

# Physiotherapy for people with Cystic fibrosis

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- Training in the UK
- CF services: UK and worldwide
- Physiotherapy for cystic fibrosis
- Airway clearance techniques
- Exercise and activity

# Physiotherapy training in the UK

- University degree (Bachelors or Masters of science)
- 3 years
- 1000 clinical hours
- Learning:
  - ✓ anatomy & physiology
  - ✓ Assessment & diagnosis
  - ✓ Cardiorespiratory
  - ✓ Neurology
  - ✓ Musculoskeletal
  - ✓ Critical thinking
  - ✓ Evidence based practice
  - ✓ Psychosocial factors
  - ✓ Dissertation/research



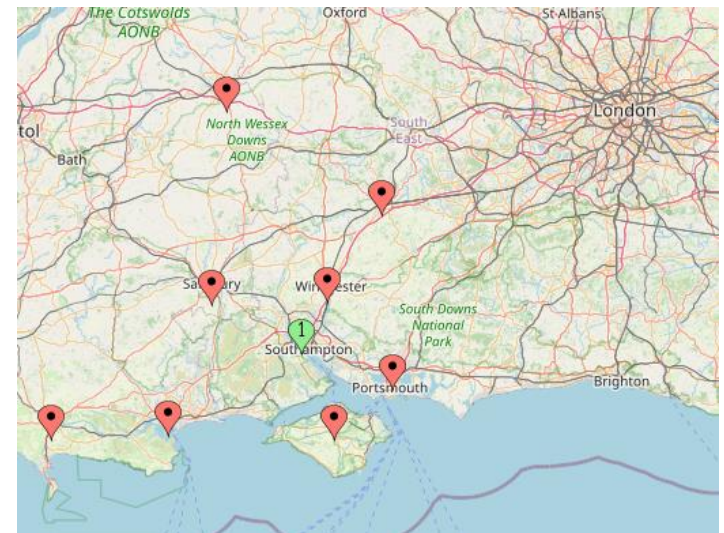
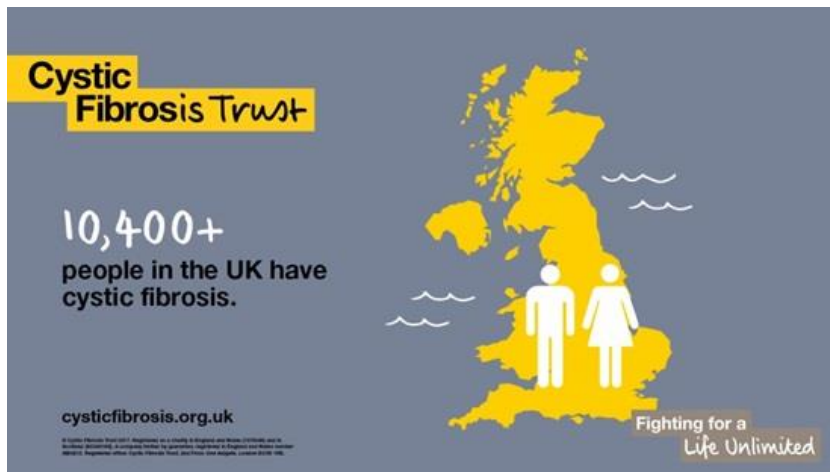
# Cystic fibrosis training

- Experience
- Masters level study encouraged
- Courses & Conferences:
  - ✓ The Brompton course
  - ✓ Association of Chartered Physiotherapists in CF meeting
  - ✓ Cystic Fibrosis Trust Conference
  - ✓ European Cystic Fibrosis Conference (ECFC)
  - ✓ North American Cystic Fibrosis Conference (NACFC)
  - ✓ Spirometry
  - ✓ General respiratory courses
  - ✓ Independent prescriber course



# Cystic fibrosis care in the UK

- **26 adult specialist centres**
  - ✓ All care managed & given by the specialist centre
- **29 paediatric specialist centres**
  - ✓ Network clinics with care managed by specialist centres & care given locally



# Global CF centre comparison

- Australia



Size: 7.69 million km<sup>2</sup>

Population: 25 million

CF centres: 14 adult, 11 paediatric

Number of patients: 3151

- Russia



Size: 17.1 million km<sup>2</sup>

Population: 147 million

CF centres: About 50

Number of patients: 3096

- UK



Size 0.24 million km<sup>2</sup>

Population: 67 million

CF centres: 26 adult, 29 paediatric

Number of patients: >10,500

# Standards & guidelines

## Cystic Fibrosis *our focus*

Standards for the Clinical Care of Children and  
Adults with cystic fibrosis in the UK

