# Are cough augmentation techniques offered to people with motor neurone disease (pwMND) who cannot cough effectively?

# **Background**

pwMND experience difficulties with the respiratory system including swallowing, breathing and impaired cough (Hough, 2014). An audit tool was developed to evaluate if community physiotherapists are implementing current evidence based NICE guidelines of MND NG42 (2016) recommendation 1.13 for cough effectiveness.

### **Aims**

- To identify the five NICE recommendations for cough augmentation techniques which should be considered and offered to pwMND.
- 2. To establish which of the individual techniques were offered?
- 3. If cough augmentation techniques were not offered to classify reason for this.
- 4. If techniques are not being offered, to identify common themes that may be preventing implementation of the NICE guideline.
- 5. To formulate a plan to address any themes.





Author Dorinda Moffatt. Palliative Care Specialist Physiotherapist. Prospect Hospice. Email: dorindamoffatt@prospect-hospice.net

#### **Evaluation**

Audit completed for population of 20 pwMND in Swindon, Wiltshire. Results demonstrate up to 58% of pwMND are not being offered cough augmentation techniques as recommended in NICE guidance. Few physiotherapists feel confident and competent to carry out cough augmentation techniques, most commonly stating lack of confidence, skills, knowledge and resources as the main reasons. Many pwMND may experience a 'postcode lottery' when accessing domiciliary services. This appears to be the case for pwMND living in the Swindon area, as there is currently no community specialist respiratory service or pathway to receive comprehensive cough augmentation techniques or equipment to manage their respiratory symptoms.

Audit tool published on the NICE shared learning data base and available via: <a href="https://www.nice.org.uk/sharedlearning/audit-proposal-to-address-cough-augmentation-for-people-with-motor-neurone-disease-mnd-a-shared-resource-tool">https://www.nice.org.uk/sharedlearning/audit-proposal-to-address-cough-augmentation-for-people-with-motor-neurone-disease-mnd-a-shared-resource-tool</a>

