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Supplementary Table S1: PRIOR checklist for the Preferred Reporting Items for Overviews of Reviews

Section Topic	#	**Item**	**Location reported**
TITLE			
Title	1	Identify the report as an overview of reviews.	1
ABSTRACT			
Abstract	2	Provide a comprehensive and accurate summary of the purpose, methods, and results of the overview of reviews.	1
INTRODUCTION			
Rationale	3	Describe the rationale for conducting the overview of reviews in the context of existing knowledge.	2
Objectives	4	Provide an explicit statement of the objective(s) or question(s) addressed by the overview of reviews.	2
METHODS			
Eligibility criteria	5a	Specify the inclusion and exclusion criteria for the overview of reviews. If supplemental primary studies were included, this should be stated, with a rationale.	3-4
	5b	Specify the definition of 'systematic review' as used in the inclusion criteria for the overview of reviews.	NA
Information sources	6	Specify all databases, registers, websites, organizations, reference lists, and other sources searched or consulted to identify systematic reviews and supplemental primary studies (if included). Specify the date when each source was last searched or consulted.	3
Search strategy	7	Present the full search strategies for all databases, registers and websites, such that they could be reproduced. Describe any search filters and limits applied.	3, Supplementary Table S3
Selection process	8a	Describe the methods used to decide whether a systematic review or supplemental primary study (if included) met the inclusion criteria of the overview of reviews.	3-4
	8b	Describe how overlap in the populations, interventions, comparators, and/or outcomes of systematic reviews was identified and managed during study selection.	3-4
Data collection process	9a	Describe the methods used to collect data from reports.	4
	9b	If applicable, describe the methods used to identify and manage primary study overlap at the level of the comparison and outcome during data collection. For each outcome, specify the method used to illustrate and/or quantify the degree of primary study overlap across systematic reviews.	4
	9c	If applicable, specify the methods used to manage discrepant data across systematic reviews during data collection.	NA
Data items	10	List and define all variables and outcomes for which data were sought. Describe any assumptions made and/or measures taken to identify and clarify missing or unclear information.	4
Risk of bias assessment	11a	Describe the methods used to *assess* risk of bias or methodological quality of the included systematic reviews.	4
	11b	Describe the methods used to *collect* data on (from the systematic reviews) and/or *assess* the risk of bias of the primary studies included in the systematic reviews. Provide a justification for instances where flawed, incomplete, or missing assessments are identified but not re-assessed.	4
	11c	Describe the methods used to *assess* the risk of bias of supplemental primary studies (if included).	Figure 1
Synthesis methods	12a	Describe the methods used to summarize or synthesize results and provide a rationale for the choice(s).	5
	12b	Describe any methods used to explore possible causes of heterogeneity among results.	5
	12c	Describe any sensitivity analyses conducted to assess the robustness of the synthesized results.	5
Reporting bias assessment	13	Describe the methods used to *collect* data on (from the systematic reviews) and/or *assess* the risk of bias due to missing results in a summary or synthesis (arising from reporting biases at the levels of the systematic reviews, primary studies, and supplemental primary studies, if included).	NA
Certainty assessment	14	Describe the methods used to *collect* data on (from the systematic reviews) and/or *assess* certainty (or confidence) in the body of evidence for an outcome.	5
RESULTS			

Section Topic	#	Item	Location reported
Systematic review and supplemental primary study selection	15a	Describe the results of the search and selection process, including the number of records screened, assessed for eligibility, and included in the overview of reviews, ideally with a flow diagram.	5, Supplementary Figure S1
	15b	Provide a list of studies that might appear to meet the inclusion criteria, but were excluded, with the main reason for exclusion.	Supplementary Table S
Characteristics of systematic reviews and supplemental primary studies	16	Cite each included systematic review and supplemental primary study (if included) and present its characteristics.	Table 1
Primary study overlap	17	Describe the extent of primary study overlap across the included systematic reviews.	6, Supplementary Figure S2
Risk of bias in systematic reviews, primary studies, and supplemental primary studies	18a	Present assessments of risk of bias or methodological quality for each included systematic review.	6, Supplementary Table S4
	18b	Present assessments (collected from systematic reviews or assessed anew) of the risk of bias of the primary studies included in the systematic reviews.	Figure 1
	18c	Present assessments of the risk of bias of supplemental primary studies (if included).	Figure 1
Summary or synthesis of results	19a	For all outcomes, summarize the evidence from the systematic reviews and supplemental primary studies (if included). If meta-analyses were done, present for each the summary estimate and its precision and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	6, Supplementary Figures S3-S14
	19b	If meta-analyses were done, present results of all investigations of possible causes of heterogeneity.	Supplementary Figures S3-S14
	19c	If meta-analyses were done, present results of all sensitivity analyses conducted to assess the robustness of synthesized results.	NA
Reporting biases	20	Present assessments (collected from systematic reviews and/or assessed anew) of the risk of bias due to missing primary studies, analyses, or results in a summary or synthesis (arising from reporting biases at the levels of the systematic reviews, primary studies, and supplemental primary studies, if included) for each summary or synthesis assessed.	NA
Certainty of evidence	21	Present assessments (collected or assessed anew) of certainty (or confidence) in the body of evidence for each outcome.	6
DISCUSSION			
Discussion	22a	Summarize the main findings, including any discrepancies in findings across the included systematic reviews and supplemental primary studies (if included).	7-8
	22b	Provide a general interpretation of the results in the context of other evidence.	7-8
	22c	Discuss any limitations of the evidence from systematic reviews, their primary studies, and supplemental primary studies (if included) included in the overview of reviews. Discuss any limitations of the overview of reviews methods used.	7-8
	22d	Discuss implications for practice, policy, and future research (both systematic reviews and primary research). Consider the relevance of the findings to the end users of the overview of reviews, e.g., healthcare providers, policymakers, patients, among others.	7-8
OTHER INFORMATION			
Registration and protocol	23a	Provide registration information for the overview of reviews, including register name and registration number, or state that the overview of reviews was not registered.	3
	23b	Indicate where the overview of reviews protocol can be accessed, or state that a protocol was not prepared.	NA
	23c	Describe and explain any amendments to information provided at registration or in the protocol. Indicate the stage of the overview of reviews at which amendments were made.	NA

Support	24	Describe sources of financial or non-financial support for the overview of reviews, and the role of the funders or sponsors in the overview of reviews.	9
Competing interests	25	Declare any competing interests of the overview of reviews' authors.	9
Section Topic	#	Item	Location reported
Author information	26a	Provide contact information for the corresponding author.	1
	26b	Describe the contributions of individual authors and identify the guarantor of the overview of reviews.	9
Availability of data and other materials	27	Report which of the following are available, where they can be found, and under which conditions they may be accessed: template data collection forms; data collected from included systematic reviews and supplemental primary studies; analytic code; any other materials used in the overview of reviews.	9

Supplementary Table S2: PRISMA checklist for Preferred Reporting Items for Systematic Reviews and Meta-Analyses

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	NA
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	NA
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	2
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	2
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	3
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	3
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	3, Supplementary Table S3
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	3
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	4
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	4
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	4
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	4
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	5
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	5
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	5
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	5

Section and Topic	Item #	Checklist item	Location where item is reported
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	5
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	NA
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	NA
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	NA
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	5
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	5
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	-
Study characteristics	17	Cite each included study and present its characteristics.	Table 2
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	5-6, Figure 1
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	6, Supplementary Figures S3-S14
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	6
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	6, Supplementary Figures S3-S14
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	NA
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	NA
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	NA
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	6
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	7-8
	23b	Discuss any limitations of the evidence included in the review.	7-8

Section and Topic	Item #	Checklist item	Location where item is reported
	23c	Discuss any limitations of the review processes used.	7-8
	23d	Discuss implications of the results for practice, policy, and future research.	7-8
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	3
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	NA
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	NA
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	9
Competing interests	26	Declare any competing interests of review authors.	9
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	9

Supplementary Table S3: Search strategy for identifying systematic reviews and/or randomized controlled trials in the PubMed database

Search	Query	Results*
#1	Enteral nutrition [MeSH]	22,155
#2	Enteral feed*[Text Word]	7,725
#3	Enteral feeding[MeSH Terms]	22,155
#4	Enteral feeding tube[Text Word]	272
#5	Tube feeding[Text Word]	4,333
#6	Tube feeding[MeSH Terms]	22,155
#7	Artificial feed*[Text Word]	1,355
#8	Artificial nutrition[Text Word]	1,424
#9	Gastric feed*[Text Word]	419
#10	Intragastric feed*[Text Word]	229
#11	Tube feed[Text Word]	109
#12	Enteral formula[Text Word]	506
#13	Nutritional support[Text Word]	15,402
#14	Nutrition support[Text Word]	3,706
#15	Parenteral nutrition[MeSH Terms]	25,514
#16	Parenteral feed*[Text Word]	1,718
#17	Parenteral feeding[MeSH Terms]	25,514
#18	Parenteral formula[Text Word]	12
#19	Parenteral tube feeding[Text Word]	521
#20	PEG line[Text Word]	7,395
#21	EN[Text Word]	77,674
#22	PN[Text Word]	26,468
#23	Supplemental parenteral nutrition	172

	[Text Word]	
#24	Artificial supplementation[Text Word]	21
#25	Supplemental enteral nutrition[Text Word]	21
#26	Intravenous supplementation[Text Word]	174
#27	1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26	169,491
#28	Critical care[MeSH Terms]	67,579
#29	Critical care[Text Word]	91,884
#30	ICU[Text Word]	88,582
#31	Intensive care unit[Text Word]	137,470
#32	Intensive care[Text Word]	237,182
#33	Critical ill*[Text Word]	47,764
#34	Critical illness[MeSH Terms]	39,835
#35	Shock[MeSH Terms]	87,052
#36	Shock[Text Word]	265,017
#37	Sepsis[Text Word]	154,505
#38	Sepsis[MeSH Terms]	144,031
#39	Multiple organ failure[MeSH Terms]	12,159
#40	Multiple organ failure*[Text Word]	18,266
#41	Systemic inflammatory response syndrome [MeSH Terms]	152,095
#42	Systemic inflammatory response syndrome [Text Word]	11,348
#43	Mechanical ventilation[MeSH Terms]	90,022
#44	Mechanical ventilat*[Text Word]	62,953