Second edition, December 2011

Fighting for a  
Life Unlimited

NICE National Institute for  
Health and Care Excellence



## Cystic fibrosis: diagnosis and management

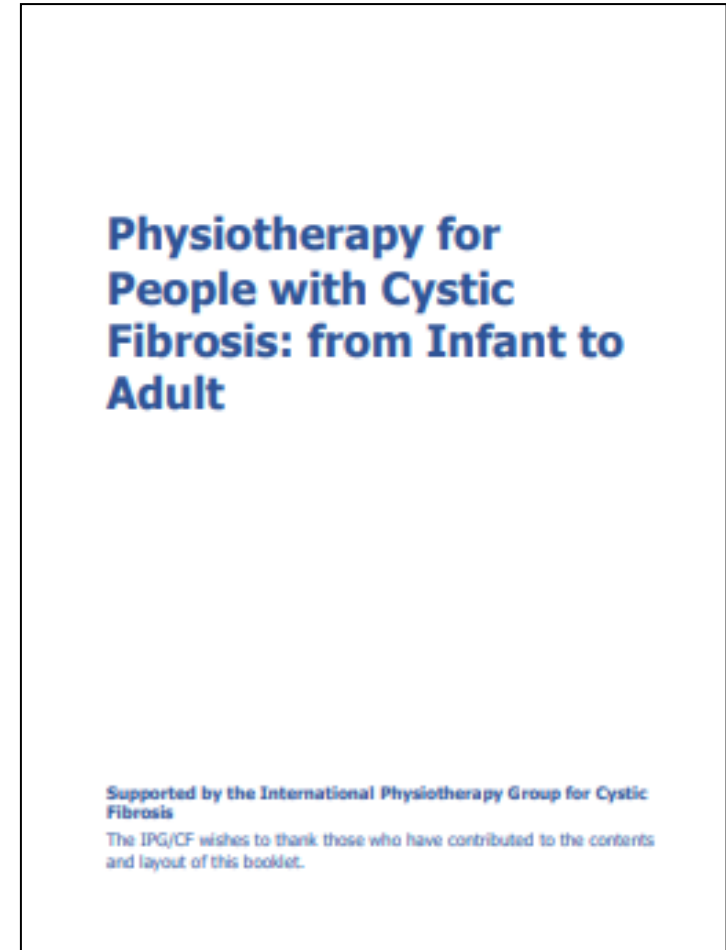
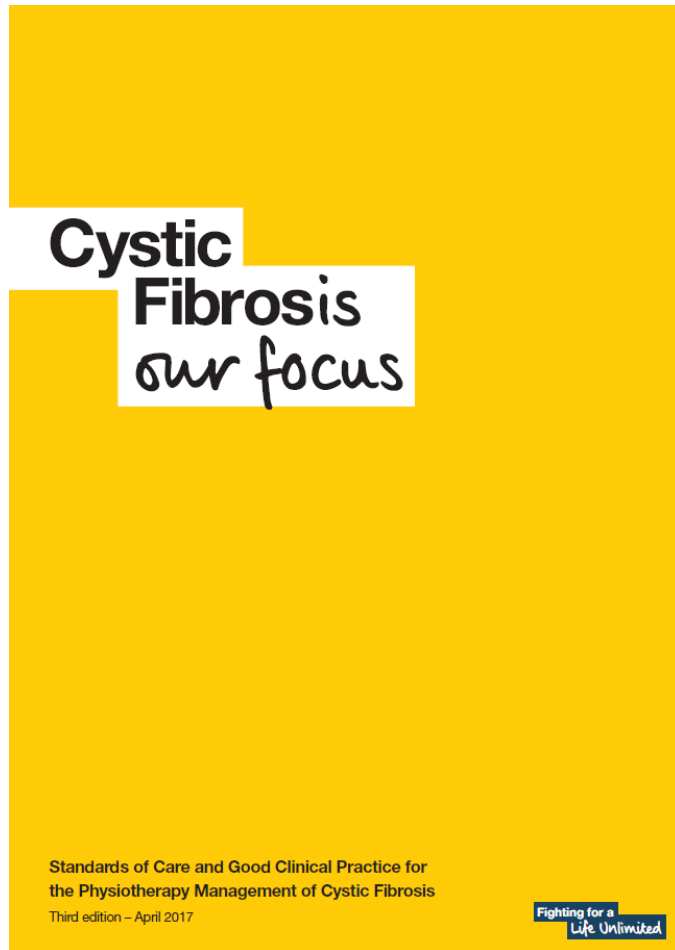
NICE guideline