Directhlessness, especially When lying flat (orthopnoea)   Tepeated Chest Infections   Direct Neurosci Disease NCE guideline NCE) (2016) assessment and management   Security Confections   Direct Structure (Annual Program of the Security Confections of Direct Structure (Annual Program of the Security Confections of Direct Structure (Annual Program of the Security Confection)   The Confection of Confection (Annual Program of the Security Confection (A			
Directifies, seep, especially when   ying flat (orthopnoea)			
Justice (orthophoea)   repeated chest infections     disturbed/non-refreshing sleep   nightmares     daytime sleepiness/fatigue     poor concentration/memory     confusion/hallucinations     morning headaches     Cough augmentation techniques offered to person with MND     Increased respiratory rate     shallow breathing     weak cough/sniff/hoole     stomach proves inwards     when breathing in (abdominal paradox)     daytime stephinal paradox)     store of accessory muscles     for breathing in reduced chest substantial standards     daytime standards     Signs     I. Memantanation techniques offered to person with MND     Increased respiratory rate     shallow breathing     weak cough/sniff/hoole     stomach moves inwards     when breathing in (abdominal paradox)     daytime standards     stomach moves inwards     when breathing in (abdominal paradox)     stored chest expansion on maximum inspiration     Reason Colincia (as a standard cough) augmentation techniques were not offered     stomach moves inwards     shallow breathing in (abdominal paradox)     shallow breathing in (abdo	, ·		Physical assistance given through abdominal increase cough effectiveness.
□ disturbed/non-refereshing seep □ nightmanse □ daytime sleepines/fatigue □ poor concentration/memory □ confusion/hallucinations □ morning headaches  Signs □ Cough augmentation techniques offered to person with MND  Tachiege □ YS □ Cough augmentation techniques offered to person with MND  Tachiege □ YS □ No Did  Tachiege □ No			Contraindications: paralytic illeus, internal abd damage, a bleeding gastric ulcer, unstable an arrhythmias, and spinal and rib fractures.
□ nightmares □ daytime sleepiness/fatigue □ poor concentration/memory □ confusion/hallucinations □ morning headaches  Signs □ increased respiratory rate □ shallow breathing □ weak cough/sniff/hoice □ stream which will be shallow breathing □ weak cough/sniff/hoice □ stream which will be shallow breathing in (abdominal paradox) □ use of accessory muscles for breathing in (abdominal paradox) □ use of accessory muscles for breathing □ reduced chest expansion on maximum inspiration  Resoon E Clinical essension for maximum inspiration  Resoon E List of inspiratory to a transporter Resoon E List of inspiratory to a transport to the softing section; Resoon E List of inspiratory to a transport to the softing section; Resoon E List of inspiratory to a transport to the softing section; Resoon E List of inspiratory to a transport to the softing section; Resoon E List of inspiratory to a transport to the softing section; Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E List of inspiratory to the softing section; Resoon E Resoon E List of inspiratory to the softing section; Resoon E Resoon E List of inspiratory to the softing section; Resoon E Resoon E List of inspiratory to the softing section; Resoon E Resoon E List of inspiratory to the softing section; Resoon E Resoon E List of inspiratory to the softing section; Resoon E Resoon E List of inspiratory to the softing section;	☐ disturbed/non-refreshing sleep	Date:	
□ daytime sleepiness/fatigue □ poor concentration/memory □ confusion/hallucinations □ morning headaches  Cough augmentation techniques offered to person with MHO  Signs □ increased respiratory rate □ shallow breathing □ weak cough/sniff/voice □ stomach moves inwards when breathing in (abdominal paradox) □ use of accessory muscles for breathing □ reduced chest expansion on maximum inspiration  Reson C. Cincile asserting for one appropriate Reson D. Meadage in a proportion of the surface Reson D. Meadage in a proportion of the surface Reson D. Meadage in a proportion of the surface Reson D. Meadage in a proportion of the surface Reson D. Meadage in a proportion of the surface Reson D. Meadage in a proportion of the surface Reson D. Meadage in a proportion of the surface Reson D. Meadage in a proportion of the surface Reson D. Meadage in a proportion of the surface Reson D. Medically res indicated, including containd culture Reson D. Medically res indicated culture Reson D. Medically res indicate	□ nightmares	Patient ID number:	deep breathing
□ poor concentration/memory □ confusion/hallunations □ morning headaches  Signs □ increased respiratory rate □ shallow breathing □ weak cough/sniff/voice □ stomach moves inwards when breathing in (abdominal paradox) □ use of accessory muscles for breathing □ reduced chest expansion on maximum inspiration  Resoon B  Resoon B  Resoon B  Resoon B  Resoon C  Resoon B  Resoon B  Resoon C  Resoon B	☐ daytime sleepiness/fatique		Caution: hyperventilation syndrome.
computation materials			A
Cough augmentation techniques offered to person with MMD Tacheige 15 Signs 15 No Tacheige 15 No	□ confusion/hallucinations		without exhaling to increase lung volume.
Cough augmentation techniques offered to person with MMD	□ morning headaches		ng Caution: hyperventilation syndrome.
Signs   Sign	2 morning reducties	Cough augmentation techniques offered to person with MND	
Increased respiratory rate   shallow breathing	Signs		hts without exhaling using a lung recruitment de
Shallow breathing	☐ increased respiratory rate	TILITADA INTERNATIONAL TRANSPORTATION TO THE PROPERTY OF THE P	n: as modified ambu-bag.
weak cough/sniff/voice   stormach moves invavals when breathing in (abdominal paradox)   1. Seasoned breath stacking   1. Seasoned breath stacking stacking stacking breath stacking sta		Manual assisted cough	Contraindications: extra-alveolar air, e.g. undra
S stomach moves inwards when breathing in (abdominal paradox) Uses of accessory muscles for breathing For breathin		2. ACBT – including huff	
(abdominal paradox)  Use of accessory muscles for breathing  Reasons code for why cough asymentation techniques were not offered to muscle accessory muscles for breathing  reduced chest expansion on maximum inspiration  Reason B Medically not reduced exhed exheding commanduations  Reason B Medically not reduced exheding commanduations  Reason C Closed inspirate defined exheding commanduations  Reason B Lick of through exheding technique  Reason B Lick of through exhe		Unassisted breath stacking	
(about mind part actors)  Use of accessory muscles for breathing □ reduced chest expansion on maximum inspiration  Reson A Parter decined Reson D Copyre impairment preventing differing strongue Reson D Copyre impairment output strongue Reson D Copyre impairment preventing differing strongue Reson D Copyre im	when breathing in	Assisted breath stacking	ing is A machine which applies gradual positive pre
□ use of accessory muscles for breathing □ reduced chest expansion on maximum inspiration  For health and social came provides a subsequent social came provides a reduced social came pr	(abdominal paradox)	Mechanical cough assist device	
for breathing reduced chest expansion on maximum inspiration Research Resea	☐ use of accessory muscles		1
Reson A   Reson B   Reson C   Reson B   Reson C   Reson B   Reson C   Reson B   Reso	for breathing	Reasons code for why cough augmentation techniques were not offered	undrained Pneumothorax or subcutaneous
On maximum inspiration  Reson B Medically not not deared, including contransicutions  Reson B Concell accept to the perspective professionals  Reson C Concell accepts the professionals  Reson C Concell accepts the person of th	□ reduced chest expansion	CODE REASON	
For health and social course from the first from th	on maximum inspiration	Reason A Patient declined	lung surgery, raised intracranial pressure, inab
Reaco D Cognitive Inquiriment preventing offering sochraque Reaco E Last of throught educations in the stringle Reaco E Last of throught educations in the stringle Reaco E Last of throught confidence is carry out stringle Reaco E Last of directions to carry out stringle Reaco E Last of directions to carry out stringle Reaco E Last of directions to carry out stringle Reaco E Last of directions to carry out stringle		Reason B Medically not indicated, including contraindications	communicate, and naemodynamic instability
professionals  Reson E Lack of therapet education in the technique  Reson E Lack of therapet education in the technique  Reson E Lack of therapet confidence to carry out technique  Reson H Other  Reson H Other	For health and	Reason C Clinical reasoning for not appropriate	
Resort E Led of throught selection in the schroque  Resort F Led of throught confidence you at turbique  Resort F Led of throught confidence you at turbique  Resort F Led of resource to carry out schroque  Resort Resort H Own  Resort Resort Resort H Own  Resort	social care	Reason D Cognitive impairment preventing offering technique	
Macon G Lack of recourses to carry out technique  Reason H Other  Reason H Other	piolessionals	Reason E Lack of therapist education in the technique	
motor neurone disease Reason H Other			
	mnca	Reason G Lack of resources to carry out technique	
		Reason H Other	