#45	28 OR 29 OR 30 OR 31 OR 32 OR 33 OR 34 OR 35 OR 36 OR 37 OR 38 OR 39 OR 40 OR 41 OR 42 OR 43 or 44	814,598
#46	Systematic review[Text Word]	330,197
#47	Systematic review[Publication Type]	250,139
#48	Review[Publication Type]	3,273,819
#49	Review[Text Word]	4,128,298
#50	Meta-analysis[Text Word]	295,382
#51	Meta-analysis[Publication Type]	193,465
#52	46 OR 47 OR 48 OR 49 OR 50 OR 51	4,222,293
#53	#27 AND #45 AND #52	4,024
#54	#27 AND #45 AND #52 Replacing Text Word to Title/Abstract	3,671
#55	#27 AND #45 AND #52 Replacing Text Word to Title/Abstract Filters: from 2000-2024	2,964
#56	Randomized[Title/Abstract]	690,630
#57	Random[Title/Abstract]	369,340
#58	Randomly[Title/Abstract]	426,287
#59	Randomized controlled trial[Title/Abstract]	117,069
#60	Randomized controlled trial [Publication Type]	608,622
#61	Randomised controlled trial[Title/Abstract]	32,931
#62	Randomized trial[Title/Abstract]	55,422
#63	Randomised trial[Title/Abstract]	11,542
#64	Randomized clinical trial[Title/Abstract]	41,775
#65	Randomised clinical trial[Title/Abstract]	4,518
#66	Controlled clinical trial[Title/Abstract]	20,085
#67	Trial[Title/Abstract]	801,558

#68	56 OR 57 OR 58 OR 59 OR 60 OR 61 OR 62 OR 63 OR 64 OR 65 OR 66 OR 67	1,901,947
#69	#27 AND #45 AND #68	2,480

Supplementary Table S4: Detailed reasons for exclusion of the systematic reviews

Number	Title	Author	Type of intervention/control-Reason of exclusion
1	Small peptide formulas versus standard polymeric formulas in critically ill patients with acute gastrointestinal injury: a systematic review and meta-analysis	Wang Y et al.	Intervention: small peptide formula EN Comparison: standard polymeric formula EN
2	Effect of Adopting Low Calories on Patients' Vital Signs in The Nutritional Support of Critically Ill Patients in the ICU: A Systematic Review and Network Meta-Analysis	Jiang Q, Duan L. et al.	Intervention: low caloric intake with no PN supplementation
3	A systematic review of the safety and tolerability evaluation of enteral nutrition in a prone position with acute respiratory distress syndrome	Liu Y. et al.	Intervention and comparison EN according to patient position
4	Timing of enteral nutrition and parenteral nutrition in the PICU	Fell DM. et al.	Referred to pediatric population-study EN vs EN+PN
5	The effect of intermittent versus continuous enteral feeding for critically ill patients: a meta-analysis of randomized controlled trials	Qu J. et al.	I: Intermittent EN C: Continuous EN
6	Nutritive Support for Critical Exotic Patients	Latney LV. et al.	P: Animals
7	Enteral feeding tolerance during pharmacologic neuromuscular blockade	Dickerson RN. et al.	Intervention and control include EN
8	Blood glucose monitoring in critically ill adult patients: type of sample and method of analysis. Systematic review and meta-analysis	Arias-Rivera S. et al.	It measures blood glucose in ICU patients but it does not refer to the nutrition therapy type they receive-not in English
9	Lipid emulsions in parenteral nutrition: does it matter?	Haines K. et al.	Intervention and comparison include PN
10	Optimizing enteral nutrition delivery by implementing volume-based feeding protocol for critically ill patients: an updated meta-analysis and systematic review	Wang L. et al.	Intervention and comparison include EN
11	Efficacy of enteral nutrition for patients with acute pancreatitis: A systematic review and meta-analysis of 17 studies	Liu Y. et al.	Intervention and comparison include EN
12	Early vs delayed enteral nutrition or parenteral nutrition in hospitalized patients: An umbrella review of systematic reviews and meta-analyses of randomized trials	Talebi S. et al.	I: EEN C:DEN or PN
13	Prophylactic acid suppression and enteral nutrition	Barletta JF. et al.	I: PPI and EN C: EN

14	Omega-3 fatty acids in parenteral nutrition - A systematic review with network meta-analysis on clinical outcomes	Pradelli L. et al.	I: Ω3 in PN C: PN
15	[Immunomodulation by nutritional intervention in critically ill patients]	Hirschberger S. et al.	In German
16	Efficacy and safety of early enteral and intravenous fluid resuscitation in severe acute pancreatitis: a systematic review and meta-analysis	Liu J. et al.	I: EN C:iv fluids
17	Comparison of continuous versus intermittent enteral feeding in critically ill patients: a systematic review and meta-analysis	Heffernan AJ. et al.	I: Intermittent EN C: Continuous EN
18	Effects of dietary fiber on enteral feeding intolerance and clinical outcomes in critically ill patients: A meta-analysis	Liu T. et al.	I: Fiber enriched EN C: EN standard
19	Administration of vitamin D and its metabolites in critically ill adult patients: an updated systematic review with meta-analysis of randomized controlled trials	Menger J. et al.	I_1: Intervention group EN enriched with Vit D C_1: EN standard I_2:PN enriched Vit D C_2: PN standard
20	Higher versus lower enteral calorie delivery and gastrointestinal dysfunction in critical illness: A systematic review and meta-analysis	Murthy TA. et al.	I: High caloric EN C: Low caloric EN
21	Effect of Early Low-Calorie Enteral Nutrition Support in Critically Ill Patients: A Systematic Review and Meta-analysis	Jiang Q. et al.	Intervention and control refer to EN
22	A systematic review on the agreement between clinical practice guidelines regarding the steps of the nutrition care process of adult patients who are critically ill	Cattani A. et al.	There is no comparison to given intervention
23	Challenges to Provision of Adequate Medical Nutrition Therapy in a Critically Ill COVID-19 Patient Fed in the Prone Position	Brown T. et al.	Narrative review about EN

24	Effect of Early Nutritional Support on Clinical Outcomes of Critically Ill Patients with Sepsis and Septic Shock: A Single-Center Retrospective Study	Cha JK. et al.	Retrospective study
25	Effect of enteral immunonutrition compared with enteral nutrition on surgical wound infection, immune and inflammatory factors, serum proteins, and cellular immunity in subjects with gastric cancer undergoing a total gastrectomy: A meta-analysis	Fu H. et al.	I: EN C:EN immunonutrition
26	Clinical Outcomes of Zinc Supplementation Among COVID-19 Patients	Berti AD. et al.	Non ICU and intervention and control receive only EN with Zinc supplementation
27	The Effects of Enteral Nutrition in Critically Ill Patients with COVID-19: A Systematic Review and Meta-Analysis	Ojo O. et al.	I_1: EEN C_1: DEN I_2: EN C_2:PN
28	Omega-6 sparing effects of parenteral lipid emulsions-an updated systematic review and meta-analysis on clinical outcomes in critically ill patients	Notz Q. et al.	I:PN enriched fish oil C: PN standard
29	Safety and efficacy of continuous or intermittent enteral nutrition in patients in the intensive care unit: Systematic review of clinical evidence	De Lazzaro F. et al.	I: Intermittent EN C: Continuous EN
30	The Protective Role of Nutraceuticals in Critically Ill Patients with Traumatic Brain Injury	Rahimibashar F. et al.	Refer to EN
31	Systematic review and meta-analysis of the effectiveness of continuous vs intermittent enteral nutrition in critically ill adults	Thong D. et al.	I: intermittent EN C: continuous EN in ICU
32	A systematic review and meta-analysis of the effect of total parenteral nutrition and enteral nutrition on the prognosis of patients with acute pancreatitis	Liu M. et al.	I: TPN C:TEN
33	Micronutrient intake from enteral nutrition in critically ill adults: A systematic review of randomised controlled trials	Breik L. et al.	Intervention and control refer to EN
34	Efficacy of volume-based feeding (VBF) protocol on critically ill patients: A meta-analysis and systematic review	Wang L. et al.	I: EN VBF C: RBF VBF*

			* (volume based feeding)
35	Glutamine as a component of nutritional and metabolic therapy for surgical patients in ICU	Dmitriev AV. et al.	In Russian
36	Fiber in the ICU: Should it Be a Regular Part of Feeding?	Green CH. et al.	I: EN enriched with fiber C: EN standard
37	Effect of enteral immunomodulatory nutrition formula on mortality and critical care parameters in critically ill patients: A systematic review with meta-analysis	Malekahmadi M. et al.	I: EN immunomodulatory formula C:EN standard
38	Effect of glutamine supplementation on inflammatory markers in critically ill patients supported with enteral or parenteral feeding	Gholamalizadeh M. et al.	I: EN with glutamine C:PN with Glutamine
39	The effect of standardized feeding protocol on early outcome following gastroschisis repair: A systematic review and meta-analysis	Raduma OS. et al.	I: EN C:PN
40	Nutritional Interventions on Physical Functioning for Critically Ill Patients: An Integrative Review	Zhou W. et al.	I: Early EN C:Early PN
41	Safety of Using Enteral Nutrition Formulations Containing Dietary Fiber in Hospitalized Critical Care Patients: A Systematic Review and Meta-Analysis	Cara KC. et al.	Intervention and control receive EN
42	Association of specialized enteral nutrition with glycemic control and clinical outcomes in critically ill patients: Meta-analysis of randomized controlled trials	Eckert I. et al.	Intervention and control receive EN
43	Diet Recommendations for Hospitalized Patients With Inflammatory Bowel Disease: Better Options Than Nil Per Os	Palchaudhuri S. et al.	P: non-ICU patients
44	Feeding intolerance in critically ill patients with COVID-19	Liu R. et al.	Intervention and control receive EN
45	REPORT-Parenteral selenium for the clinical effect of sepsis: A meta-analysis of randomized controlled trials	He S. et al.	I: IV selenium C:placebo does not refer to enteral
46	[Nutrition support in the chronic critically ill patients]	Wang L. et al.	Narrative review