Published: 25 October 2017

[www.nice.org.uk/guidance/ng78](http://www.nice.org.uk/guidance/ng78)

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# Physiotherapy for people with cystic fibrosis



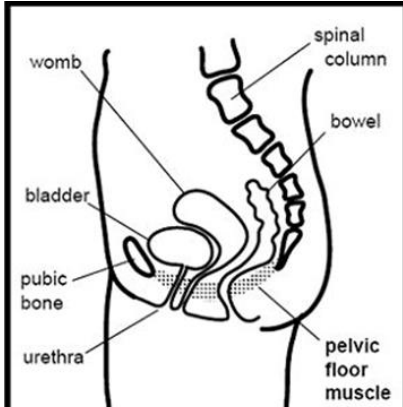
# UK CF multidisciplinary team -Suggested staffing

	75 Patients	150 Patients	250 Patients
Consultant 1	0.5	1	1
Consultant 2	0.3	0.5	1
Consultant 3	---	---	0.5
Staff grade / fellow	0.5	1	1
SpR	0.4	0.8	1
Specialist nurse	2	3	5
Physiotherapist	2	4	6
Dietitian	0.5	1	2
Clinical psychologist	0.5	1	2
Social worker	0.5	1	2
Pharmacist	0.5	1	1
Secretary	0.5	1	2
Database coordinator	0.4	0.8	1

# What is physiotherapy?



# What is physiotherapy?



# What is physiotherapy?

- Assessing & monitoring
- Spirometry
- Airway clearance
- Inhaled therapy
- Sinus management
- Continence
- Musculoskeletal
- Prescribing
- Adherence support
- Palliative care support
- Oxygen and non-invasive ventilation
- Exercise testing and prescribing/activity



