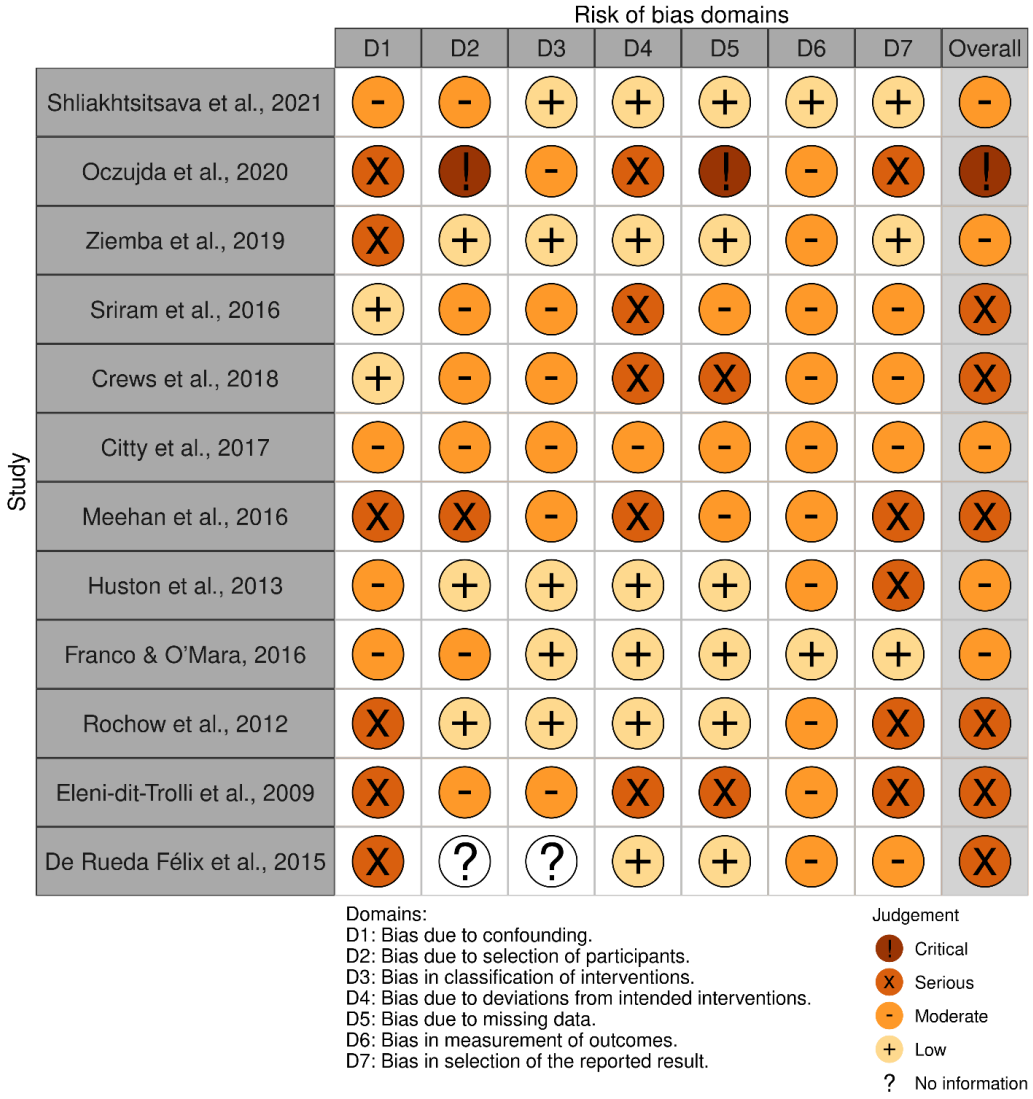
RISK OF BIAS

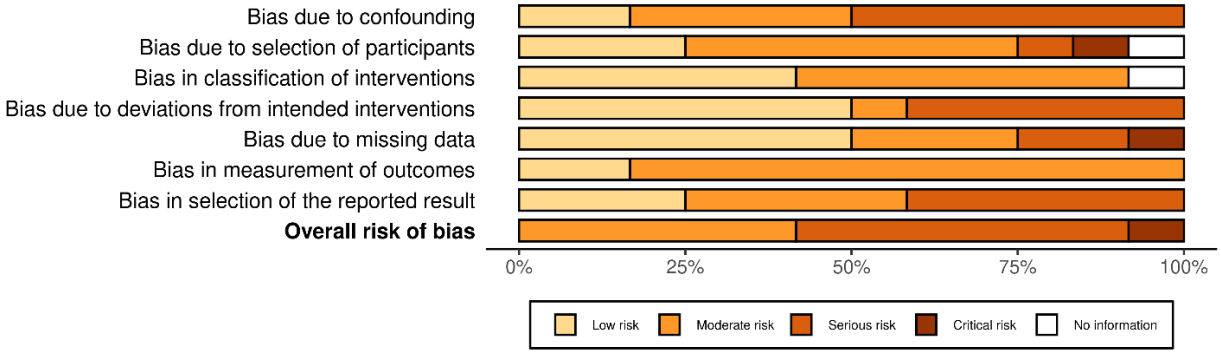
RISK OF BIAS DOMAINS (RCT)



RISK OF BIAS DOMAINS (OBSERVATIONAL)



RISK OF BIAS SUMMARY



RISK OF BIAS DOMAINS (CROSS-SECTIONAL)

Risk of bias domains