47	Low-carbohydrate, high-fat enteral formulas for managing glycemic control in patients who are critically ill: A review of the evidence	Burslem R. et al.	I: Low carbohydrate EN C:High fat EN content
48	Efficacy of alanyl glutamine in nutritional support therapy for patients with sepsis: A protocol for systematic review and meta-analysis	Su X. et al.	I: EN with alanyl glutamine C: PN with alanyl glutamine
49	Intravenous hyperalimentation: a review	Freeman JB. et al.	Not found
50	Nutritional care of the critically ill patient with respiratory failure	Weissman C. et al.	Not found
51	The critically ill surgical patient: nutritional considerations	Starker PM. et al.	Not found
52	The patient with critical neurological disease	Young B. et al.	Not found
53	Nutritional support in the management of critically ill patients in surgical intensive care	Streat SJ. et al.	Not found
54	Parenteral and enteral nutrition and the enterocutaneous fistula treatment. II. Factors influencing the outcomes of treatment	Dardai E. et al.	I: TPN C:EN
55	Parenteral and enteral nutrition	Shizgal et al.	I: EN C:PN
56	Special considerations required for the formulation and administration of total parenteral nutrition therapy in the elderly patient	Driscoll DF. et al.	TPN in non-ICU
57	Should we supplement magnesium in critically ill patients?	Olerich MA. et al.	Article cannot be found
58	Omega-3 polyunsaturated fatty acids: benefit or harm during sepsis?	Peck. et al.	Article cannot be found
59	Growth hormone administration during nutritional support: what is to be gained?	Ziegler TR. et al.	Article cannot be found
60	Does the formulation of enteral feeding products influence infectious morbidity and mortality rates in the critically ill patients? A critical review of the evidence	Heyland DK. et al.	I: Formulated EN C: EN standard
61	[Nutrition physiologic significance of the trace element selenium within the scope of parenteral nutrition therapy]	Gramm HJ. et al.	Article not found

62	The necessity of selenium substitution in total parenteral nutrition and artificial alimentation	Gramm HJ. et al.	I: TPN with selenium C: EN
63	Glutamine supplemented nutrition in clinical practice--use of glutamine-containing dipeptides	Fürst P. et al.	I: Glutamine EN C: Glutamine PN
64	Parenteral glutamine supply in intensive care patients	R D Griffiths . et al.	I:PN with glutamine C:PN standard
65	Enteral nutritional supplementation with key nutrients in patients with critical illness and cancer: a meta-analysis of randomized controlled clinical trials	Heys SD. et al.	I: EN supplemented C: EN standard
66	Glutamine-containing TPN: a question of life and death for intensive care unit-patients?	Wernerman J. et al.	I: TPN with glutamine C: TPN
67	Medium-chain triglyceride and n-3 polyunsaturated fatty acid-containing emulsions in intravenous nutrition	Chan S. et al.	I: MCT PN C: PUFA PN
68	Prioritizing nutrition during recovery from critical illness	Nienow MK. et al.	EN and oral supplements
69	Effects of intermittent feeding versus continuous feeding on enteral nutrition tolerance in critically ill patients: A protocol for systematic review and meta-analysis	Li Y. et al.	I: Intermittent EN C: Continuous EN
70	[Key problems of nutritional support in patients with ischemic stroke and nontraumatic intracranial hemorrhage]	Khoshbonyani PA. et al.	Only abstract in English was detectable
71	How to Feed the Critically Ill-A Review	Lew CC. et al.	Narrative review
72	Intermittent versus continuous enteral nutrition on feeding intolerance in critically ill adults: A meta-analysis of randomized controlled trials	Ma Y. et al.	I: Intermittent EN C: Continuous EN
73	Omega-3 fatty acid-containing parenteral nutrition in ICU patients: systematic review with meta-analysis and cost-effectiveness analysis	Pradelli L. et al.	I: Standard PN C: PN supplemented with Ω3 FA

74	Reporting of Randomized Controlled Trials Investigating an Enteral or Parenteral Nutrition Intervention in Critical Illness According to the CONSORT Statement: A Systematic Review and Recommendation of Minimum Standard Reporting Criteria	Seddon N. et al.	This SR and MA does not study the wanted topic but evaluates the published RCTs about nutrition in ICU according to CONSORT criteria
75	Early Achievement of Enteral Nutrition Protein Goals by Intensive Care Unit Day 4 is Associated With Fewer Complications in Critically Injured Adults	Hartwell JL. et al.	Study about EN and energy requirements goals
76	Nutritional support for critically ill patients suffering from SARS-CoV-2 infection	Pardo E. et al.	Not in English
77	Meta-analysis of the effects of supplemental parenteral nutrition on prognosis of critically ill patients	Chu X. et al.	Not in English
78	Challenges of Maintaining Optimal Nutrition Status in COVID-19 Patients in Intensive Care Settings	Minnelli N. et al.	Narrative review
79	An evaluation of feeding practices and determination of barriers to providing nutritional support in a multidisciplinary South African intensive care unit	Elmezoughi E. et al.	Retrospective observational chart review
80	Nutrition Support in Critically Ill Patients with AKI	Ramakrishnan N. et al.	Narrative review of nutrition in ICU
81	Nutrition Support in the ICU-A Refresher in the Era of COVID-19	Micic D. et al.	Narrative review
82	The clinical and cost-effectiveness of supplemental parenteral nutrition in oncology	Webb N. et al.	Narrative review of SPN in cancer patients
83	Continuous versus intermittent feeding of the critically ill: have we made progress?	Pletschette Z. et al.	I: Intermittent EN C: Continuous EN
84	Therapeutic Effect of Enteral Nutrition Supplemented with Probiotics in the Treatment of Severe Craniocerebral Injury: A Systematic Review and Meta-Analysis	Du T. et al.	I: EN supplemented with probiotics C: EN standard, does not specify the way of supplementation
85	Effects of parenteral glutamine in critically ill surgical patients: a systematic review and meta-analysis	Pimentel RFW. et al.	Not in English (Spanish)
86	Meta-Analysis of Efficacy of Rhubarb Combined With Early Enteral Nutrition for the Treatment of Severe Acute Pancreatitis	Chen X. et al.	I: EN C: EN with Rhubarb
87	Outcome Measures in Critical Care Nutrition Interventional Trials: A Systematic Review	Chapple LS. et al.	It studies general nutritional interventions
88	Nutritional support for critically ill patients in the intensive care unit	Hagve M. et al.	Not in English

89	When is parenteral nutrition indicated in the hospitalized, acutely ill patient?	Fragkos KC. et al.	Narrative review for PN
90	Immunonutrition vs Standard Nutrition for Cancer Patients: A Systematic Review and Meta-Analysis (Part 1)	Yu K. et al.	Immunonutrition vs standard nutrition in cancer patients not in ICU
91	Impact of Soluble Fiber in the Microbiome and Outcomes in Critically Ill Patients	Venegas-Borsellino C. et al.	Narrative review
92	Systematic Review With Meta-Analysis of Patient-Centered Outcomes, Comparing International Guideline-Recommended Enteral Protein Delivery With Usual Care	Fetterplace K. et al.	I: EN guidelines C: Standard care
93	Immunonutrition for Adults With ARDS: Results From a Cochrane Systematic Review and Meta-Analysis	Ahilanandan Dushianthan. et al.	Given enteral or parenteral immunonutrients, additionally supplemented with or as part of a nutritional formula. In comparison, control groups included participants who received placebo or standard nutrition with a non-immunonutrient formula feed.
94	Medical Nutrition Therapy in Critically Ill Patients Treated on Intensive and Intermediate Care Units: A Literature Review	Kopp Lugli A. et al.	Literature review
95	Effects of Early Enteral Glutamine Supplementation on Intestinal Permeability in Critically Ill Patients	Shariatpanahi ZV. et al.	I: EEN with glutamine C: EN standard
96	High-Carbohydrate vs High-Fat Nutrition for Burn Patients	Shields BA. et al.	P:in burned patients I: EN C: PN
97	Early enteral nutrition within 24 hours of lower gastrointestinal surgery versus later commencement for length of hospital stay and postoperative complications	Herbert G. et al.	I: EEN C: DEN
98	Enteral vs. parenteral nutrition in septic shock: are they equivalent?	Kott M. et al.	I: EN C:PN
99	Intermittent or continuous feeding: any difference during the first week?	Van Dyck L. et al.	I: Intermittent EN C: Continuous EN

100	The Benefits of Parenteral Nutrition (PN) Versus Enteral Nutrition (EN) Among Adult Critically Ill Patients: What is the Evidence? A Literature Review	Cadena AJ. et al.	I:PN C: EN
101	Early enteral nutrition supplemented with probiotics improved the clinical outcomes in severe head injury: Some promising findings from Chinese patients	Yi LJ. et al.	I: EEN with probiotics C: EN standard
102	Omega-3 polyunsaturated fatty acids in critically ill patients with acute respiratory distress syndrome: A systematic review and meta-analysis	Langlois PL. et al.	I: EN with Ω3 fatty acids C: EN
103	Impact of Intravenous Lipid Emulsions Containing Fish Oil on Clinical Outcomes in Critically Ill Surgical Patients: A Literature Review	Honeywell S. et al.	Narrative review
104	Current evidence on ω-3 fatty acids in enteral nutrition in the critically ill: A systematic review and meta-analysis	Kristine Koekkoek W. et al.	I: EN with Ω3 FA C: EN standard
105	What is the evidence for the use of parenteral nutrition (PN) in critically ill surgical patients: a systematic review and meta-analysis	Ledgard K. et al.	I:PN with glutamine C:PN standard
106	Vitamin C supplementation in the critically ill: A systematic review and meta-analysis	Zhang M. et al.	Intravenous vitamin C supplementation versus placebo or no intervention, with no EN provision.
107	Efficacy comparisons of enteral nutrition and parenteral nutrition in patients with severe acute pancreatitis: a meta-analysis from randomized controlled trials	Wu P. et al.	I: EN C:PN
108	Use of dietary fibers in enteral nutrition of critically ill patients: a systematic review	Reis AMD. et al.	I: EN enriched with fibers C: EN standard, narrative review
109	Early Enteral Nutrition Reduces Mortality and Improves Other Key Outcomes in Patients With Major Burn Injury: A Meta-Analysis of Randomized Controlled Trials	Pu H. et al.	I: EEN C: DEN
110	Enteral nutrition provided within 48 hours after admission in severe acute pancreatitis: A systematic review and meta-analysis	Song J. et al.	I: EEN C: DEN
111	The effect of enteral versus parenteral nutrition for critically ill patients: A systematic review and meta-analysis	Zhang G. et al.	I: EN C:PN