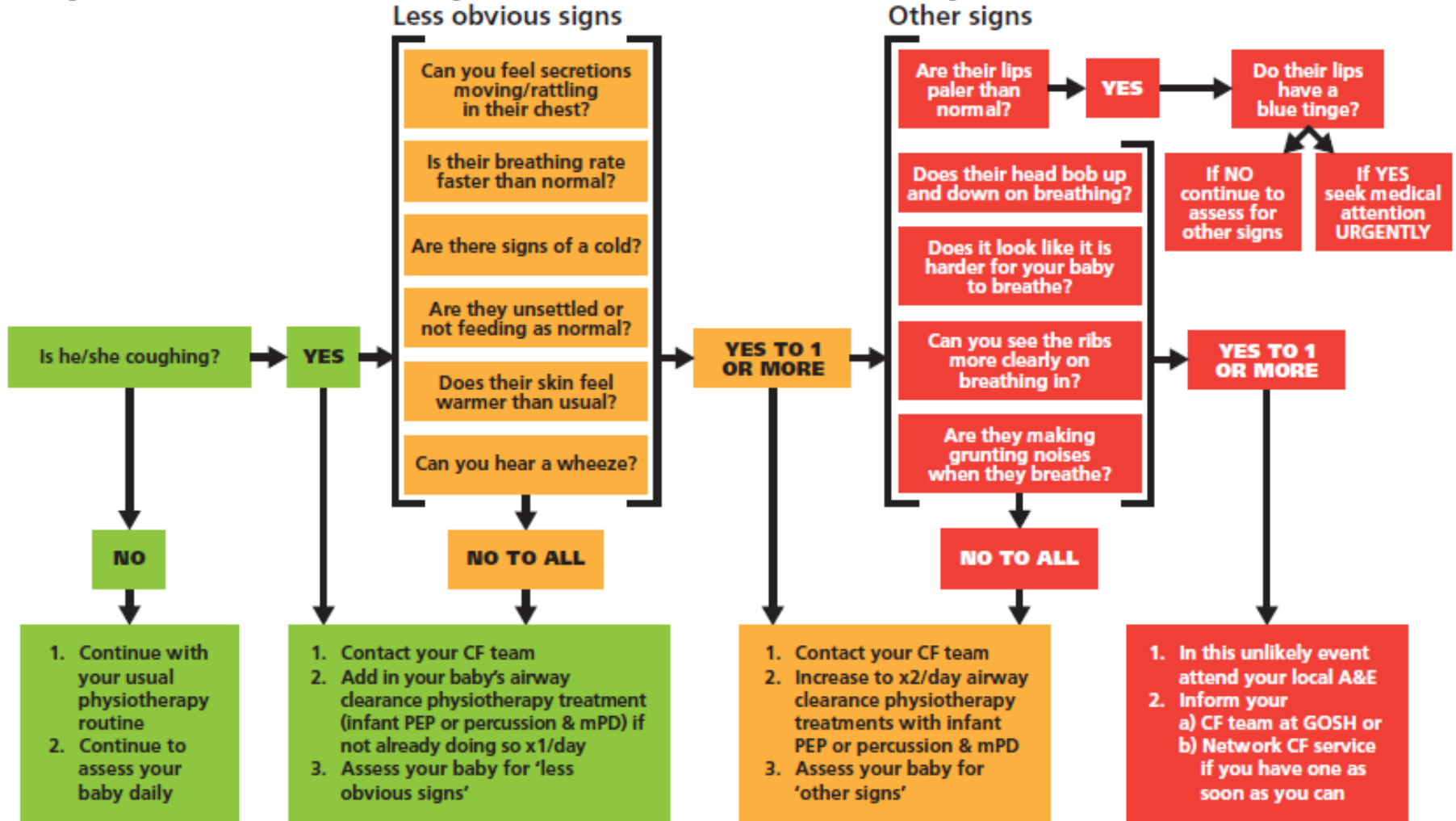
# Airway clearance for children

- Diagnosis (birth – 6 months):
  - ✓ Learn what is normal for the child
  - ✓ Learn respiratory assessment for families
  - ✓ Learn about exercise & activity
  - ✓ Learn an airway clearance technique

