Developing and Submitting Supportive Care Practice Guidelines to MASCC For Approval/Endorsement

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MASCC Multinational Association of Supportive Care in Cancer
ISOO International Society of Oral Oncology

#MASCC19

Presenters

Fred Ashbury, Chair, MASCC Guidelines Committee

Bernardo Rapoport, MASCC Guidelines Committee

June 23, 2019

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Support Care Cancer (2017) 25:303–308
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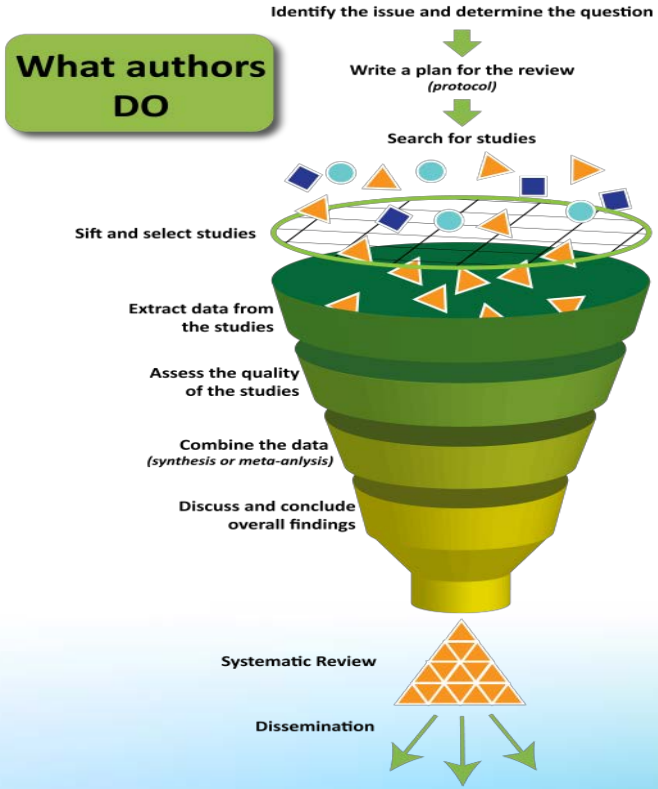
SPECIAL ARTICLE

2016 updated MASCC/ESMO consensus recommendations: prevention of nausea and vomiting following multiple-day chemotherapy, high-dose chemotherapy, and breakthrough nausea and vomiting

Lawrence H. Einhorn[1] · Bernardo Rapoport[2] · Rudolph M. Navari[3] · Jørn Herrstedt[4] · Mary J. Brames[1]

Cochrane graphic illustration of the systematic review process



What is a systematic review?

- "The application of strategies that limit bias in the assembly, critical appraisal, and synthesis of all relevant studies on a specific topic."

  Oxford Centre of Evidence Based Medicine (OCEBM) Levels Table

- Ensures that all available evidence is taken into account and minimises 'cherry-picking'

- Not performing SRs can be dangerous and/or unethical!

What is a systematic review?

- Uses *transparent* procedures to find, evaluate and synthesize the results of independent studies.
- Procedures are explicitly *defined in advance*, to assure that the process is *transparent* and can be *replicated*.
- This process is also designed to *minimize bias*.

Unique characteristics of a systematic review

- A systematic review must have:
  - *Clear inclusion and exclusion criteria*
  - *Explicit search strategy*
  - *Systematic coding and analysis of included studies*
  - *Meta-analysis (where possible)*

What is a meta-analysis?

- Optional component of a systematic review
  - *A statistical analysis of results from individual studies*
    - Increase power
    - Improve estimates of the size of the effect
    - Resolve uncertainty when reports disagree

What is a traditional review?

- Uses informal, unsystematic and subjective methods to collect, interpret, and summarize information.
  - *Searching, quality appraisal and data synthesis are often not documented.*
  - *Since scientific methods are not routinely used to identify, assess and synthesize information, assumptions cannot be easily verified.*
  - *Greater risk of author and selection bias*

Comparison of traditional and systematic reviews

Traditional review

- Subjective
- Broad question
- Methods unclear

Systematic review

- Objective
- Narrow question
- Methods clearly defined
- Studies appraised

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NHMRC
(National Health and Medical Research Council)

Level	Design
I	Systematic reivew of Randomized controlled trials (RCTs)
II	RCT
III- 1	A pseudo-randomised controlled trial
III- 2	A comparative study **with concurrent controls:** ▪ Non-randomised, experimental trial ▪ Cohort study ▪ Case-control study
III- 3	A comparative study **without concurrent controls:** ▪ Historical control study ▪ Two or more single arm study ▪ Interrupted time series without a parallel control group
IV	Case series with either post-test or pre-test/post-test outcomes
V	Expert opinion