112	Supplemental Parenteral Nutrition: Review of the Literature and Current Nutrition Guidelines	Russell MK. et al.	Literature review of guidelines
113	Early enteral nutrition versus delayed enteral nutrition in acute pancreatitis: A PRISMA-compliant systematic review and meta-analysis	Feng P. et al.	I: EEN C: DEN
114	Initial energy supplementation in critically ill patients receiving enteral nutrition: a systematic review and meta-analysis of randomized controlled trials	Tian F. et al.	I: Low energy EN C: High energy EN
115	Effects of perioperative supplementation with pro-/synbiotics on clinical outcomes in surgical patients: A meta-analysis with trial sequential analysis of randomized controlled trials	Wu XD. et al.	I: EN supplementation with pro-/synbiotics C: Standard EN
116	Efficacy of glutamine-enriched enteral feeding formulae in critically ill patients: a systematic review and meta-analysis of randomized controlled trials	Mottaghi A. et al.	I: glutamine-enriched enteral feeding C: EN standard
117	Cost and effectiveness of omega-3 fatty acid supplementation in Chinese ICU patients receiving parenteral nutrition	Wu GH. et al.	I: omega-3 fatty acid supplementation PN C: Standard PN
118	The role of ω-3 fatty acid supplemented parenteral nutrition in critical illness in adults: a systematic review and meta-analysis	Palmer AJ. et al.	I: ω-3 fatty acid supplemented parenteral nutrition C: Standard parenteral nutrition
119	n-3 fatty acid-enriched parenteral nutrition regimens in elective surgical and ICU patients: a meta-analysis	Pradelli L. et al.	I: n-3 fatty acid-enriched parenteral nutrition C: Standard PN
120	Combined enteral and parenteral nutrition	Wernerman J. et al.	Systematic review
121	n-3 PUFAs in cancer, surgery, and critical care: a systematic review on clinical effects, incorporation, and washout of oral or enteral compared with parenteral supplementation	Langius JA. et al.	I_1: n-3 PUFAs EN I_2: n-3 PUFAs PN C: oral feeding
122	Zinc supplementation in critically ill patients: a key pharmaconutrient?	Heyland DK. et al.	I: Zinc iv C: Zinc in EN

123	Enteral and parenteral nutrition in the seriously ill, hospitalized patient: a critical review of the evidence	Heyland DK. et al.	Narrative review
124	Nutritional supplementation in elderly people during the course of catabolic illnesses	Bourdel-Marchasson I. et al.	Narrative review
125	Nutrition in Acute Pancreatitis: From the Old Paradigm to the New Evidence	Lucia et al.	Narrative review about nutrition in acute pancreatitis
126	Systematic review and meta-analysis of the effect of nutritional support on the clinical outcome of patients with traumatic brain injury	Yang L. et al.	P: adult population in ICU with traumatic brain injury and GCS 3-8 I: Enriched EN (in the SR it is referred as intensive nutrition-all the included RCTs revised in order to specify the term) C: EN O: Mortality, alterations in immune status, energy intake
127	Burn Patient Metabolism and Nutrition	Nunez JH. et al.	Narrative review
128	Role of vitamin D supplementation in modifying outcomes after surgery: a systematic review of randomised controlled trials	Patel A. et al.	P: Pediatric and adult patients I: VitD supplementation C: no supplementation and it
129	Effect of combined parenteral and enteral nutrition for patients with a critical illness: A meta-analysis of randomized controlled trials	Luo Y. et al.	P: adults and children with critical illness in ICU and other departments I: EN and PN C: EN O: Mortality, LOS, UTIs, Respiratory infections
130	Effect of supplemental parenteral nutrition on all-cause mortality in critically Ill adults: A meta-analysis and subgroup analysis	Li P. et al.	Retracted article
131	Early parenteral nutrition alone or accompanying enteral nutrition in critically ill patients: a systematic review and meta-analysis	Wan X. et al.	P: critically ill in ICU stayed more than 48 hours I: PN alone in 48 hours or PN +EN

			C: unfed O: LOS, Mortality, mechanical ventilation duration
132	The Effectiveness of Early Enteral Nutrition on Clinical Outcomes in Critically Ill Sepsis Patients: A Systematic Review	Moon SJ. et al.	I: EEN C: DEN
133	Clinical efficacy of enteral nutrition feeding modalities in critically ill patients: a systematic review and meta-analysis of randomized controlled trials	Wu JY. et al.	I: Intermittent EN C: continuous EN
134	The Efficacy of Parenteral Nutrition and Enteral Nutrition Supports in Traumatic Brain Injury: A Systemic Review and Network Meta-Analysis	Qin Y. et al.	Compare EN and PN in burned patients not in ICU
135	The Effect of immunonutrition in patients undergoing pancreaticoduodenectomy: a systematic review and meta-analysis	Fan Y. et al.	P: Patients undergoing pancreaticoduodenectomy not specify if are hospitalized in ICU I: Oral or EN or PN immunonutrition C: no supplementation with immunonutrition
136	Nutritional Support with Omega-3 Fatty Acids in Burn Patients: A Systematic Review with Meta-Analysis of Randomized Controlled Trials	Siritientong T. et al.	P: Burn patients not referred in ICU I: EN enriched Ω3 FA C: EN standard O: Mortality, LOS, energy intake
137	Effect of Early Versus Delayed Parenteral Nutrition on the Health Outcomes of Critically Ill Adults: A Systematic Review	Sharma SK. et al.	P: ICU adult patients The review include 5 RCTs: compared EPN and LPN, one trial compared early TPN and standard care, one trial compared supplemental PN with standard care, and two trials compared TPN and supplemental PN. O: LOS, Mortality, duration of mechanical ventilation and infections

138	Mortality in septic patients treated with vitamin C: a systematic meta-analysis	Scholz SS. et al.	P: adult patients in ICU i: intravenous vitamin C treatment alone or in combination with thiamine and/or hydrocortisone C: Standard care or placebo treatment O: Mortality
139	Impact of Intravenous Fluids and Enteral Nutrition on the Severity of Gastrointestinal Dysfunction: A Systematic Review and Meta-analysis	Asrani VM. et al.	P: ICU patients with GI dysfunction I: IV fluids and EN C: PN O: Mortality, vomiting, LOS
140	Immunonutrition for Adults With ARDS: Results From a Cochrane Systematic Review and Meta-Analysis	Dushianthan A. et al.	P: ICU patients with ARDS I: Enriched EN or enriched PN formula C: EN or PN standard O: Mortality
141	Early enteral nutrition (within 48 hours) versus delayed enteral nutrition (later 48 hours) with or without supplemental parenteral nutrition in critically ill adults (Cochrane Review)	Fuentes Padilla P. et al.	P: ICU adult patients I: EEN+SPN C: DEN+SPN O: Mortality, LOS in ICU, Infections

Supplementary Table S5: Detailed reasons for exclusion of the randomized controlled trials

Number	Title	Author	Type of intervention/Control-Reason of exclusion
1	Effect of Early vs Late Supplemental Parenteral Nutrition in Patients Undergoing Abdominal Surgery: A Randomized Clinical Trial	Xuejin Gao. et al.	P: patients undergoing major abdominal surgery, non-ICU department I: ESPN C: LSPN O:Incidence of nosocomial infections, days of antibiotic therapy
2	Impact of early low-calorie low-protein versus standard-calorie standard-protein feeding on outcomes of ventilated adults with shock: design and conduct of a randomised, controlled, multicenter, open-label, parallel-group trial (NUTRIREA-3	Reignier J. et al.	P:>18yo patients in ICU under vasoactive support I: Low caloric group 6kcl/kg/d via EN or PN C: Standard 25 kcal/kg/d via EN or PN O: Mortality ,nosocomial infections
3	Parenteral glutamine supplementation in critical illness: a systematic review	Wischmeyer PE. et al.	Systematic review
4	Timing of parenteral nutrition in ICU patients: A transatlantic controversy.	Veraar C. et al.	Not RCT, comparator of ASPEN and ESPEN Guidelines about the time of initiation of PN
5	Effect of glutamine supplementation on inflammatory markers in critically ill patients supported with enteral or parenteral feeding	Gholamalizadeh M. et al.	Systematic review and meta-analysis referring to selenium supplementation in EN vs PN
6	Glutamine supplementation in critical illness: evidence, recommendations, and implications for clinical practice in burn care.	Windle EM. et al.	Narrative review
7	Intravenous amino acids may mediate the adverse effect of early parenteral nutrition on mortality in critically ill patients requiring mechanical ventilation: A post hoc analysis of the NEED trial.	Lin J. et al.	Post hoc analysis P: ICU adult patients I: EPN

			C: LPN O:Mortality, ICU free days to 28th day
8	A more physiological feeding process in ICU: Intermittent infusion with semi-solid nutrients (CONSORT-compliant).	Lu K. et al.	P: ICU adult patients I: EN intermittent feeding with semi solid nutrients C: Intermittent feeding O: nutritional intake, gastrointestinal disorders
9	Enteral and supplemental parenteral nutrition enriched with omega-3 polyunsaturated fatty acids in intensive care patients - A randomized, controlled, double-blind clinical trial.	Singer P. et al.	P: ICU adult patients under mechanical ventilation I: EN+PN +Ω3 C: EN+PN O:Mortality, change of PaO2/FiO2 from day 1 to 4
10	The efficacy of parenteral fish oil in critical illness patients with sepsis: a prospective, non-randomized, observational study.	Li WS. et al.	P: ICU adult patients with sepsis I: TPN +fish oil C: TPN standard O:Mortality, days of hospitalization
11	Four-oil intravenous lipid emulsion effect on plasma fatty acid composition, inflammatory markers and clinical outcomes in acutely ill patients: A randomised control trial (Foil fact).	Donoghue V. et al.	P: ICU adult patients I: PN four-oil C:PN with soybean oil O: biomarkers, mortality, days of hospitalization
12	Efficacy and Safety of Glutamine-supplemented Parenteral Nutrition in Surgical ICU Patients: An American Multicenter Randomized Controlled Trial.	Ziegler TR. et al.	P: ICU adult patients after cardiovascular or gastrointestinal surgery I: PN glutamine supplemented C: PN standard O: Mortality, days of hospitalization

13	A randomized controlled trial investigating the effects of parenteral fish oil on survival outcomes in critically ill patients with sepsis: a pilot study.	Hall TC. et al.	P: ICU adult patients with sepsis I:PN enriched with fish oil C: standard care with antibiotics and iv fluids O:inflammatory markers, mortality
14	Early enteral and parenteral nutritional support in patients with cirrhotic portal hypertension after pericardial devascularization.	Zhang K. et al.	C: ICU adult patients after pericardial devascularization I: EN C:PN O: mortality, complication rate, stay in ICU, duration of hospitalization and costs of treatment
15	Infection, multiple organ failure, and survival in the intensive care unit: influence of glutamine-supplemented parenteral nutrition on acquired infection.	Griffiths RD. et al.	P: ICU adult patients I: TPN glutamine-supplemented C: TPN isonitrogenous, isoenergetic O: Nosocomial infection
16	Evaluating the significance of delaying intravenous lipid therapy during the first week of hospitalization in the intensive care unit",", Lemon S."	Arrazcaeta J. et al.	P: ICU trauma adult patients I: EPN enriched with lipids earlier than 7th day P: LPN enriched with lipids later than 7th day O:Mortality, days of ICU stay
17	Early enteral supplementation with key pharmaconutrients improves Sequential Organ Failure Assessment score in critically ill patients with sepsis: outcome of a randomized, controlled, double-blind trial.	Beale RJ. et al.	P: ICU adult patients with sepsis I: EN supplemented pharmaconutrients C: EN standard O: Mortality, nosocomial infections, days of hospitalization
18	Comparative study on the enteral and parenteral nutrition during early postburn stage in burn patients.	Chen ZY. et al.	In Chinese