#### **Conclusion**

Overall the audit highlights the inconsistency in service provision. Cough augmentation techniques have been demonstrated to improve quality of life for pwMND. Therefore it is unacceptable that pwMND are having difficulty accessing the community respiratory services, support and equipment they require.

Although the audit focused on physiotherapists it is beneficial for all professionals who work with pwMND to be aware of signs of respiratory weakness so they can signpost appropriately.

## Recommendations

- 1. Audit tool available to evaluate local services.
- 2. Funding for a designated community specialist respiratory physiotherapist in Swindon.
- All health care professionals should be aware of the NICE guidance and how to clinically implement recommendations.
- All health care professionals should be aware of the Motor Neurone Disease Association respiratory checklist to identify signs and symptoms of respiratory weakness in pwMND.
- 5. Need to ensure pwMND are referred for respiratory assessment and support.

#### References

Hough, A. (2014) Physiotherapy in Respiratory and Cardiac Care: An evidence-based approach to respiratory management. 3rd ed. United Kingdom: Cengage Learning.

Motor Neurone Disease Association P6 (2016) Evaluation and management of respiratory symptoms in motor neurone disease (MND): A fact sheet for health care professionals. Northampton: MND Association. National Institute for Health and Clinical Excellence (2016) Motor Neurone Disease: assessment and management. NICE guideline (NG42)