Study	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	Quality Rating
Steele & Bixby, 2022	+	?	?	+	-	?	+	?	+	?	+	+	?	?	Fair
MacKay et al., 2015	-	-	?	?	-	?	+	?	?	?	+	?	?	-	Poor
Skouroliakou et al., 2005	+	-	?	?	?	-	?	?	+	-	-	-	?	-	Poor

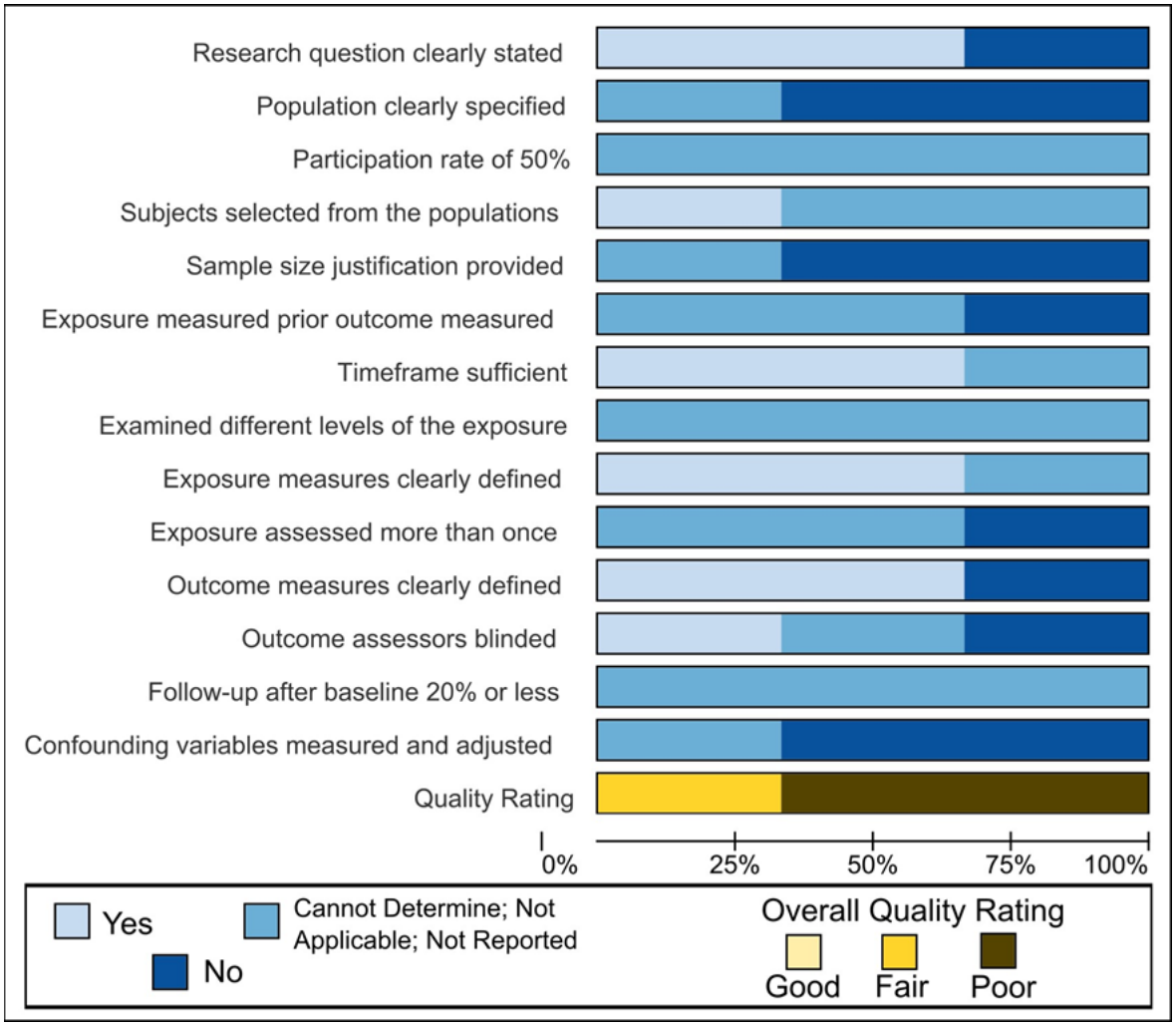
Domains:

