

Key considerations when developing or updating older PEN content

1. Literature Search

- **Search Strategy** – document this on the [PEN Search Strategy worksheet](#). Develop a list of search terms used to answer the practice question and list databases that were searched. (See *example of a Search Strategy on pg. 5*)
 - Use PubMed MeSH Database to help you identify MeSH terms: <http://www.ncbi.nlm.nih.gov/mesh>
- **Filtered Literature Retrieval** - use a filtered literature approach for searching evidence. Look for systematic reviews, international guidelines, then recent primary research (not included in systematic reviews or guidelines). Narrative literature reviews can be used to summarize primary studies if no systematic review is identified.
 - PubMed Clinical Queries can help identify systematic reviews: <http://www.ncbi.nlm.nih.gov/pubmed/clinical>
 - TRIP database can help identify guidelines and reviews: <https://www.tripdatabase.com/>
- **International content** – Relevant international and national guidelines should be incorporated into evidence statements (applicable to all of our partner countries – Australia, Canada and the United Kingdom). This should include the recommendation and a description of the evidence for a recommendation.
 - Government guidelines: NHMRC (Australia), NICE (UK) and Health Canada
 - Clinical practice guidelines from national professional associations: Australian, Canadian and/or UK/European associations (e.g. cardiology, diabetes, gastroenterology, nephrology etc.)

2. Evidence - write an Evidence Statement for each article taking into consideration the following (see *example starting on pg. 3 under Evidence*):

- Type of study (# of studies for reviews)
- Population studied and # of subjects
- Intervention (or exposure) and comparison
- Key study results that answer the practice question – focus on patient important outcomes (e.g. mortality, morbidity, functional status, quality of life) rather than every reported outcome
 - Limitations – any notable sources of bias
 - Differentiate authors' conclusions and limitations from yours by re-citing the reference number after the authors' main conclusions/limitations and before you write your conclusions and critical appraisal.

3. Key Practice Points - now that all the evidence you are going to use has been summarized, develop the Key Practice Points (KPPs) as appropriate (you may include more than one KPP for each question to help organize the evidence).

Generally there will be two parts to the KPP: [Evidence Synthesis](#) and [Practice Guidance](#). Supporting research and/or evidence is provided in the Evidence Statements and additional details are provided in the Comments or Rationale sections. If the Evidence Synthesis is very practical, e.g. where there is a lack of scientific evidence and expert opinion or clinical practice guidelines are used, there may not be a need for a separate Practice Guidance section.

See *example of Key Practice Point with Evidence Synthesis and Practice Guidance on pg. 3*

- A. **Evidence Synthesis (ES)** should consist of clear statements reflecting the evidence used to answer the question. Clear language should be used when possible. References are not used - supporting research and/or evidence is provided in the Evidence Statements. When crafting the ES, consider including the following information (as summarized from the evidence):

- study design
- population (if guidance targets a specific group, e.g. age, gender)
- key conclusion/answer to the practice question – if applicable, specify dose/amounts (e.g. x amount of a supplement daily) and safety / adverse effects
- limitations of the evidence may be included if critical - in this case they would also be included in the evidence statements
- future research needed/suggested if critical to clarify or enhance the understanding of the issue

Evidence syntheses are given a Grade of Evidence using the [PEN® Evidence Grading Checklist](#). Note that if conclusions in the evidence synthesis have more than one grade of evidence, the grade should be indicated after each conclusion.

B. Practice Guidance (PG) includes the practical information needed to answer the practice question and guide practitioners. References are not used; however all content is derived from the Evidence, Comments and Rationale sections. Every effort should be made to use short sentences and clear language. The PG section should be written with the expectation that this content will be used by dietitians when explaining or discussing the topic with clients, or adapted for education materials such as handouts. Use techniques to enable ease of reading. For example, create white space by inserting line spaces between paragraphs to separate different topics, and use bullets for lists. The PG will be inserted into the toolkit, exactly as it is written and formatted in the KPP. The PG can include:

- context for the topic / issue (can include brief rationale or reasoning)
- recommendation/conclusion
 - Some information from the ES may be repeated here.
 - A few words to reflect the quality of the evidence informing practice guidance (e.g. “limited evidence suggests...”). Use wording consistent with PEN®’s Evidence Grading Checklist (Appendix 5)
- additional practical information such as pros and cons, benefits and risks (or indicate that safety has not been evaluated), convenience and burden, costs, nutrient information, patients’ value and preferences, health status, co-morbidities, lifestyle, culture etc.
- links to standard international collections (http://www.pennutrition.com/international_guidelines_collection.aspx) that help guide practice, as appropriate to the topic, such as Healthy Eating Guidelines and Dietary Reference Values.