19	One year outcomes in patients with acute lung injury randomised to initial trophic or full enteral feeding: prospective follow-up of EDEN randomised trial.	Needham DM. et al.	P: patients with lung disease in non-ICU department I: per os feeding C: EN via tube O: mortality
20	Fish oil supplementation in the parenteral nutrition of critically ill medical patients: a randomised controlled trial.	Friesecke S. et al.	P: ICU adult patients with sepsis I: medium-chain triglycerides and long-chain triglycerides supplemented with fish oil C: medium-chain triglycerides and long-chain triglycerides the same MCT/LCT emulsion supplemented with fish oil O: Interleukin 6 (IL-6), monocyte HLA-DR ,infections, duration of mechanical ventilation, length of ICU stay, 28-day mortality
21	Comparative study on influence of enteral and parenteral nutrition on organ function in critically ill patients.	Xiang XJ. et al.	P: ICU adult patients I: EN C:PN O:Mortality, ICU stay
22	Influence of n-3 polyunsaturated fatty acids enriched lipid emulsions on nosocomial infections and clinical outcomes in critically ill patients: ICU lipids study.	Grau-Carmona T. et al.	P: ICU adult patients I: TPN enriched C: TPN standard O:nososcomial infections
23	Intravenous n-3 fatty acids in the critically ill.	Mayer K. et al.	Systematic review
24	Intravenous fish oil in adult intensive care unit patients.	Heller AR. et al.	Narrative review
25	The effect of L-alanyl-L-glutamine dipeptide supplemented total parenteral nutrition on infectious morbidity and insulin sensitivity in critically ill patients.	Grau T. et al.	P: ICU adult patients I: TPN supplemented alanine-glutamine dipeptides

			C: TPN isonitrogenous and isocaloric O: UTI, nosocomial infections, mortality
26	Influence of polymeric enteral nutrition supplemented with different doses of glutamine on gut permeability in critically ill patients.	Velasco N. et al.	P: ICU adult patients with intestinal disorders I: EN supplemented with glutamine C: EN standard O:gut permeability/function
27	Zinc supplementation in critically ill patients: a key pharmaconutrient?	Heyland DK. et al.	Systematic review and meta-analysis
28	Randomised trial of glutamine, selenium, or both, to supplement parenteral nutrition for critically ill patients.	Andrews PJ. et al.	P: ICU adult patients with gastrointestinal failure I:PN enriched with glutamine or selenium or both C:PN standard O:nosocomial infections, hospital stay, days of antibiotic use
29	Parenteral supplementation with EPA/DHA omega-3 fatty acids improves recovery prognosis in critically ill patients.	Lira Marcial E. et al.	In Spanish
30	Effects of early enteral arginine supplementation on resuscitation of severe burn patients.	Yan H. et al.	P: ICU patients with major burn TBSA >50% I:1st group =EN enriched with 400mg/kg/day of L-arginine 2nd group= EN enriched with 200mg/kg/day of L-Arginine C: EN standard O:Mean arterial blood pressure, lactic acid concentration
31	Effects of lipid emulsions in parenteral nutrition of esophageal cancer surgical patients receiving enteral nutrition: a comparative analysis.	Wang WP. et al.	P: Patients with rejectable esophageal carcinoma in ICU and non-ICU department I: EN+PN enriched with olive oil C: EN+PN O:Infections,length of hospitalization

32	Tight Blood-Glucose Control without Early Parenteral Nutrition in the ICU.	Gunst J. et al.	P: ICU adult patients I: PN and liberal glucose control C:PN and tight glucose control O:Mortality, glucose levels
33	Uptake of dietary amino acids into arterial blood during continuous enteral feeding in critically ill patients and healthy subjects.	Liebau F. et al.	P: ICU adult patients and healthy I: EN enriched with iv amino acids in ICU patients C: EN enriched with amino acids iv in healthy people O: essential amino acid concentrations and 13C-phenylalanine levels
34	Safety and metabolic tolerance of a concentrated long-chain triglyceride lipid emulsion in critically ill septic and trauma patients.	García-de-Lorenzo A. et al.	P: ICU adult patients after surgery or trauma I: TPN enriched 30% LCT C: TPN enriched 20% LCT O: Biochemical markers (prealbumin, free cholesterol, triglycerides)
35	Applied studies of structured triglycerides for parenteral nutrition in severe hemorrhagic shock patients after resuscitation.	Su MS. et al.	P: ICU adult patients after severe blood loss >3000ml I:PN with structured triglycerides C:PN with MCT/LCT O:serum triglycerides levels, prealbumin, transferrin
36	A prospective randomized study of preoperative nutritional supplementation in patients awaiting elective orthotopic liver transplantation.	Le Cornu KA. et al.	P: patients undergoing liver transplantation I: EN added to usual diet C: usual diet O: nutritional status, improved mid-arm circumference, mid-arm muscle circumference, and grip strength
37	A prospective, randomized, controlled study of ω-3 fish oil fat emulsion-based parenteral nutrition for patients following surgical resection of gastric tumors.	Wei Z. et al.	P: Patients after gastric tumor surgery I: TPN with ω-3 fish oil C: TPN with soybean oil

			O: Nutritional status, infections
38	Beta-hydroxy-beta-methylbutyrate supplementation in critically ill trauma patients.	Kuhls DA. et al.	P: ICU trauma patients I: 1ST EN with β-hydroxy-β-methylbutyrate 2nd EN with arginine 3rd EN with glutamine C: EN standard O:Nitrogen balance and muscle proteolysis
39	Parenteral nutrition effects of Omega-3 fatty acids on C-reactive protein, high-density lipoprotein, lymphocyte characteristics and the treatment of critically ill patients.	Ni C. et al.	P: Critically ill cancer patients I: EN+PN+Ω3 fatty acids C: EN+PN standard regimes O: nutritional status, inflammatory markers, ICU stay, ICU mortality
40	Pilot study on the effect of parenteral vitamin E on ischemia and reperfusion induced liver injury: a double blind, randomized, placebo-controlled trial.	Bartels M. et al.	P: Patients a day before elective liver tumor resection I: Standard diet and 3 infusions iv of vitamin E C: Standard diet and 3 infusions iv of placebo O: ALT levels, length of ICU stay
41	Enteral versus parenteral early nutrition in ventilated adults with shock: a randomised, controlled, multicenter, open-label, parallel-group study (NUTRIREA-2).	Reignier J. et al.	P: ICU patients I: EN C:PN O:Mortality,length of stay in ICU
42	Enteral or parenteral nutrition in traumatic brain injury: a prospective randomised trial.	Justo Meirelles CM. et al.	P: Patients with traumatic brain injury I: EN C:PN

			O:Mortality
43	Effect of enteral versus parenteral nutrition on outcome of medical patients requiring mechanical ventilation.	Altintas ND. et al.	P: ICU patients I: EN C:PN O:Mortality,length of ICU stay
44	Phase 3 Pilot Randomized Controlled Trial Comparing Early Trophic Enteral Nutrition With ""No Enteral Nutrition"" in Mechanically Ventilated Patients With Septic Shock.	Patel JJ. et al.	P: ICU ventilated patients with septic shock I: Early trophic EN C: Nil per os O:Mortality, infections
45	Effect of late versus early initiation of parenteral nutrition on weight deterioration during PICU stay: Secondary analysis of the PEPaNIC randomised controlled trial.	van Puffelen E. et al.	P: PICU critically ill patients I: EPN C: LPN O:Mortality, hospitalization time
46	A multicenter, randomised controlled trial comparing the clinical effectiveness and cost-effectiveness of early nutritional support via the parenteral versus or the enteral route in critically ill patients (CALORIES).	Harvey SE. et al.	P: Critically ill patients in ICU I: EN C:PN O:Cost effectiveness
47	Early metabolic support for critically ill trauma patients: A prospective randomized controlled trial.	Stolarski AE. et al.	P: Patients after abdominal surgery I: High protein supplementation C: Usual care O: Total calories delivery
48	Effect of an enteral diet supplemented with a specific blend of amino acid on	Mansoor O. et al.	P: Critically ill patients in ICU I: EN supplemented with amino acids

	plasma and muscle protein synthesis in ICU patients.		C: EN standard O: Mortality, muscle protein synthesis
49	A randomized controlled trial of enteral versus parenteral feeding in patients with predicted severe acute pancreatitis shows a significant reduction in mortality and in infected pancreatic complications with total enteral nutrition.	Petrov MS. et al.	P: Patients with severe acute pancreatitis I: EN C:PN O: Mortality, pancreatitis complications
50	The effect of L-alanyl-L-glutamine dipeptide supplemented total parenteral nutrition on infectious morbidity and insulin sensitivity in critically ill patients.	Grau T. et al.	P: Critically ill patients I: TPN supplemented L-alanyl-L-glutamine dipeptide C: TPN standard O: Mortality, insulin resistance
51	Structured lipid emulsion as nutritional therapy for the elderly patients with severe sepsis.	Chen J. et al.	P: Patients with sepsis I: EN+PN of structured lipid emulsion C: EN+PN of mixed medium and long-chain fat O: albumin, prealbumin, cholesterol, and triglyceride levels, hospitalization days
52	The influence of parenteral glutamine supplementation on glucose homeostasis in critically ill polytrauma patients--A randomized-controlled clinical study.	Grintescu IM. et al.	P: Critically ill polytrauma patients I: PN of glutamine C: standard care O: Glucose levels, mortality
53	Randomised trial of glutamine and selenium supplemented parenteral nutrition for critically ill patients. Protocol Version 9, 19 February 2007 known as SIGNET (Scottish Intensive care Glutamine or selenium Evaluative Trial).	Andrews PJ. et al.	P: Critically ill adult patients in ICU I: PN supplemented with glutamine and selenium C:PN standard O: Mortality, length of stay ICU
54	Omega-3 fatty acids-supplemented parenteral nutrition decreases	Wang X. et al.	P: Critically ill patients with severe acute pancreatitis