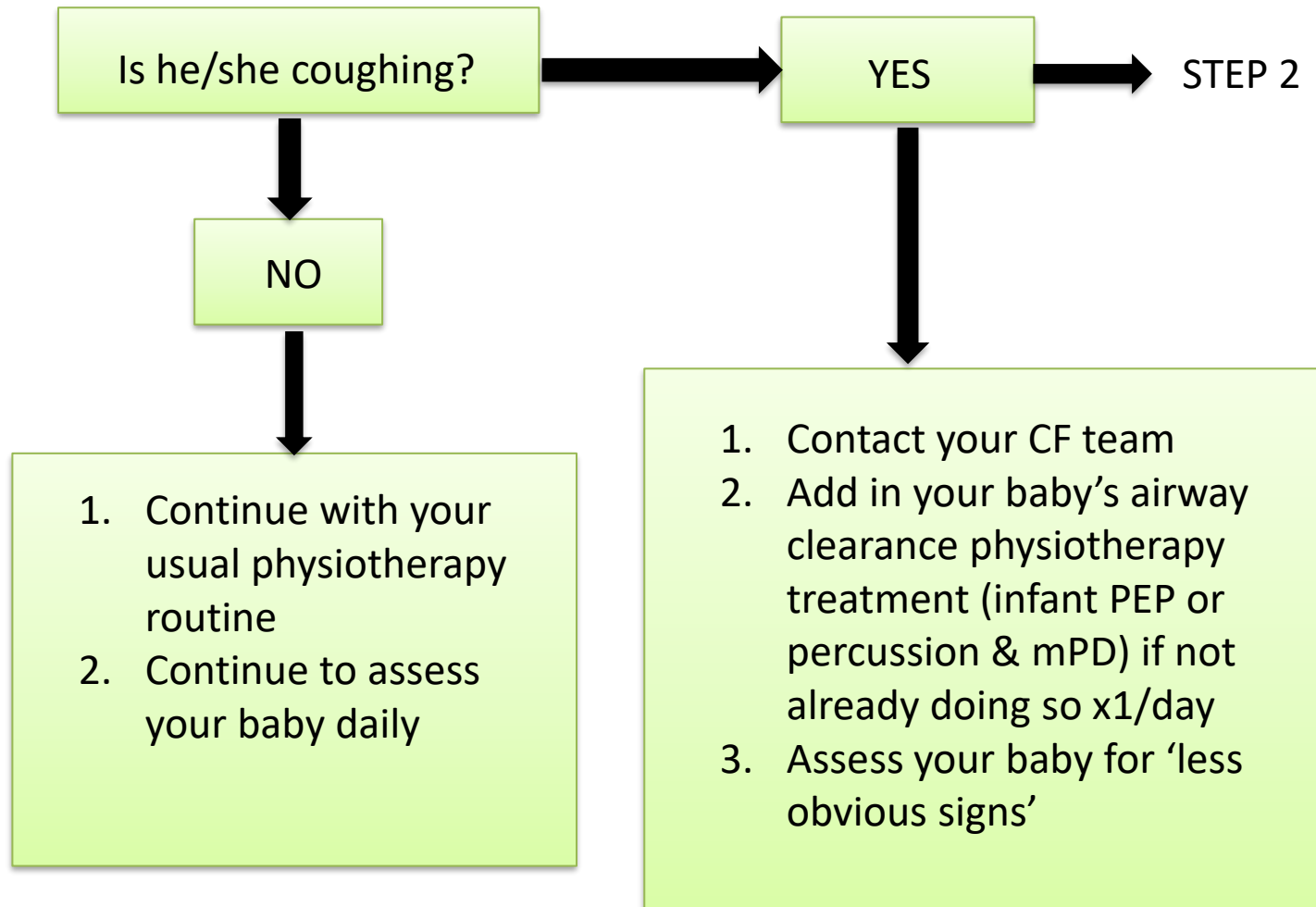


# Respiratory assessment for families

## Step 1



## Step 1



## Step 2

### Less obvious signs

Can you feel secretions moving/rattling in their chest?

Is their breathing rate faster than normal?

Are there signs of a cold?

Are they unsettled or not feeding as normal?

Does their skin feel warmer than usual?

Can you hear a wheeze?