4. **Comment and Rationale** – Include any comments (e.g. additional details related to the evidence) and rationale (e.g. proposed mechanism of action) if relevant. These sections will help inform the Practice Guidance sections of the Key Practice Points.
5. **References** –use the accepted PEN format. This is easily done by copying and pasting the PubMed reference and URL into your word document. If reference citation software is used, select ‘National Library of Medicine’ as the citation style and then add the PubMed URL. *See example references on pg. 4.*
6. Send an early draft of your work to your PEN mentor to get feedback before you go too far.
7. **Plagiarism** - when you sign your “contract / statement of work ” to be an author you are agreeing that you will not plagiarize content. You give assurances that proper acknowledgement of the work of others has been included in the PEN® content. Please read the [PEN Plagiarism Guidelines](#) before signing your author agreement:

EXAMPLE of a PEN QUESTION with Search Strategy

Q: In individuals with chronic obstructive pulmonary disease (COPD), which screening process can be used to identify nutritional risk?

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Key Practice Point

Evidence Synthesis

Few studies have examined the validity of nutrition screening tools in individuals with COPD. A multi-centre study that included hospitalized patients with COPD identified that NRS-2002 (Nutritional Risk Screening) and 'MUST' ('Malnutrition Universal Screening Tool') had high sensitivity, specificity and positive predictive value compared to comprehensive nutrition assessment by SGA (Subjective Global Assessment).

The European Respiratory Society statement on nutritional assessment in COPD indicates that nutritional risk scores are not appropriate for identifying nutritional risk in all individuals with COPD as they focus on malnutrition and do not take into consideration assessment of body composition changes (i.e. low fat-free mass).

[Search Strategy \(go to end of document\)](#)

[Grade of Evidence C](#)

Practice Guidance

NRS-2002 and 'MUST' screening tools have been shown to be the most valid nutrition screening tools in hospitalized patients (including adults with COPD). Since these tools are focused on identifying nutritional risk due to malnutrition, they may not identify individuals with COPD who are at nutritional risk due to low fat free mass (e.g. obesity, sarcopenia or sarcopenic obesity).

See Additional Content: [In individuals with chronic obstructive pulmonary disease \(COPD\), which nutrition assessment process can be used to diagnose nutritional risk?](#)

Evidence

- a. A systematic review (including studies published to 2012) examined the validity of nutrition screening tools for the general hospital setting (1). Since no 'gold standard' exists for the assessment of malnutrition, validity of the tools was assessed if the study compared the screening tool to: objective assessment by a professional, nutritional assessment and anthropometry, or to the nutritional assessment tools, MNA or SGA (See Comments). A total of 83 studies and 32 different nutrition screening tools were identified; of these only one study was conducted in patients with COPD (2). This study, conducted in Iceland, included 34 patients (44% male, mean age=73 years), randomly selected from 225 eligible inpatients admitted for disease exacerbation. Results showed that the Screening Sheet (See Comments) showed fair validity to nutritional assessment by a dietitian: sensitivity=69%; specificity=90%, positive predictive value=95%; negative predictive value=83% (2). The review authors concluded that no one nutrition screening tool is capable of adequate nutrition screening and predicting poor nutrition related outcomes in all patient populations (1). Additional studies are needed to compare different tools within one patient population.
- b. Not included in the aforementioned review (1), was a multi-centre study that evaluated nutritional risk in 400 hospitalized patients (60% male; mean age 67 years) (3). Of these, 10% were diagnosed with COPD and the main diagnoses for the other patients were: pneumonia (12%), heart failure (11%), abdominal surgery (10%), other surgery (13%), solid tumour (7%), neurological vascular disease (6%) and other medical diagnoses (12%). All patients underwent nutrition screening within 36 hours of admission using NRS-2002, 'MUST', MNA and SGA (See Comments). Compared to SGA, MNA showed a high sensitivity (95%; 95%CI, 91-99%); however, specificity was high for MUST (90%; 95%CI, 86-94%) and NRS-2002 (87%; 95%CI, 83-92%). Positive predictive value was also high for MUST (80%; 95%CI, 73-88%) and NRS-2002 (76%; 95%CI, 69-84%). The authors

concluded that 'MUST' and NRS-2002 showed good agreement with SGA and recommend that these tools be used for nutrition screening of hospitalized patients.

- c. A statement from the European Respiratory Society on nutritional assessment in COPD does not recommend nutrition screening tools since they are focused on malnutrition and do not identify abnormal body composition associated with different metabolic phenotypes of patients with COPD (e.g. obesity, sarcopenia, sarcopenic obesity) (4). The statement recommends that nutritional risk be assessed by longitudinal measures of body weight and body composition (i.e. fat-free mass/fat mass, abdominal fat and bone mineral density).