	hyperinflammatory response and attenuates systemic disease sequelae in severe acute pancreatitis: a randomized and controlled study.		I: Omega-3 fatty acids-supplemented parenteral nutrition C:PN standard O: infection morbidity, mortality, intensive care unit time, and length of hospital stay
55	NutriSup-PPN: A pilot randomized control trial of oral nutritional supplementation (ONS) and peripheral parenteral nutrition (PPN) in canadian, malnourished, hospitalized patients.	Mrkobrada M. et al.	P: Malnourished adult patients in non-ICU department I: Oral nutrition and LPN in 30 day C: Oral nutrition and PN O: nutritional status, length of stay in hospital, mortality
56	Administration of Free Amino Acids Improves Exogenous Amino Acid Availability when Compared with Intact Protein in Critically Ill Patients: A Randomized Controlled Study.	van Gassel RJ. et al.	P: ICU adult patients under mechanical ventilation I: EN with 20 g intrinsically L-[1-13C]-phenylalanine-labeled milk protein C: EN with equivalent number of amino acids labeled with free L-[1-13C]-phenylalanine O: Protein digestion and amino acid absorption kinetics and whole-body protein net balance were assessed throughout a 6-h period
57	Impact of n-3 fatty acid supplemented parenteral nutrition on hemostasis patterns after major abdominal surgery.	Heller AR. et al.	P: Patients after major abdominal surgery I: n-3 fatty acid supplemented PN C:PN standard O: Nutritional status, mortality
58	Clinical trial of treating stress-induced hyperglycemia patients with sepsis by supplementing QI, nourishing yin, and promoting blood flow.	Gao ZL. et al.	P: stress-induced hyperglycemia patients with sepsis I: supplementing QI, nourishing yin C: serum levels of CRP, TNF-alpha, IL-1 and IL-6
59	Intravenous glutamine supplementation to head trauma patients leaves cerebral glutamate concentration unaffected.	Berg A. et al.	P: Head trauma patients I:PN with glutamine C:PN standard O:Mortality

60	Superiority of a fish oil-enriched emulsion to medium-chain triacylglycerols/long-chain triacylglycerols in gastrointestinal surgery patients: a randomized clinical trial.	Wang J. et al.	P: Patients after GI surgery I: TPN with Ω-3 C: TPN with MCT/LCT O:Infections, mortality
61	Effectiveness and safety of two lipid emulsions for parenteral nutrition in postsurgical critically ill patients: Clinoleic® versus SMOFlipid®.	Martínez-Lozano Aranaga F	P: postsurgical critically ill patients I: Clinoleic® C: SMOFlipid® O: Infections
62	Effects of Early Enteral Glutamine Supplementation on Intestinal Permeability in Critically Ill Patients.	Shariatpanahi ZV. et al.	P: Critically ill patients I: EN with glutamine C: EN standard O: Intestinal tolerance
63	Preoperative non-selective administration of nutritional supplements to patients undergoing elective colorectal resection - standard of perioperative care?	Tesař M. et al.	P: Patients undergoing elective colorectal resection I: ONS C: Standard care O: Postoperative biomarkers, length of hospital stay
64	Short-term infusion of a fish oil-based lipid emulsion modulates fatty acid status, but not immune function or (anti)oxidant balance: a randomized cross-over study.	Versleijen MW. et al.	P: Critically ill patients with sepsis or trauma I:PN with fish oil C:PN with soybean oil O: fatty acid incorporation, immune functions and (anti)oxidant balance
65	Adapted ERAS Pathway Versus Standard Care in Patients Undergoing Emergency Surgery for Perforation Peritonitis-a Randomized Controlled Trial.	Pranavi AR. et al.	P: Patients after emergency surgery due to peritonitis I: EEN C: Standard care

			O: Mortality
66	Clinical nursing application of parenteral nutrition combined with enteral nutrition support in neurosurgery.	Huang M. et al.	P: patients in neurosurgery department after surgery I: EN+PN C:PN O: Survival
67	Impact of supplemental parenteral nutrition early during critical illness on invasive fungal infections: a secondary analysis of the EPaNIC randomized controlled trial.	De Vlieger G. et al.	P: Critically ill ICU patients I: EPN C: LPN O: Effect on fungal nosocomial infections
68	Influence of Early versus Late supplemental ParenteraL Nutrition on long-term quality of life in ICU patients after gastrointestinal oncological surgery (hELPLiNe): study protocol for a randomized controlled trial.	Piwowarczyk P. et al.	P: ICU patients after major tumor resection I: EN+EPN C: EN+LPN O: Mortality, nutritional status
69	Glutamine and antioxidants in the critically ill patient: a post hoc analysis of a large-scale randomized trial.	Heyland DK. et al.	P: Critically ill patients in ICU I1: EN+PN of glutamine 12: EN+PN of antioxidants I3: EN+PN of glutamine and antioxidants C: Standard EN +PN
70	Regulation of omega-3 fish oil emulsion on the SIRS during the initial stage of severe acute pancreatitis.	Xiong J. et al.	P: Patients with severe acute pancreatitis I: iv fluids and iv Ω-3 fatty acids C: iv fluids O: Mortality

71	A supplemental intravenous amino acid infusion sustains a positive protein balance for 24 hours in critically ill patients.	Sundström Rehal M. et al.	P: Critically ill patients I: iv amino acids and measurement of serum protein levels at 3h and 24h of infusion O: Protein concentration
72	The effects of intravenous, enteral and combined administration of glutamine on malnutrition in sepsis: a randomized clinical trial.	Koksal GM. et al.	P: ICU patients with sepsis I1: iv glutamine 12: EN enriched glutamine I3: EN enriched glutamine and iv supplementation C: EN standard O: nitrogen balance, creatinine levels
73	Reducing In-Hospital and 60-Day Mortality in Critically Ill Patients after Surgery with Strict Nutritional Supplementation: A Prospective, Single-Labeled, Randomized Controlled Trial.	Kim EY. et al.	P: Critically ill adult patients I: EN enriched with proteins C: EN standard O: Mortality, length of hospitalization
74	Enteral Omega-3 Fatty Acid, γ-Linolenic Acid, and Antioxidant Supplementation in Acute Lung Injury.	Rice W. et al.	P: Critically ill patients with lung injury I: EN with Ω3 fatty acids or antioxidants or γ-linolenic acid C: EN standard O: Mortality
75	Early use os supplemental parenteral nutrition in critically ill patients: Results of an international multicenter observational study,	Koutsogiannis,Alberta C. et al.	Observational study

76	Factors associated with the need of parenteral nutrition in critically ill patients after initiation of enteral nutrition therapy.	Lopez C. et al.	Observational study
77	The effect of continuous enteral nutrition on nutrition indices, compared to the intermittent and combination enteral nutrition in traumatic brain injury patients.	Mazaherpur S. et al.	P: Critically ill patients in ICU with brain injury I1: Intermittent EN I2: Continuous EN I3: Combination of them O: Mortality
78	Comparison of enteral nutrition with combined enteral and parenteral nutrition in post-pancreaticoduodenectomy patients: a pilot study.	Shigeyuki N. et al.	P: Patients after elective pancreaticoduodenectomy in surgery department due to carcinoma I: EN+PN C: EN O:Mortality
79	Effect of Early vs Late Supplemental Parenteral Nutrition in Patients Undergoing Abdominal Surgery A Randomized Clinical Trial.	Xuejin G. et al.	P: Patients after elective abdominal surgery I: EN+SPN C: EN+LPN O:Mortality
80	Energy requirements and the use of predictive equations versus indirect calorimetry in critically ill patients	Wichansawakun S. et al.	Narrative review

Supplementary Table S6: AMSTAR 2.0 tool for the assessment of the included systematic reviews

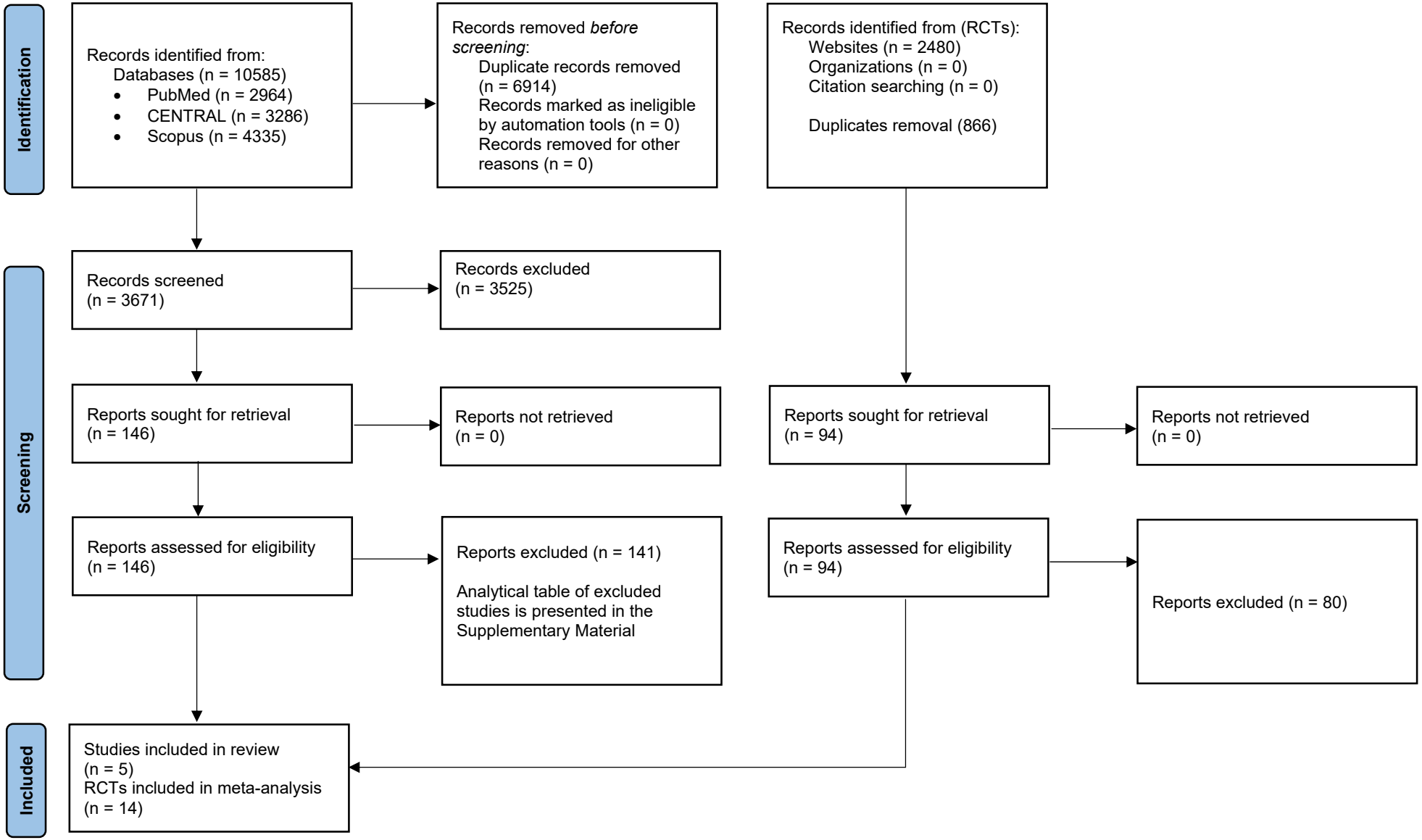
	Items																		Overall Quality
Study	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9 RCT**	**Q9 NRSI**	**Q10**	**Q11 RCT**	**Q11 NRSI**	**Q12**	**Q13**	**Q14**	**Q15**	**Q16**	
Alsharif et al., 2020	Y	Y	N	PY	Y	Y	Y	Y	N	NA	N	Y	NA	Y	Y	Y	N	Y	Critically Low
Dhaliwal et al., 2004	Y	Y	N	N	N	N	N	N	N	NA	N	N	NA	NA	NA	NA	NA	N	Critically Low
Hill et al., 2022	Y	Y	N	PY	Y	N	Y	PY	Y	NA	N	Y	NA	Y	Y	Y	N	Y	Low
Lewis et al., 2018	Y	Y	N	Y	Y	Y	Y	PY	Y	NA	Y	Y	NA	Y	Y	Y	Y	Y	High
Shi et al., 2018	Y	N	N	PY	N	N	PY	PY	Y	NA	N	Y	NA	Y	Y	Y	N	Y	Low
N: No; NA: Not Applicable; NI: No Information; NRSI: Non-Randomized Intervention Study; PY: Partial Yes; RCT: Randomized Controlled Trial; Y: Yes																			