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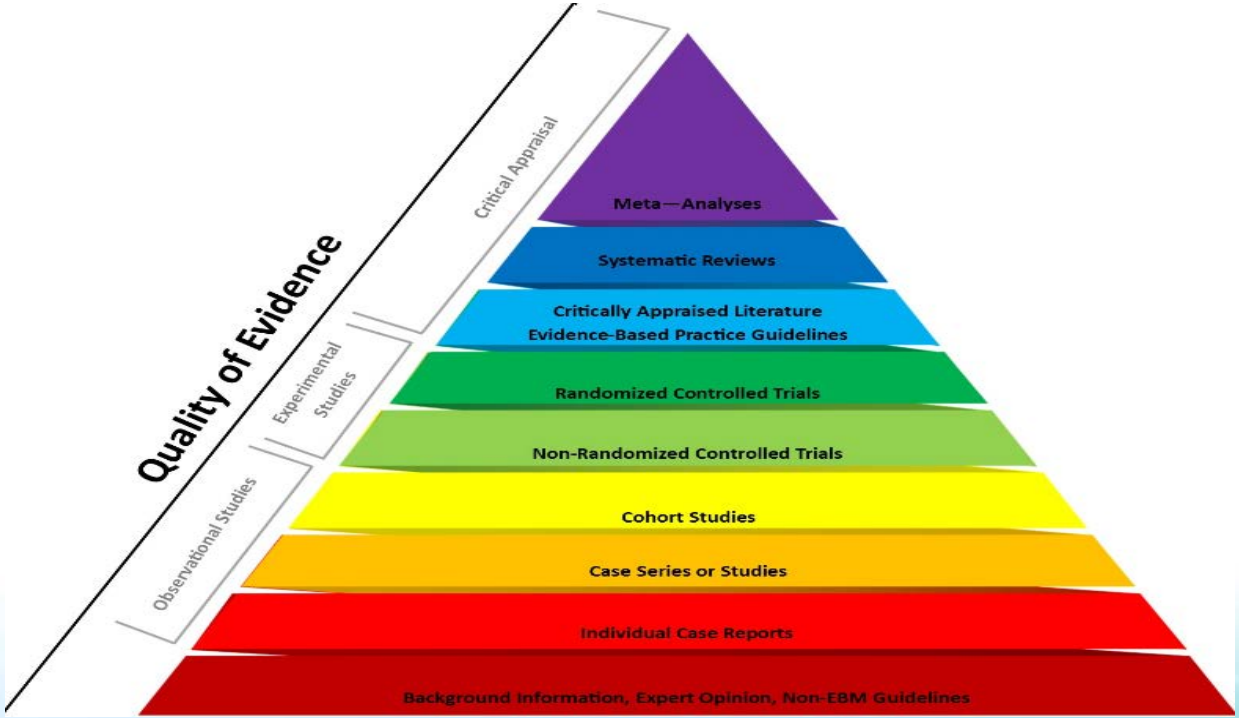
Oxford Centre for Evidence-based Medicine Levels of Evidence (March 2009)

Level	Therapy/Prevention, Aetiology/Harm
1a	SR (with homogeneity) of **RCTs**
1b	Individual RCT (with narrow Confidence Interval)
1c	All or none
2a	SR (with homogeneity) of **cohort studies**
2b	Individual cohort study (including low quality RCT; e.g., <80% follow-up)
2c	"Outcomes" Research; Ecological studies
3a	SR (with homogeneity) of **case-control studies**
3b	Individual Case-Control Study
4	**Case-series** (and poor quality cohort and case-control studies)
5	**Expert opinion** without explicit critical appraisal, or based on physiology, bench research or "first principles"

Evidence based pyramid



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Levels of Evidence

EBP and clinical practice guidelines

- Healthcare decisions should be informed by the best available research evidence.
  - Many guidelines rely on previously published systematic reviews
  - Practice guideline quality is dependent on rigorous systematic review methods and high quality primary studies
    - *Primary studies* ⟹
    - *Randomized controlled trials* ⟹
    - *Systematic reviews* ⟹
    - *Evidence based practice and clinical practice guidelines*

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Known and unknown areas of study

- SRs can show which treatments and prevention methods have been proven to work - and what remains unknown.
- SRs are important for pointing to areas where more research is needed.
- Systematic reviews are the basis for what is often called evidence-based medicine or health care.