Comments

Nutrition screening is “a rapid, simple and general procedure used by nursing, medical or other staff, often at first contact with the patient, to detect those who have significant nutritional problems or significant risks of such problems, in order that clear guidelines for action can be implemented, e.g. simple dietary measures or referral for expert help” (5).

A nutrition screening tool is intended to indicate nutrition risk in order to identify those individuals requiring in-depth nutritional assessment by a professional (1). To assess the validity of a tool, it is generally compared to a gold standard; however, there is no universally accepted gold standard way of assessing nutrition risk.

'MUST' ('Malnutrition Universal Screening Tool'): examines weight, unintentional weight loss and presence of acute disease (each parameter is scored as 0, 1 or 2) (6). Individuals are categorized as low risk (0 points), medium risk (1 point) or high risk (≥ 2 points).

NRS-2002 (Nutritional Risk Screening): provides a score based on weight loss, BMI and food intake (1-3 points), severity of disease score (1-3 points) and age adjustment for >70 years (+ 1 point) (7). Individuals are categorized as no risk (≤ 3 points) or nutritional risk (>3 points).

References

1. van Bokhorst-de van der Schueren MA, Guaitoli PR, Jansma EP, de Vet HC. Nutrition screening tools: does one size fit all? A systematic review of screening tools for the hospital setting. *Clin Nutr.* 2014 Feb;33(1):39-58. doi: 10.1016/j.clnu.2013.04.008. Epub 2013 Apr 19. Abstract available from: <http://www.ncbi.nlm.nih.gov/pubmed/23688831>
2. Thorsdottir I, Gunnarsdottir I, Eriksen B. Screening method evaluated by nutritional status measurements can be used to detect malnourishment in chronic obstructive pulmonary disease. *J Am Diet Assoc.* 2001 Jun;101(6):648-54. Abstract available from: <http://www.ncbi.nlm.nih.gov/pubmed/11424543>
3. Velasco C, García E, Rodríguez V, Frias L, Garriga R, Alvarez J, et al. Comparison of four nutritional screening tools to detect nutritional risk in hospitalized patients: a multicentre study. *Eur J Clin Nutr.* 2011 Feb;65(2):269-74. doi: 10.1038/ejcn.2010.243. Epub 2010 Nov 17. Abstract available from: <http://www.ncbi.nlm.nih.gov/pubmed/21081958>
4. Schols AM, Ferreira IM, Franssen FM, Gosker HR, Janssens W, Muscaritoli M, et al. Nutritional assessment and therapy in COPD: a European Respiratory Society statement. *Eur Respir J.* 2014 Dec;44(6):1504-20. doi: 10.1183/09031936.00070914. Epub 2014 Sep 18. Abstract available from: <http://www.ncbi.nlm.nih.gov/pubmed/25234804>
5. National Institute for Health and Care Excellence (NICE). CG32: Nutrition support for adults: oral nutrition support, enteral tube feeding and parenteral nutrition; February 2006. Available from: <https://www.nice.org.uk/Guidance/CG32>
6. Malnutrition Advisory Group (MAG). Guidelines for detection and management of malnutrition. British Association for Parenteral and Enteral Nutrition: Redditch, UK; 2000. Available from: <http://www.bapen.org.uk/resources-and-education/education-and-guidance/guidelines>
7. Kondrup J, Allison SP, Elia M, Vellas B, Plauth M; Educational and Clinical Practice Committee, European Society of Parenteral and Enteral Nutrition(ESPEN). ESPEN

guidelines for nutrition screening 2002. Clin Nutr. 2003 Aug;22(4):415-21. Abstract available from: <http://www.ncbi.nlm.nih.gov/pubmed/12880610>



Search Strategy

Q: Is screening recommended to assess nutritional risk in patients with stable chronic obstructive pulmonary disease (COPD) and during acute exacerbation of COPD?

SEARCH TERMS

MeSH Terms

Pulmonary Disease, Chronic Obstructive
Nutrition assessment
Nutritional status
 Body composition
Body mass index
Malnutrition/diagnosis
Malnutrition/complications
Mass screening/instrumentation
Mass screening/methods
Thinness/complications
Obesity/complications
Sarcopenia/complications
Sarcopenia/diagnosis

Text Words

Chronic obstructive pulmonary disease
Nutrition assessment
Nutrition screening
Malnutrition

Databases and Grey Literature Sources (e.g. international guidelines)

Searched

PubMed
TRIP database

Date of Search

Date Search Completed: Aug 3, 2016
Date Range: 2012-2016