1. Was the research question or objective in this paper clearly stated?
2. Was the study population clearly specified and defined?
3. Was the participation rate of eligible persons at least 50%?
4. Were all the subjects selected or recruited from the same or similar populations (including the same time period)? Were inclusion and exclusion criteria for being in the study prespecified and applied uniformly to all participants?
5. Was a sample size justification, power description, or variance and effect estimates provided?
6. For the analyses in this paper, were the exposure(s) of interest measured prior to the outcome(s) being measured?
7. Was the timeframe sufficient so that one could reasonably expect to see an association between exposure and outcome if it existed?
8. For exposures that can vary in amount or level, did the study examine different levels of the exposure as related to the outcome (e.g., categories of exposure, or exposure measured as continuous variable)?
9. Were the exposure measures (independent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?
10. Was the exposure(s) assessed more than once over time?
11. Were the outcome measures (dependent variables) clearly defined, valid, reliable, and implemented consistently across all study participants?
12. Were the outcome assessors blinded to the exposure status of participants?
13. Was loss to follow-up after baseline 20% or less?
14. Were key potential confounding variables measured and adjusted statistically for their impact on the relationship between exposure(s) and outcome(s)?

Judgement

- \- No
- ? Cannot Determine; Not Applicable; Not Reported
- \+ Yes

RISK OF BIAS SUMMARY



KEY INFORMANT ROLES IN IMPLEMENTING AUTOMATION OF NUTRITION SUPPORTS AND VHA SERVICE LINE DESIGNATION

Service Line	Role in Implementing Innovation					
	Pharmacy	**Nutrition**	**Food Service**	**Informatics/IT**	**Research/QI**	**Nursing**
Pharmacy	• Medication Safety Manager • Inpatient Pharmacy Supervisor • Inpatient Pharmacist • Associate Chief of Inpatient Pharmacy Services	• Pharmacy Formulary Manager		• Informatics Pharmacist • Informatics Pharmacist		
Nutrition		• Clinical Nutrition Manager • Clinical Nutrition Manager • ICU Dietician		• Informatics Dietician • Nutritionist on a National IT Committee	• Research Dietician	
Food Service			• Food Service Operations Section Chief			
Nursing				• Clinical Application Coordinator for electronic health record	• Clinical Nurse Investigator	• ICU Bedside Nurse • Nurse Manager and Educator

AUTOMATION OF NUTRITION DELIVERY QUALITATIVE STUDY INTERVIEW GUIDE

1. To get started, can you please tell me what your role is at your VA facility? (*ie*, RN, dietitian, physician, food service staff, *etc,*)

2. Within your role as [participant's role identified in Q1], at what points do you interact with **Automation of Nutrition Delivery?**
    - *Probe:* Can you walk me through what it's like to use the automation of nutrition delivery process for you?