Stages of a systematic review

Develop a focused research question
Define inclusion and exclusion criteria
Search the literature
Select studies
Assess study quality
Extract data
Analyze and present results
Interpret results and draw conclusions
Update as necessary

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FINER Criteria

- A research question should be:
  - *Feasible*
  - *Interesting*
  - *Novel*
  - *Ethical*
  - *Relevant*

PICO Framework

- A well-established format for structuring research questions is known by the acronym PICO.
  - *Patient or Population*
  - *Intervention or Indicator*
  - *Comparator or Control*
  - *Outcome*

Types of clinical research questions

- Many types of research questions can be expressed using PICO components.
  - *Therapy*
  - *Diagnosis*
  - *Prognosis*
  - *Etiology / Harm*
  - *Clinical Prediction Guides*

Inclusion and exclusion criteria

- One of the features that distinguish a systematic review from a traditional review is the *pre-specification* of inclusion and exclusion criteria.

Inclusion criteria

- Inclusion criteria are a combination of
  - *Aspects of the research question*
    - Population
    - Intervention
    - Comparison
    - Outcome
  - *Study type*
    - Randomized controlled trials
    - Observational studies

Search the literature

- The goal of the literature search is to discover ***all*** studies that meet the inclusion criteria
  - *Search comprehensively*
    - Terminology
    - Databases
  - *Search for grey literature*
    - Not commercially published
  - *Search for unpublished studies*
    - Reduce risk of publication bias

Recommended databases

- The Cochrane Collaboration recommends searching the following databases (at minimum):
  - *PubMed*
  - *EMBASE*
  - *Cochrane Central Register of Controlled Trials*

Supplementary databases

- Interdisciplinary databases
  - *Scopus*
  - *Web of Science*
- Specialized databases
  - *CINAHL Plus*
  - *PEDro: Physiotherapy Evidence Database*
  - *PsycINFO*

Search strategy

- The search strategy should be designed to identify the *maximum* number of studies relevant to the research question.
  - *The search strategy should be systematic, transparent and reproducible.*
  - *Database specific controlled vocabulary terms and all relevant text words should be included in the search strategy.*

Supplementary searching techniques

- Hand search selected journals and conference proceedings
- Conduct author searches for recent articles written by topic experts

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Unpublished and grey literature

- The inclusion of unpublished and grey literature may minimize the potential effects of *publication bias.*
  - *Publication bias*
    - Occurs when the outcome of an experiment or research study influences the decision about whether—or how quickly—the manuscript may be published

What is grey literature?

- Grey literature refers to academic, business, government or industry print or electronic literature that is not controlled by commercial publishers.
  - *Conference proceedings*
  - *Research reports*
  - *Government reports*
  - *Dissertations, theses*
  - *Research monographs*
  - *Organization websites*

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Sources of grey literature

- Conference proceedings
  - *EMBASE*
  - *Scopus*
  - *Web of Science*
  - *Google*

Sources of unpublished literature

- Clinical trials
  - *ClinicalTrials.gov*
  - *Centerwatch.com*
  - *EU Clinical Trials Register*
  - *ISRCTN Registry*
  - *OpenTrials*
  - *WHO International Clinical Trials Registry Platform*

Compile search results

- Compile search results using reference management software (EndNote or Mendeley)
- Remove duplicate records

Document search process

- Document the search process
  - *Databases*
  - *Dates searched*
  - *Search strategies*
  - *Limits (date ranges, publication types, language restrictions)*

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Select studies

- Identification of studies meeting inclusion criteria should be done independently by two review authors.
  - *Review titles and abstracts of retrieved citations.*
  - *Review full text of studies which are found to meet the inclusion criteria.*
  - *Keep a record of reasons for inclusion or exclusion.*

Analyze and present results

- The findings from individual studies are aggregated to produce a type of *evidence synthesis* appropriate to the type of data within the review.
  - *Narrative synthesis – findings are summarized and explained in words*
  - *Quantitative/statistical synthesis – data from individual studies are combined statistically and then summarized (meta-analysis)*

Tables and Figures

- Tables and figures are used to present included studies and their findings in a systematic and clear format.
  - *Flow diagram*
  - *Summary of findings table*
  - *Forest plot*