Supplementary Table S7: Assessment of certainty of evidence according to GRADE

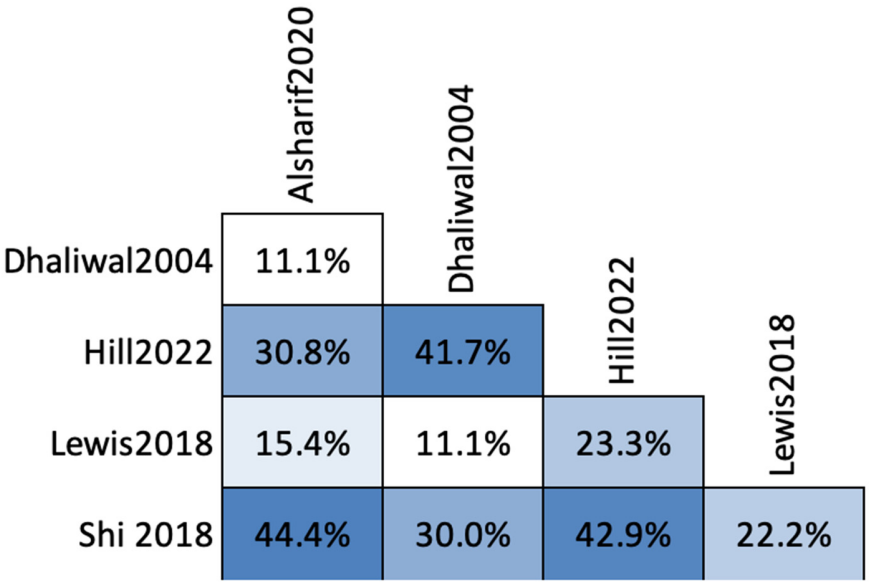
Supplementary Table S7: Assessment of certainty of evidence according to GRADE **Certainty assessment**							**No of patients**		**Effect**		**Certainty**	**Importance**
No of studies	**Study design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**EN+PN**	**EN**	**Relative (95%CI)**	**Absolute (95%CI)**		
Overall mortality												
12	RCTs	serious[a]	Not serious	Serious [b]	Not serious	-	2754	2797	RR 0.89 (0.72; 1.11)	-	+ - + - Low/Very low	-
ICU mortality in 30 days												
2	RCTs	serious[a]	Not serious	Serious [b]	Not serious	-	183	183	RR 0.66(0.42; 1.01)	-	+ - + - Low/ Very low	-
Overall hospitalization days												
10	RCTs	serious[a]	Not serious	Serious [b]	Not serious	-	2729	2765	-	MD 0.48 (-2.40; 3.36)	+ - + - Low/ Very low	-
LOS in ICU in days												
11	RCTs	serious[a]	Not serious	Serious [b]	Not serious	-	2741	2772	-	MD -0.19 (-1.19; 0.80)	+ - + - Low/ Very low	-
Duration of mechanical ventilation												
11	RCTs	serious[a]	Not serious	Serious [b]	Not serious	-	2741	2772	-	MD -0.52 (-1.38; 0.33)	+ - + - Low/ Very low	-

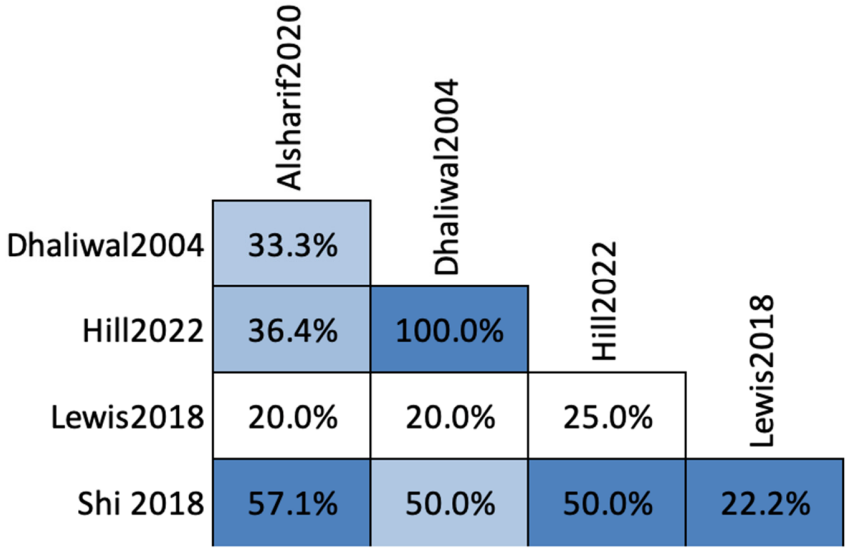
CI: confidence interval; **MD**: mean difference; **RR**: risk ratio; Explanations: a. Lack of allocation concealment and absence of pre-specified protocol. b. Patients with a variety of critical conditions.

Supplementary Figure S1: PRISMA flow diagram for the selection process of the systematic reviews.

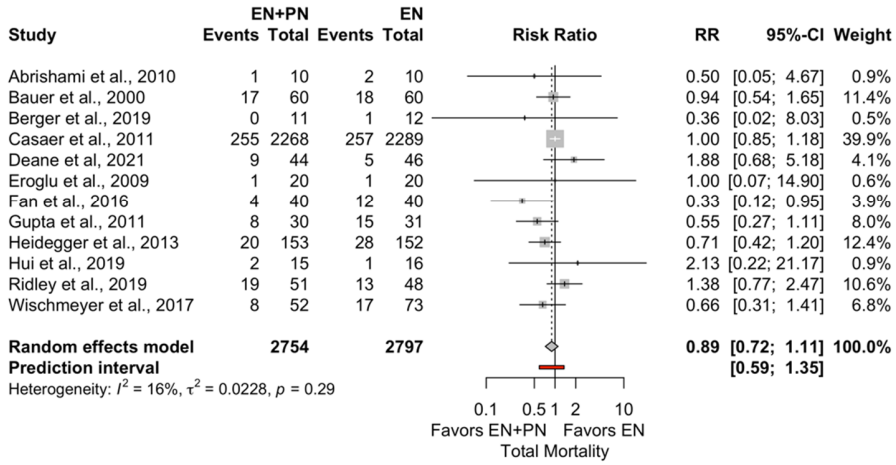


Supplementary Figure S2: Corrected covered area and corrected covered area after adjusting by structural zeros, respectively

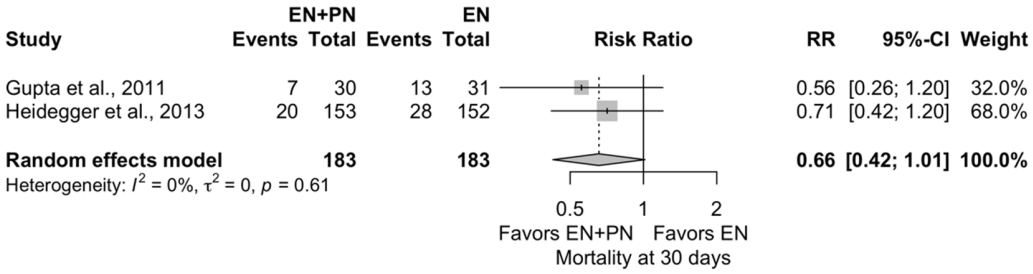




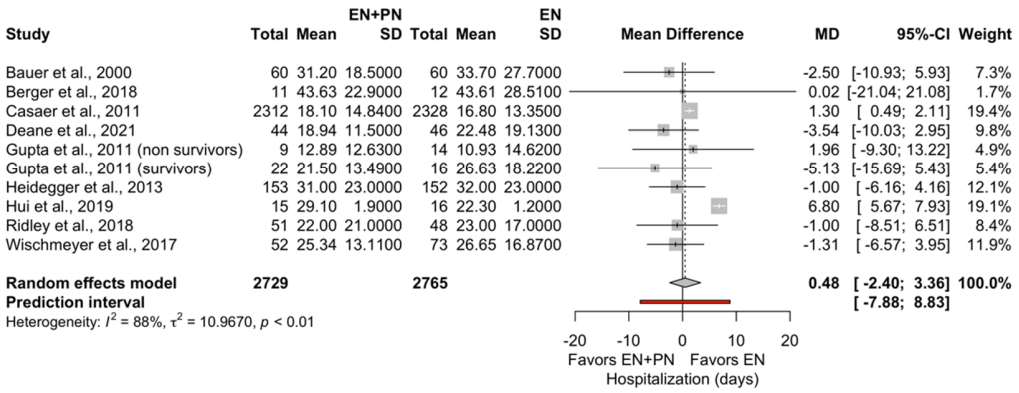
Supplementary Figure S3: Effect of EN+PN compared to EN alone on overall mortality