3. How has your experience with **Automation of Nutrition Delivery** been in your role as a [participant's role]?
    - Probe: How has **Automation of Nutrition Delivery** been for you to use?
        - What part of the process, if any, are frustrating for you?
        - What parts are easy?

4. We are interested in learning about the **Automation of Nutrition Delivery**'s impact on resources and staff workflow.
    - In what ways has AND impacted the resources needed to deliver nutrition to hospital patients?
    - In what ways has AND affected your workflows? Can you tell me an example?

5. What have your experiences with **Automation of Nutrition Delivery** been like regarding the effects it has on patient care?
    - What positive effects have you encountered?
    - What negative effects?

6. Thinking back to when **Automation of Nutrition Delivery** was implemented at your site or facility, could you tell me how that it was implemented at your site?

7. *Facilitators*: What factors, if any, facilitated the implementation of **Automation of Nutrition Delivery** at your site or facility?

8. *Barriers:* What factors if any impeded **Automation of Nutrition Delivery** at your site or facility?

9. In your opinion, what are some key metrics VA could use to evaluate successful implementation of the **Automation of Nutrition Delivery**?
    - What metrics do you see as valuable for evaluating AND's implementation?

10. What would be needed to scale up **Automation of Nutrition Delivery** to more patients or areas within your facility?

Closing:

11. Is there anything else about Automation of Nutrition Delivery that you'd like to share that I have not yet asked about yet?

Do you have any questions for me before we wrap up?

PEER REVIEW COMMENTS AND RESPONSES

Are the objectives, scope, and methods for this review clearly described?

Comment #	Reviewer #	Comment	Author Response
1	1	Yes	Thank you
2	2	Yes	Thank you
3	3	Yes	Thank you
4	5	Yes	Thank you
5	7	Yes	Thank you
6	8		
7	9	Yes	Thank you

Is there any indication of bias in our synthesis of the evidence?

Comment #	Reviewer #	Comment	Author Response
8	1	No	Acknowledged. Thank you.
9	2	No	Acknowledged. Thank you.
10	3	No	Acknowledged. Thank you.
11	5	No	Acknowledged. Thank you.
12	7	No	Acknowledged. Thank you.
13	9	No	Acknowledged. Thank you.

Are there any published or unpublished studies that we may have overlooked?

Comment #	Reviewer #	Comment	Author Response
14	1	Yes - Citty SW, Chew M, Hiller LD, Maria LA. Enteral nutrition: An underappreciated source of patient safety events. Nutr Clin Pract. 2024;39(4):784-799. doi:10.1002/ncp.11153. https://aspenjournals.onlinelibrary.wiley.com/doi/10.1002/ncp.11153 Ethington S, Volpe A, Guenter P, Simmons D. The lingering safety menace: A 10-year review of enteral misconnection adverse events and narrative review. Nutr Clin Pract. 2024;39(5):1251-1258. doi:10.1002/ncp.11191. https://aspenjournals.onlinelibrary.wiley.com/doi/10.1002/ncp.11191 Citation: Institute for Safe Medication Practices (ISMP). Use barcode scanning to prevent errors with enteral nutrition feedings. ISMP Medication Safety Alert! Acute Care. 2024;29(16):1-5.	Thank you. These studies were either published after our search date, or did not meet our eligibility criteria. We, however, now cite some of these in the background or discussion to further contextualize this study.
15	2	Yes - Citty SW, Chew M, Hiller LD, Maria LA. Enteral nutrition: An underappreciated source of patient safety events. Nutr Clin Pract. 2024 Aug;39(4):784-799. doi: 10.1002/ncp.11153. Epub 2024 Apr 26. PMID: 38667904	Thank you. This does not meet our eligibility criteria as it is not about automating the enteral nutrition process. Yet, we now cite this study in the background to underscore patient safety events related to nutrition delivery in hospitalized patients.
16	3	Yes - Yes, but not in the time frame. There are newer related publications by Chew and Citty that might be worth citing.	Thank you. Please see comments above.
17	5	No	Acknowledged. Thank you.
18	7	No	Acknowledged. Thank you.
19	9	No	Acknowledged. Thank you.