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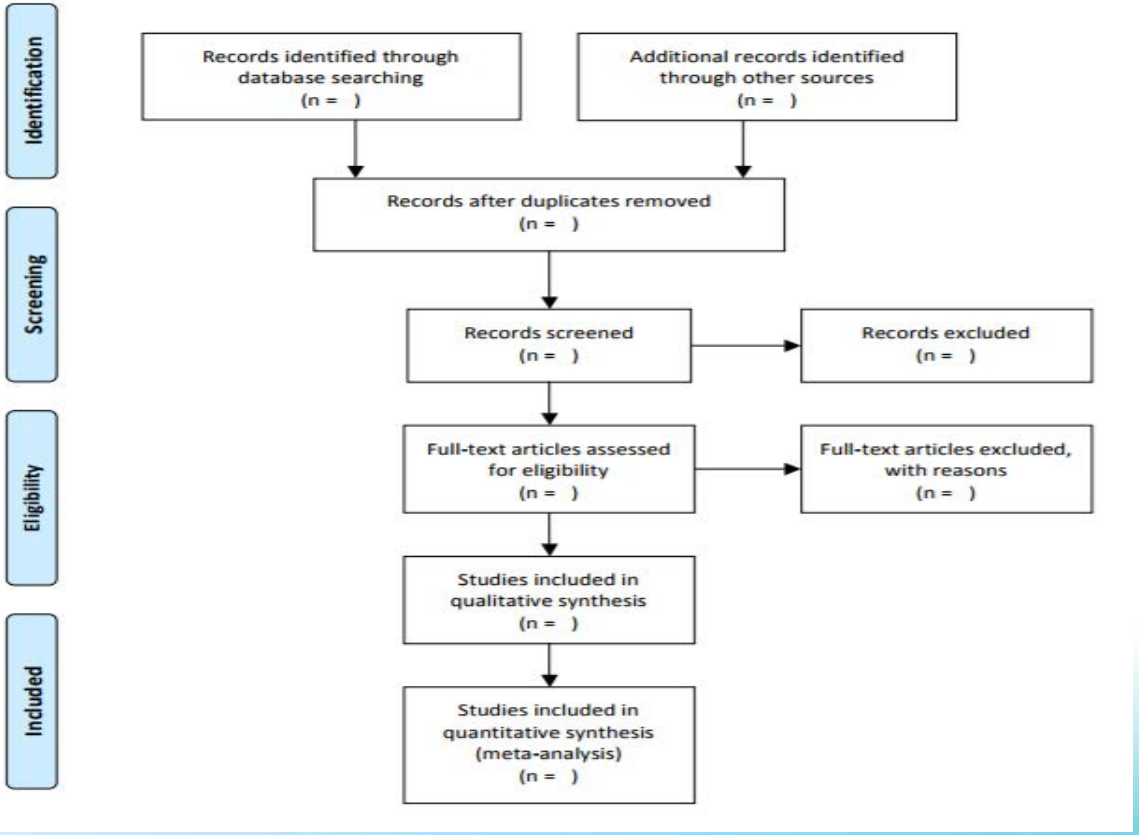
Tools for sorting

- Tools for sorting
  - *Reference management software*
    - EndNote
  - *New web application*
    - Rayyan
  - *Excel*

PRISMA Flow diagram

- PRISMA Flow diagram
  - *Depicts the flow of information through the different phases of a systematic review*
  - *Documents the number of studies that remain after each stage of the selection process*
  - *Maps the number of studies identified, included and excluded, and the reasons for being excluded*
  - *PRISMA Flow Diagram Generator*



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Summary of findings table using GRADE methodology

HDR vs. LDR brachytherapy for oral cancer

Patient or population: patients with oral cancer
Settings:
Intervention: HDR
Comparison: LDR

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk LDR	Corresponding risk HDR				
local recurrence Follow-up: median 61.4 months	**Study population**		**RR 1.13** (0.54 to 2.35)	390 (5 studies)	⊕⊕⊕⊖ **moderate**	
	203 per 1000	**229 per 1000** (110 to 477)				
	Moderate					
mortality Follow-up: median 61.4 months	**Study population**		**RR 1.00** (0.73 to 1.39)	390 (5 studies)	⊕⊕⊕⊖ **moderate**	
	326 per 1000	**326 per 1000** (238 to 453)				
	Moderate					
grade 3/4 complication Follow-up: median 45.6 months	**Study population**		**RR 0.91** (0.68 to 1.22)	407 (5 studies)	⊕⊕⊖⊖ **low**	
	332 per 1000	**302 per 1000** (226 to 405)				
	Moderate					

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio;

GRADE Working Group grades of evidence
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