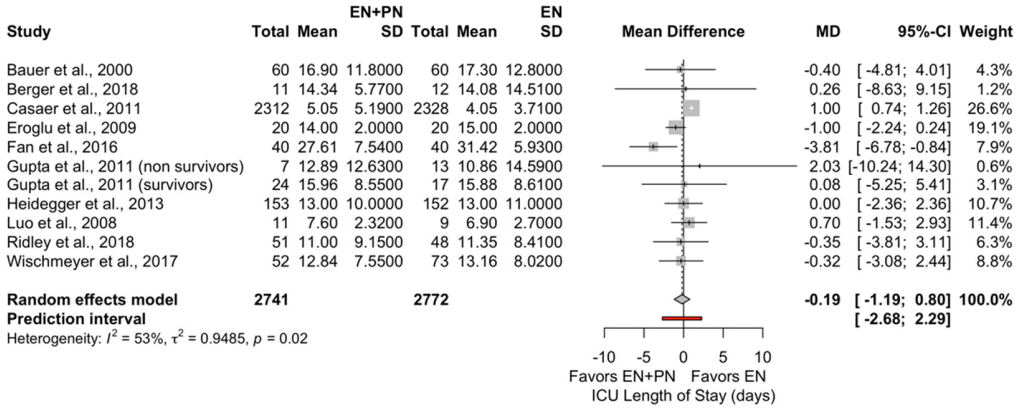
Supplementary Figure S4: Effect of EN+PN compared to EN alone on mortality in the ICU



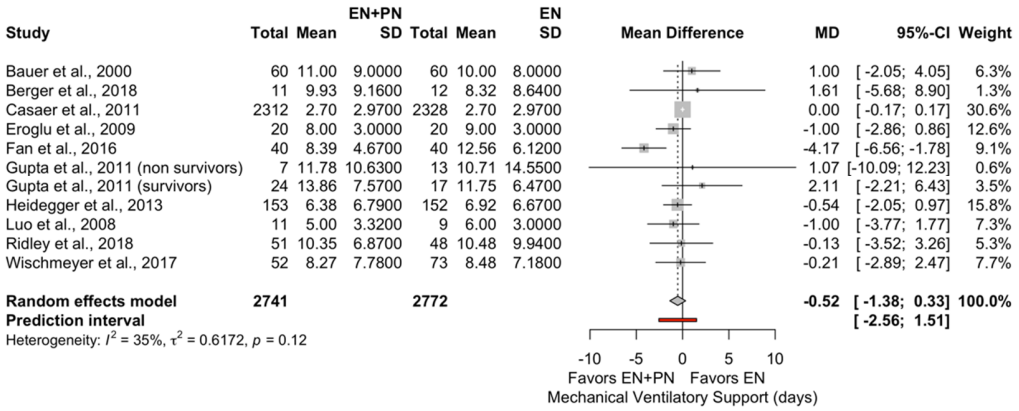
Supplementary Figure S5: Effect of EN+PN compared to EN alone on hospitalization



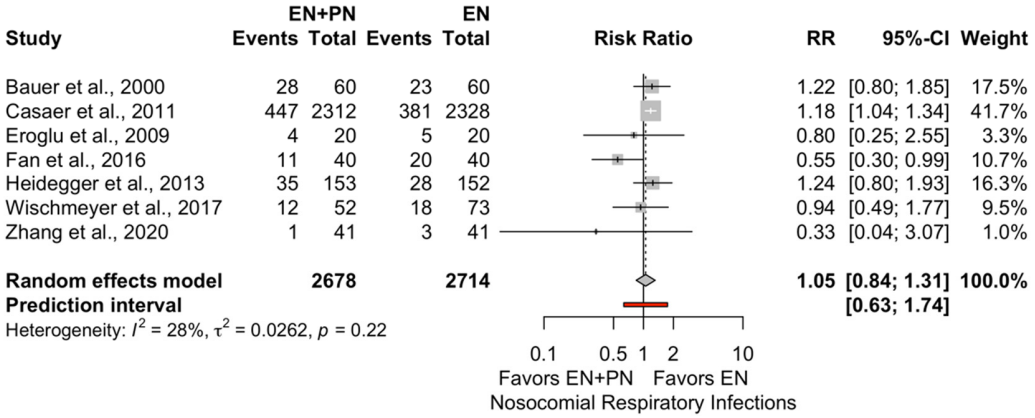
Supplementary Figure S6: Effect of EN+PN compared to EN alone on ICU length of stay



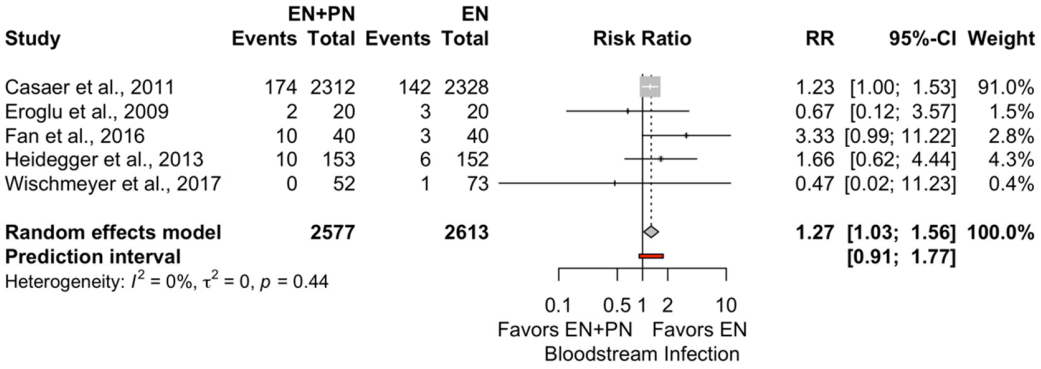
Supplementary Figure S7: Effect of EN+PN compared to EN alone on mechanical ventilation support days



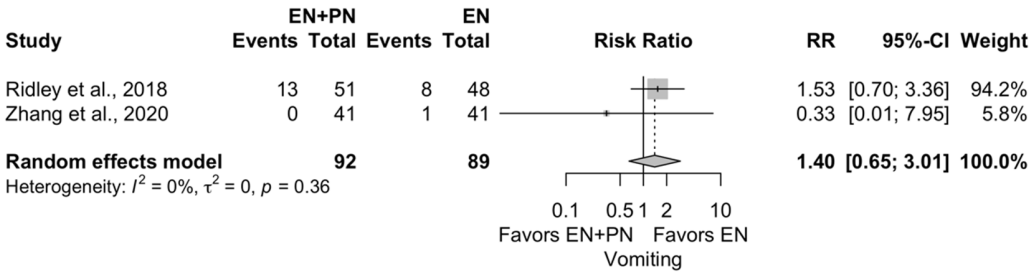
Supplementary Figure S8: Effect of EN+PN compared to EN alone on respiratory infections



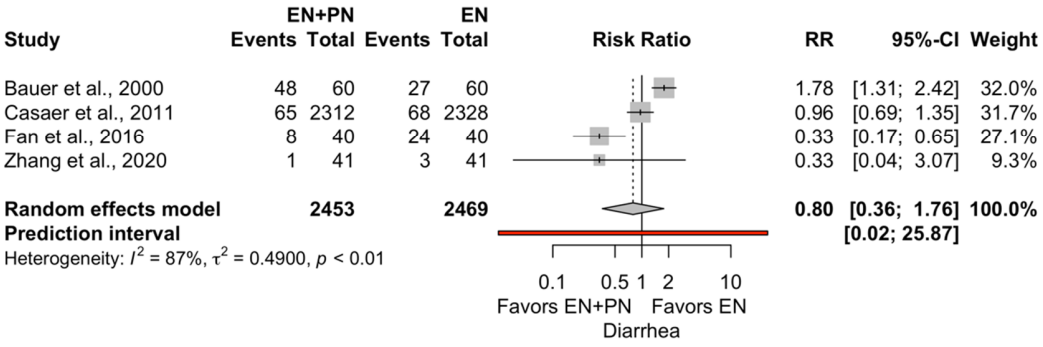
Supplementary Figure S9: Effect of EN+PN compared to EN alone on bloodstream infections



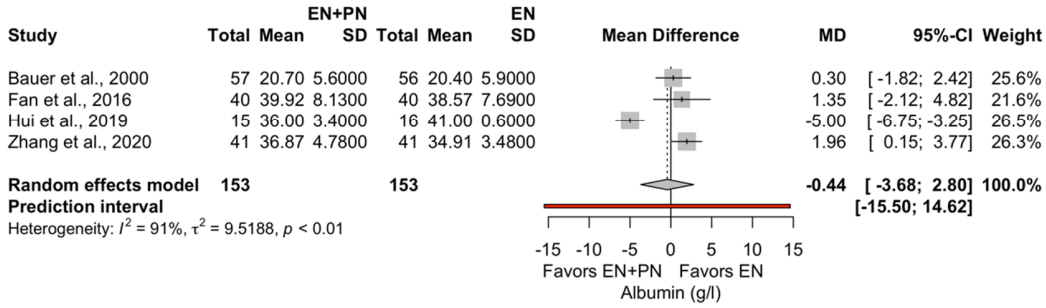
Supplementary Figure S10: Effect of EN+PN compared to EN alone on vomiting



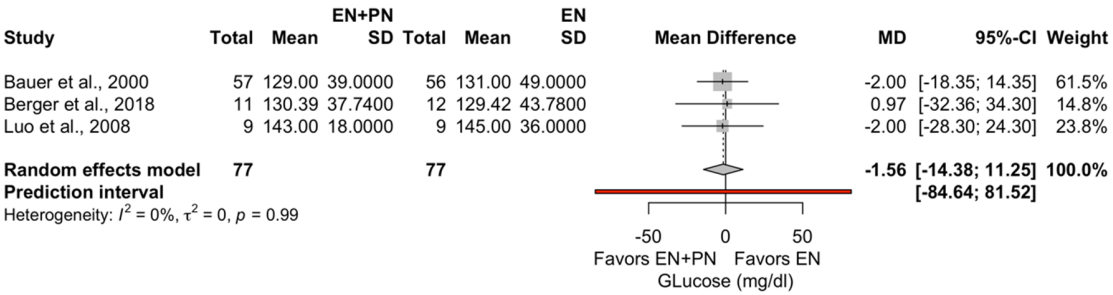
Supplementary Figure S11: Effect of EN+PN compared to EN alone on diarrhea



Supplementary Figure S12: Effect of EN+PN compared to EN alone on albumin (g/l)



Supplementary Figure S13: Effect of EN+PN compared to EN alone on glucose (mg/dl)



Supplementary Figure S14: Effect of EN+PN compared to EN alone on CRP (mg/l)