Additional suggestions:

Comment #	Reviewer #	Comment	Author Response
20	1	Excellent review of this issue. See these recent articles on enteral nutrition safety events in the VA and nationally that have been recently published and should be considered to be added to the discussion section. -Citty SW, Chew M, Hiller LD, Maria LA. Enteral nutrition: An underappreciated source of patient safety events. Nutr Clin Pract. 2024;39(4):784-799. doi:10.1002/ncp.11153. https://aspenjournals.onlinelibrary.wiley.com/doi/10.1002/ncp.11153 -Ethington S, Volpe A, Guenter P, Simmons D. The lingering safety menace: A 10-year review of enteral misconnection adverse events and narrative review. Nutr Clin Pract. 2024;39(5):1251-1258. doi:10.1002/ncp.11191. https://aspenjournals.onlinelibrary.wiley.com/doi/10.1002/ncp.11191 -See this ISMP safety alert re: barcode scanning and enteral nutrition therapies and consider whether this is relevant to add to the discussion section. https://home.ecri.org/blogs/ismp-alerts-and-articles-library/use-barcode-scanning-to-prevent-errors-with-enteral-nutrition-feedings. Citation: Institute for Safe Medication Practices (ISMP). Use barcode scanning to prevent errors with enteral nutrition feedings. ISMP Medication Safety Alert! Acute Care. 2024;29(16):1-5.	Thank you. We now cite several of these in the background or discussion to further contextualize this study.
21	1	Acknowledgements- I think that the technical expert panel members credentials are incomplete for Mary Chew, Roxana Poskey, and Cheryl Smith - they have at least credentials as RDs and MS.	Thank you. We have reached out to each of the TEP members to verify credentials and positions. These updates are now reflected in this report.
22	1	page 39 line 38 - should be development of "new" systems....	Thank you

Comment #	Reviewer #	Comment	Author Response
23	1	page 42-43 Table 15 - The review/synthesis states that only one study/paper described the use of Bar code scanning. In my estimation, the Citty/Kamel study, Chew et al study, and the Steele study all used bar code scanning technology for their intervention. Please consider adding this in the relevant sections in the synthesis and related tables.	Thank you. The Chew et al. study above was published after our search data and was not included in the synthesis to studies for this report. We do, however, highlight this study in the discussion section. Based on the information in Citty 2017, our team categorized this as a medication admission record intervention.
24	1	To clarify - In the 2017 Citty, et al study done at UF Health in Gainesville Florida- the intervention included use of MAR and bar code scanning for the patient. The product barcode was not scanned for the product/therapy because the hospital decided to not "turn-on" that function for those specific therapies. The EHR at UF Health was Epic. Note: The companion papers for Citty 2017 (BMJQIR) was Kamel et al 2021 (JPEN) and Citty SW, Bjarnadottir RI, Marlowe BL, et al. Nutrition Support Therapies on the Medication Administration Record: Impacts on Staff Perception of Nutrition Care. Nutr Clin Pract. 2021;36(3):629-638. doi:10.1002/ncp.10590.	Thank you for this clarification that the barcode scanner feature was not utilized for this intervention. This is very helpful context that corroborates how we have categorized this study in our report.
25	1	Chew et al (2023) paper (ref #53 on pg. 51) also reported the use of bar code scanning technology, MAR, and BCMA for their enteral nutrition therapies (tube formulas) for inpatients at Phoenix VAHCS.	Thank you. The Chew et al. study was published after our search data and was not included in the synthesis to studies for this report. We do, however, highlight this study in the discussion section and its use of barcode scanner technology.
26	1	page 51 - references for Citty (refs #56 and #57) are the same - one should be deleted	Thank you so much for catching this error. We have adjusted the citation to reflect this error in the studies cited in the discussion section.
27	2	Thank you for tackling this project. It was well-done in the face of adversity- such as the covid-19 pandemic and limited existing information for KQ2.	We appreciate this comment. Thank you.