Support Care Cancer (2017) 25:303–308
DOI 10.1007/s00520-016-3449-y

SPECIAL ARTICLE

2016 updated MASCC/ESMO consensus recommendations: prevention of nausea and vomiting following multiple-day chemotherapy, high-dose chemotherapy, and breakthrough nausea and vomiting

Lawrence H. Einhorn[1] · Bernardo Rapoport[2] · Rudolph M. Navari[3] · Jørn Herrstedt[4] · Mary J. Brames[1]

Purpose

This review summarizes the recommendations for the prophylaxis of acute and delayed nausea and vomiting induced by multiple-day chemotherapy, high-dose chemotherapy, and breakthrough nausea and vomiting as agreed at the MASCC/ESMO Antiemetic Guidelines update meeting in Copenhagen in June 2015.

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Methods

- A systematic literature search using PubMed from January 01, 2009 through January 06, 2015 with a restriction to papers in English was conducted.

Methods

- A number of searches were made for high-dose chemotherapy and stem cell transplantation, multiple-day chemotherapy, and breakthrough nausea and vomiting.

- The first search consisted of (high-dose chemotherapy or multiple-day chemotherapy or stem cell transplantation) and (emesis or CINV or chemotherapy-induced nausea and vomiting or nausea) and prophylaxis.

Methods

A second search was done using the key words: (ondansetron or granisetron or dolasetron or tropisetron, or palonosetron or ramosetron or azasetron or metoclopramide or domperidone or metopimazine or prochlorperazine or olanzapine or aprepitant or fosaprepitant or netupitant or rolapitant or casopitant) and (high dose chemotherapy or multiple-day chemotherapy).

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Methods

A third search was done using the keywords prophylaxis and nausea and vomiting and stem cell transplant.

Methods

The first search resulted in 52 hits, the second in 25 hits, and the third in 34 hits with a total of 111 references. The search was filtered to clinical trials. A total of 40 references was identified.

Methods

- The search was filtered to clinical trials.
- A total of 40 references was identified.
- We used a total of 12 Clinical Trials in this guideline update.
- There are three phase III randomized trials in patients undergoing high-dose chemotherapy and stem cell transplant and eight single arm non-randomized clinical studies (seven in patients undergoing transplantation and one in patients receiving multiple-day chemotherapy treatment)

Methods

- A separate search was conducted to identify studies looking at chemotherapy-induced nausea and vomiting for germ cell tumor patients undergoing treatment with multiple-day cisplatin-based chemotherapy. In this search, three studies were identified
- One phase III study and two single arm studies

Methods

A separate search was conducted for breakthrough nausea and vomiting using the following keywords: (ondansetron or granisetron or dolasetron or tropisetron, or palonosetron or ramosetron or azasetron or metoclopramide or domperidone or metopimazine or prochlorperazine or olanzapine or aprepitant or fosaprepitant or netupitant or rolapitant or casopitant)

Results

Table 1 Prevention of nausea and vomiting following multiple-day chemotherapy, high-dose chemotherapy, and breakthrough nausea and vomiting

Chemotherapy	Recommendations		MASCC level of scientific confidence/level of consensus	ESMO level of evidence/ grade of recommendation
	Old	New		
Multiple-day cisplatin chemotherapy				
Acute	5-HT_3 + Dex	5-HT_3 + Dex + Apr	Moderate/moderate	II/B
Delayed	Dex	Dex + Apr[a]		
Breakthrough	None	Olanzapine[b]	Moderate/moderate	II/B
High-dose chemotherapy for stem cell transplant	5-HT_3 + Dex	5-HT_3 + Dex + Apr	High/high	I/A

Conclusions

Only a few studies have been published on the prophylaxis of acute and delayed nausea and vomiting induced by high-dose chemotherapy, multiple-day chemotherapy, and breakthrough nausea and vomiting since the 2009 consensus conference.

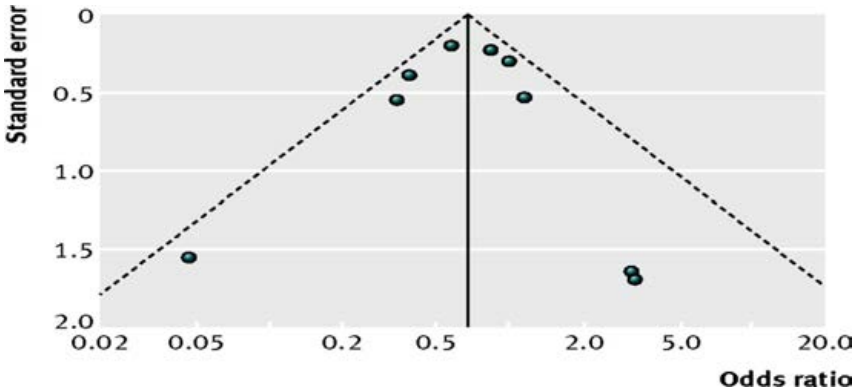
PICO Framework

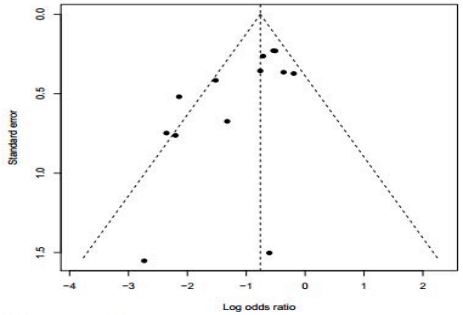
- A well-established format for structuring research questions is known by the acronym PICO.
  - *Patient or Population*
  - *Intervention or Indicator*
  - *Comparator or Control*
  - *Outcome*

Publication bias

- Often happens because smaller (n and effect size) studies not submitted/rejected, selective reporting, selective citation (of +ve results)
- Funnel plots help identify if there is a bias:
  - Treatment effect vs. study size
  - Smaller the study = wider the effects
  - Largest studies will be near the average (truth), small studies will spread on both sides = symmetric funnel
  - Asymetric funnel indicates publication bias – but not all the time (e.g. heterogeneity)
  - Interpretation difficult if only a few studies in meta-analysis

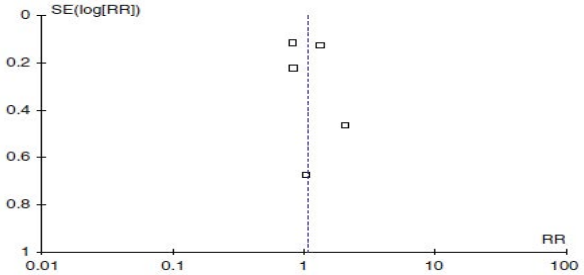
Funnel plots





⇒ hints for publication bias

Knee Surg Sports Traumatol Arthrosc (2010) 18:304–311



RR – Relative risk

SE (log[RR]) – standard error via logarithmic transformation of relative risk

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PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	

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

Items for Systematic Reviews and Meta-Analyses

- *From:* Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097
- For more information, visit: **www.prisma-statement.org**.

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ABSTRACT

Purpose

To provide an updated joint ASCO/Infectious Diseases Society of American (IDSA) guideline on outpatient management of fever and neutropenia in patients with cancer.

Methods

ASCO and IDSA convened an Update Expert Panel and conducted a systematic review of relevant studies. The guideline recommendations were based on the review of evidence by the Expert Panel.

Results

Six new or updated meta-analyses and six new primary studies were added to the updated systematic review.

Recommendation

Clinical judgment is recommended when determining which patients are candidates for outpatient management, using clinical criteria or a validated tool such as the Multinational Association of Support Care in Cancer risk index. In addition, psychosocial and logistic considerations are outlined within the guideline. The panel continued to endorse consensus recommendations from the previous version of this guideline that patients with febrile neutropenia receive initial doses of empirical antibacterial therapy within 1 hour of triage and be monitored for ≥ 4 hours before discharge. An oral fluoroquinolone plus amoxicillin/clavulanate (or clindamycin, if penicillin allergic) is recommended as empirical outpatient therapy, unless fluoroquinolone prophylaxis was used before fever developed. Patients who do not defervesce after 2 to 3 days of an initial, empirical, broad-spectrum antibiotic regimen should be re-evaluated and considered as candidates for inpatient treatment.

THE BOTTOM LINE

Outpatient Management of Fever and Neutropenia in Adults Treated for Malignancy: American Society of Clinical Oncology and Infectious Diseases Society of America Clinical Practice Guideline Update

Guideline Question

Which patients with fever and neutropenia can be treated as outpatients, and what are the appropriate interventions for these patients?

Target Population

Patients with cancer who require treatment of fever and neutropenia.

Target Audience

Oncologists, infectious disease specialists, emergency medicine physicians, nurses, and advanced practice providers who may treat patients with neutropenia resulting from cancer treatment.

Methods:

An Expert Panel was convened to develop update clinical practice guideline recommendations based on a systematic review of the medical literature.

Key Recommendations for outpatient management of fever and neutropenia are outlined in Figure 1. Additional details regarding the quality of evidence and strength of recommendations are included with the Recommendations section.