	Reviewer #	Comment	
28	2	regarding this article: Citty SW, Chew M, Hiller LD, Maria LA. Enteral nutrition: An underappreciated source of patient safety events. Nutr Clin Pract. 2024 Aug;39(4):784-799. doi: 10.1002/ncp.11153. Epub 2024 Apr 26. PMID: 38667904 Although it is outside the defined review period, its relevance to the subject matter is very significant. Including a mention of it in some part of the discussion is appropriate to consider.	Please see above. We now cite this important paper in the beginning of this report to set the stage for our evidence synthesis.
29	2	iv need to update position titles for most or all of the TEP	The TEP positions have all been updated.
30	2	vi lines 6-31 key findings section- It seems that this section frames an emphasis on limitations/ ROB that outweighs the bottom-line conclusions and supportive common-sense rationale. page vi line 8-10 (also page xii 28-31) (also located in other area of the document which discuss controlled study design and ROB such as page 45 line 19-41). -- Does the subject matter/intervention lend itself to use uncontrolled before-after studies? It mentions that most studies were uncontrolled before-after in the same context that no studies were rated as low ROB. Doing so appears to portray that the study designs (before-after) is the reason why none have low ROB (which may be the intention). Could this subject matter/intervention lend itself to a caveat that is perhaps more reasonable to not use RCT design or that another design is equally appropriate (possibly the resource intensive nature of RCT as it relates to this subject provides a formidable barrier)? -Should this section include a brief discussion of any other appropriate research methods that make sense for the subject/intervention and/or refer the reader to page 45 line 57-61 and 46 lines 3-33?	Thank you for these comments. We used established tools to rate the risk of bias for each broader category of study designs (*eg*, NIH Cross-sectional Tool Risk of Bias for cross-sectional designs; Cochrane ROBINS-I tool to assess risk of bias for nonrandomized studies). Each of these tools allows study designs to have a range of risk of bias ratings and does not equate a type of study design with a risk of bias rating. We have edited the report to make it clearer that having an uncontrolled before-after design is not synonymous with a serious risk of bias. Next, we agree it may not be practical or feasible to conduct randomized trials for many system-level interventions, such as automating nutrition support delivery. As such, we included a wide range of study designs in our systematic review, including uncontrolled before-after designs. In response to your excellent comments about the challenges of randomized designs to this subject, we also have 1) streamlined the Key Findings; 2) deemphasized risk of bias across individual studies; 3) added a sentence in the Limitations section contextualizing why randomized trials may be difficult to conduct of this type of intervention across some settings; and 4) added a call for both randomized and rigorously non-randomized studies meeting Cochrane EPOC standards for systems-level interventions in the Future Research section.

	Reviewer #	Comment	
31	2	vi lines 21-22, also vii lines 31-34 Consider including context for why there is more data dedicating to researching the subject in a pediatric setting. This population often requires very specific/precise dosing of items (medications, nutritional products, etc.) at increments much smaller than in the adult setting, thus the population would likely have more studies on dosing/administering nutritional products.	Thank you for this helpful comment. We have made significant revisions to our Executive Summary section.
32	2	page vi line 34-36 Is a citation needed to support the assertion in this sentence (¨often goes undiagnosed and untreated…¨)?	Thank you. The Executive Summary serves as an abstract for the full report. Like abstracts, we do not include citations. These statements are fully cited in the full report.
33	2	xi line 46 I agree with the ESP team conducting a qualitative study for KQ2 and including the findings in this paper.	Acknowledged and thank you.
34	2	xii lines 10-12 thank you for highlighting this- it is an important potential barrier to implementation	Thank you.
35	2	xii 53-61 and xiii 3-6 This conclusion provides a clear summary of the practicality and rationale for automating nutrition support delivery. Perhaps it might be helpful to include here that the evidence in the review shows that the barriers to implementation are overcome relatively easily (as is stated in page 30 lines 43-51) and final perceptions of key staff (including pharmacy) are overall positive.	Thank you.
36	2	page 4 lines 44-46 May consider highlighting information located here in the summary/key findings given its potential impact on decision making.	Thank you. We have revised the background section based on this comment, and other comments from reviewers.
37	2	page 16 line 58 may need to clarify wording (possibly the word ¨form¨ should be ¨from¨?)	Thank you.