Introduction

- In 2013, ASCO released a guideline on antimicrobial prophylaxis for febrile neutropenia, as well as recommendations for identifying patients with fever and neutropenia who may be treated as outpatients.
- IDSA's *Clinical Practice Guideline for the Use of Antimicrobial Agents in Neutropenic Patients with Cancer* was released in 2011.
- Antimicrobial prophylaxis recommendations are not included in this guideline update, and will be updated in a forthcoming separate ASCO/IDSA guidance document.
- The decision to address these two topics in separate guidelines was made in order to make the recommendations clearer and easier to use for clinicians.

ASCO & IDSA Guideline Development Methodology

The guideline development process includes:

- a systematic literature review by ASCO guidelines staff
- an expert panel provides critical review and evidence interpretation to inform guideline recommendations
- final guideline approval by ASCO CPGC, the IDSA Standards and Practice Guidelines Committee, and Board of Directors

The full guideline methodology supplement can be found at:
www.asco.org/supportive-care-guidelines

Clinical Questions

1. What is the recommended initial diagnostic approach for patients with fever who are seeking emergency medical care within 6 weeks of receiving chemotherapy?

2. Which patients with febrile neutropenia are at low risk of medical complications and are therefore candidates for outpatient management?

3. What psychosocial and logistic recommendations must be met in order for patients to be eligible for outpatient management?

4. Should patients with fever and neutropenia who are appropriate candidates for outpatient management receive their initial dose(s) of empirical antimicrobial(s) in the hospital or clinic and be observed, or can they be discharged immediately after evaluation?

5. What antimicrobials are recommended for outpatient empirical therapy in patients with febrile neutropenia?

6. If low-risk outpatients with febrile neutropenia do not defervesce after two to three days of an initial empirical broad-spectrum antibiotic regimen, should they be considered for hospitalization or continue to be managed on an outpatient basis?

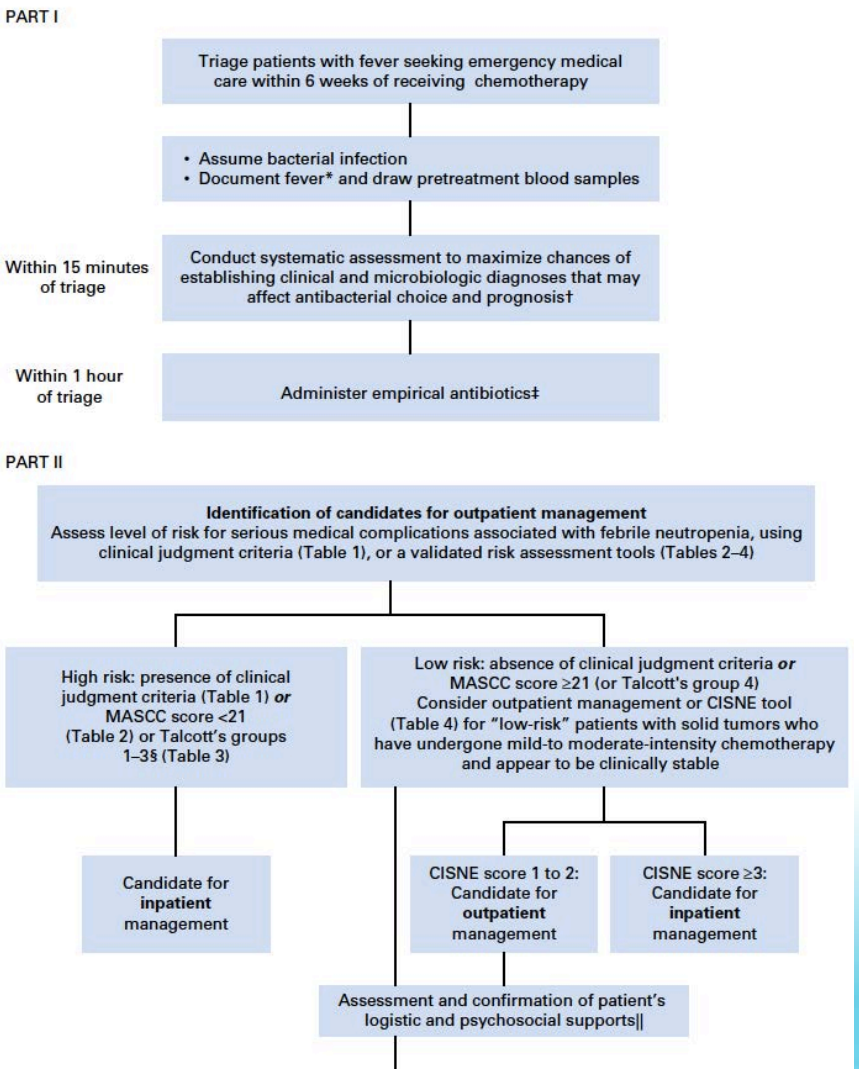
Target Population and Audience

Target Population

Patients with cancer who require treatment for fever and neutropenia.

Target Audience

Oncologists, infectious disease specialists, emergency medicine physicians, nurses and advanced practice providers who may treat patients with neutropenia resulting from cancer treatment.



Summary of Recommendations

CLINICAL QUESTION 1

What is the recommended initial diagnostic approach for patients with fever who are seeking emergency medical care within 6 weeks of receiving chemotherapy?

Recommendation 1.1

In the absence of an alternative explanation, clinicians should assume that fever in a patient with neutropenia from cancer therapy is the result of an infection. The initial diagnostic approach should maximize the chances of establishing clinical and microbiologic diagnoses that may affect antibacterial choice and prognosis. A systematic evaluation should include:

a. Complete history and physical examination to identify infectious foci.

b. Complete blood count with leukocyte differential count, hemoglobin and platelet count; serum electrolytes; serum creatinine and blood urea nitrogen; serum lactate; and liver function tests including total bilirubin, alkaline phosphatase, and transaminases.

Discussion

- This updated guideline includes the latest evidence on outpatient management of fever and neutropenia in adult patients undergoing treatment for malignancy.
- Guidance is provided to assist clinicians in identifying patients who may be candidates for outpatient management of fever and neutropenia, based on clinical criteria, and/or validated scoring systems.
- With the addition of very few new studies to the evidence-base, the Update Expert Panel continued to endorse previous recommendations related to the management of patients with fever and neutropenia including timing, and type of antibiotic administration, and other related recommendations.
- ASCO will continue to monitor the literature for new information and update this guideline at regular intervals.
- This update of the guideline focused on outpatient management of fever and neutropenia, whereas the previous version of this guideline also included recommendations for antimicrobial prophylaxis.

Additional Resources

More information, including a Data Supplement, a Methodology Supplement, slide sets, and clinical tools and resources, is available at

www.asco.org/supportive-care-guidelines

Patient information is available at www.cancer.net

ASCO Guideline Panel Members

Name (and designation)	Affiliation/Institution	Role/Area of Expertise
Eric J. Bow, MD	CancerCare Manitoba and the University of Manitoba, Winnipeg, MB	Infectious Diseases, Haematology/Oncology, Blood and Marrow Transplant
Jennie Crews, PGIN Representative	Seattle Cancer Care Alliance, Seattle WA	Practice Guidelines Implementation Network Representative
Christopher R. Flowers, MD, Co-Chair	Emory University School of Medicine, Atlanta, GA	Medical Oncology and Hematology
Charise Gleason, MSN, NP-C	Winship Cancer Institute, Atlanta GA	Oncology Nursing
Douglas K. Hawley, MD	University of Cincinnati Veterans Affairs Medical Center, Cincinnati, OH	Medical Oncology and Hematology
Amelia A. Langston, MD	Emory University School of Medicine, Altanta, GA	Medical Oncology and Hematology
Erin B. Kennedy	American Society of Clinical Oncology(ASCO)	ASCO Staff/Health Research Methodologist
Loretta J. Nastoupil, MD	MD Anderson Cancer Center, Houston, TX	Medical Oncology and Hematology
Michelle Rajotte, LMSW	The Leukemia and Lymphoma Society, Rye Brook, NY	Patient representative
Kenneth Rolston, MD	MD Anderson Cancer Center, Houston, TX	Infectious Diseases
Lynne Strasfeld, MD	Oregon Health and Science University, Portland, OR	Infectious Diseases
Randy A. Taplitz, MD, Co-Chair	UC San Diego Health, La Jolla, CA	Infectious Diseases

GUIDELINE IMPLEMENTATION

ASCO guidelines are developed for implementation across health settings. Barriers to implementation include the need to increase awareness of the guideline recommendations among front-line practitioners and survivors of cancer and caregivers, and also to provide adequate services in the face of limited resources. A reviewer of this guideline noted that implementation of some of these recommendations, such the initiation of a health care provider assessment within 15 minutes of triage, will be difficult given insufficient resources in busy emergency departments. The

Thank you!

- Any other questions?

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