Comment #	Reviewer #	Comment	Author Response
38	2	page 37 line 11-17 and 42-50 I suggest including a discussion (possibly an example) about issues related to liability and potential litigation and/or survey violations. For example: pt with a pressure injury is prescribed tube feeds and protein supplement, the pressure injury worsens and there is an investigation as to whether interventions are adequate and/or if being implemented. Due to no AND, there is no way to generate reports to determine that the patient is receiving the items as ordered, and manual reviewing in free text documentation doesn't have the information mentioned by the staff (or not consistently charted). This opens up the facility to survey violations and litigation.	Thank you for this comment. We can only summarize what was brought up in the qualitative interviews. Litigation was not brought up during our interviews, yet, we agree that AND provides documentation needed to substantiate nutrition delivery.
39	2	page 46 line 24 As mentioned above, are RCT the only design that could reasonably provide low ROB?	Thank you for this comment. As stated above, having an RCT design is not synonymous with low ROB. Each category of study designs has its own ROB rating tool with a range of possible ratings. Our ROB assessment approach is outlined in the Methods section and the ROB ratings by study design category are detailed in the "Risk of Bias" figures located at the end of the report.
40	3	This much needed review will help draw attention to the significant challenge of delivering nutritional products safely and effectively to hospitalized patients. Such challenges have largely been addressed for medical and pharmaceutical interventions, and the interdisciplinary team might not realize this is not the case for all therapeutics they believe their patients to be receiving as part of their full treatment plan.	We so appreciate this comment and are grateful to our VA Operational Partners listed in the acknowledgments section for nominating this topic.
41	3	Page x, line 9: Please verify this result is reported correctly.	Acknowledged and thank you.
42	3	Page xiii, line 3: I wasn't clear from this summary why the claim was made VHA is in a unique position to advance the science. I understood the claim when I read the conclusion (page 46, line 59) in the Main Report. Consider adding the BCMA comment in the summary conclusion as well.	Acknowledged and thank you. We have added this to the Executive Summary as well.

Comment #	Reviewer #	Comment	Author Response
43	3	Page 24, line 22: This might need a little clarification. After some thinking, I'm interpreting a reduction in supplements prescribed as reflecting a possible decrease in inappropriate orders (vs. a problem with entering orders caused by the intervention).	Thank you. This is an interesting interpretation, and we agree that these results could reflect a decrease in ordering errors. Yet, we are unable to assume this outcome from what is presented in the paper and have included it in the supports delivered outcome synthesis.
44	3	Page 33, line 56; Tables 11 & 12; figure 7; and page 42, line 19: Please verify accurate use of Low vs. Serious in relation to reference 49.	Thank you for catching this important error in our report. Sriram (2017) is a controlled before-after study of serous ROB, as is accurately represented in Figure 7 and the result narrative. We have corrected this in Tables 11 and 12.
45	3	Page 35, line 55: This description of temporary harms sounds more concerning than that on page 42, line 31 as the latter clarifies there was no difference in these harms before and after and the former states only that there were harms after the intervention. Perhaps the clarification could come with the first reference.	We state in both places in the report that harms did not differ before and after implementation.
46	3	Page 43, line 1 (Table 15): Will be difficult to read this table if split over pages without the headings shown on both.	Thank you. Table 15 will be on a single page in the published report.
47	3	Page 45, line 27: Take caution with stating the adult patients of concern have more control over their nutritional consumption. Most of the concern I experienced as a clinician was with sedated or severely debilitated ICU patients who had limited to no ability to advocate for their own feeding needs.	Thank you for this excellent point. We have revised this statement to reflect your feedback.
48	3	Page 46, line 57: Pages 45-47 of 2016's "ASPEN Safe Practices for Enteral Nutrition Therapy" by Boullata et al. could also be referenced here as they advocate for CPOE and bar coding for enteral nutrition. This is a key paper and newer than references 61-63.	Thank you. We have added this citation to the conclusions.
49	3	Page 47, line 4: A significant risk that might be worth noting is that as the modernized Electronic Health Record rolls out across the VA enterprise and care becomes standardized, sites that have implemented local AND could lose their current functionality and the successes described here could be reversed.	This is an excellent point that is relevant to contextualizing this report for a VA policy audience. Thank you for bringing this to our attention and we have added this to the final report.

Comment #	Reviewer #	Comment	Author Response
50	5	Re: Nutrition products on the MAR. Were any negatives identified?	Thank you. We synthesized all findings relevant to this report in the included studies.
51	7	None	Acknowledged.
52	8	This is an excellent review of the literature. I am thrilled that this work has been done to set the groundwork for future research.	Thank you very much for this comment.
53	9	1-I would recommend to say nutrition support instead of nutrition supports (with an 's') throughout the paper.	
54	9	2- The term supplements is used often throughout the paper to describe nutrition support and in some places it does not make sense. It would be best to use the term nutrition support as a general reference to TPN, EN and ONS. The use of nutritional supplements might lead readers to think of supplements like vitamins/minerals instead of ONS, EN, TPN. When referring to oral nutrition supplements, this could be referred to as ONS instead of supplements.	Thank you; we have changed this throughout the report.
55	9	At first I noticed there was a missing aspect of the background information with regards to how the automation processes leads to transparency with other providers to know what orders are being placed and given. I also noticed a gap in the background information in addressing why this is not a standard of practice, why the nutrition therapy is not already part of the MAR. However, this was discussed at length in the end and I think that is sufficient but still wanted to mention it in case this could be mentioned earlier in the document.	Thank you. The background section intends to provide a brief overall rationale for the review and the key questions. As such, it may not include all aspects pertinent to the field for a topic.
56	9	Page 4, line 24 should include monitoring as part of the nutrition care process.	Acknowledged, and we have added this to the background section.
57	9	I do not have enough expertise to critique the methodology or the writing of the paper, but it did stand out tremendously how often the ROB was mentioned. It is first explained in the results and then as the studies are explained its repeated again and again. Is this normally the way studies are presented? Although very important to evaluate the methodology, it seemed that such an emphasis was distracting from what the study results were.	Thank you for this comment. These ROB assessments (*eg*, critical appraisals) are considered a gold standard practice in evidence synthesis. It is important to have the risk of bias also presented when discussing study results as this is an important consideration for understanding validity of findings for individual studies.

Comment #	Reviewer #	Comment	Author Response
58	9	The tables are extremely helpful.	Acknowledged, and thank you.
59	9	In the qualitative analysis and table 14 and the description of the dietitian wanting to feel like their work matters ... This is important as we all are passionate about patient care and making a difference for Veterans. However, I wished there was more objectivity about the fact that omitting nutritional orders since they are not automated, tracked, or documented, not only makes the dietitian feel less important but it also has a great impact on patient outcomes. Instead of making it about the dietitian wanting to matter, would be more impactful if it was about implementing automated nutritional support to ensure delivery so that patients recover from illness. Was this ever discussed in the interviews?	Thank you for this comment. The quantitative findings from the systematic review substantiate your comments about nutritional supports as improving key patient outcomes when these are delivered to the right patient at the right time at the right dose.
60	9	Overall, it was excellent and I really appreciate all the time spent on this very important topic!	We thank you for this comment.