YES To 1 OR MORE

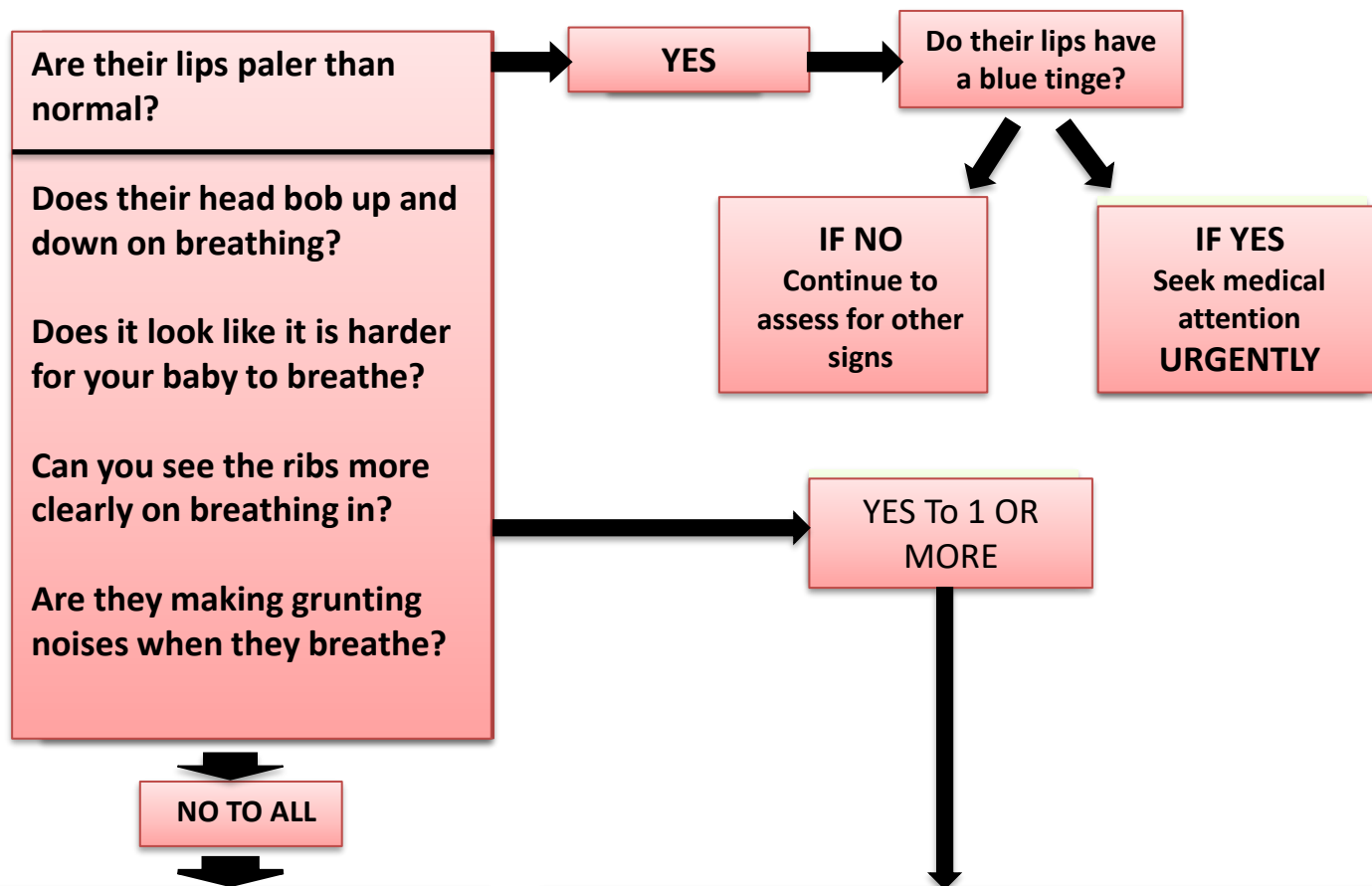
Step 3

NO TO ALL

1. Contact your CF team
2. Add in your baby's airway clearance physiotherapy treatment (infant PEP or percussion & mPD) if not already doing so x1/day
3. Assess your baby for 'less obvious signs'

1. Contact your CF team
2. Increase to x2/day airway clearance physiotherapy treatments with infant PEP or percussion & mPD
3. Assess your baby for 'other signs'

### Step 3 Other signs



1. Contact your CF team
2. Increase to x2/day airway clearance physiotherapy treatments with infant PEP or percussion & mPD
3. Assess your baby for 'other signs'

1. In this unlikely event, attend your local A&E
2. Inform your
  - a) CF Team at GOSH or
  - b) Network CF service if you have oneas soon as you can

# Physiotherapy for children

- Early childhood (3 months – 4 years):
  - ✓ Respiratory assessment for families
  - ✓ Daily exercise & activity
  - ✓ Daily or as needed airway clearance
  - ✓ Inhaled therapy as needed



# Physiotherapy for children

- Mid childhood (5 yrs – 9 or 10 yrs):
  - ✓ Respiratory assessment for families
  - ✓ Daily exercise & activity
  - ✓ Daily or as needed airway clearance
  - ✓ Inhaled therapy as needed
  - ✓ Thinking about independence with technique but keep supervision
  - ✓ Introducing more techniques to stop boredom
  - ✓ Thinking about musculoskeletal



# Physiotherapy for children

- Later childhood (8 or 9 yrs – 16 to 18 yrs):
  - ✓ Respiratory assessment for families
  - ✓ Daily exercise & activity
  - ✓ Daily or as needed airway clearance
  - ✓ Inhaled therapy
  - ✓ Sinus assessment & management if needed
  - ✓ More independence with technique but supervision as needed
  - ✓ Introducing more techniques to stop boredom
  - ✓ Thinking about musculoskeletal & continence

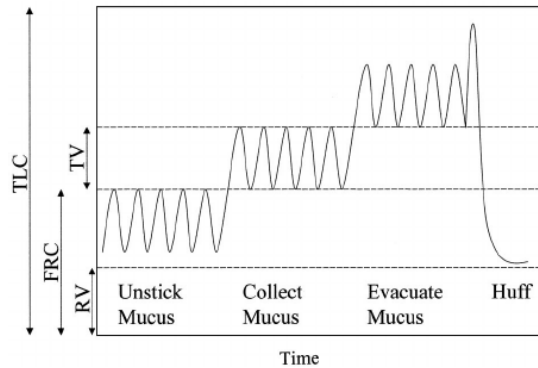


# Physiotherapy for adults

- Adults (16+ years):
  - ✓ Respiratory self assessment
  - ✓ Daily exercise & activity
  - ✓ Daily airway clearance
  - ✓ Inhaled therapy
  - ✓ Adherence support
  - ✓ Sinus assessment & management
  - ✓ Musculoskeletal & continence assessment/treatment

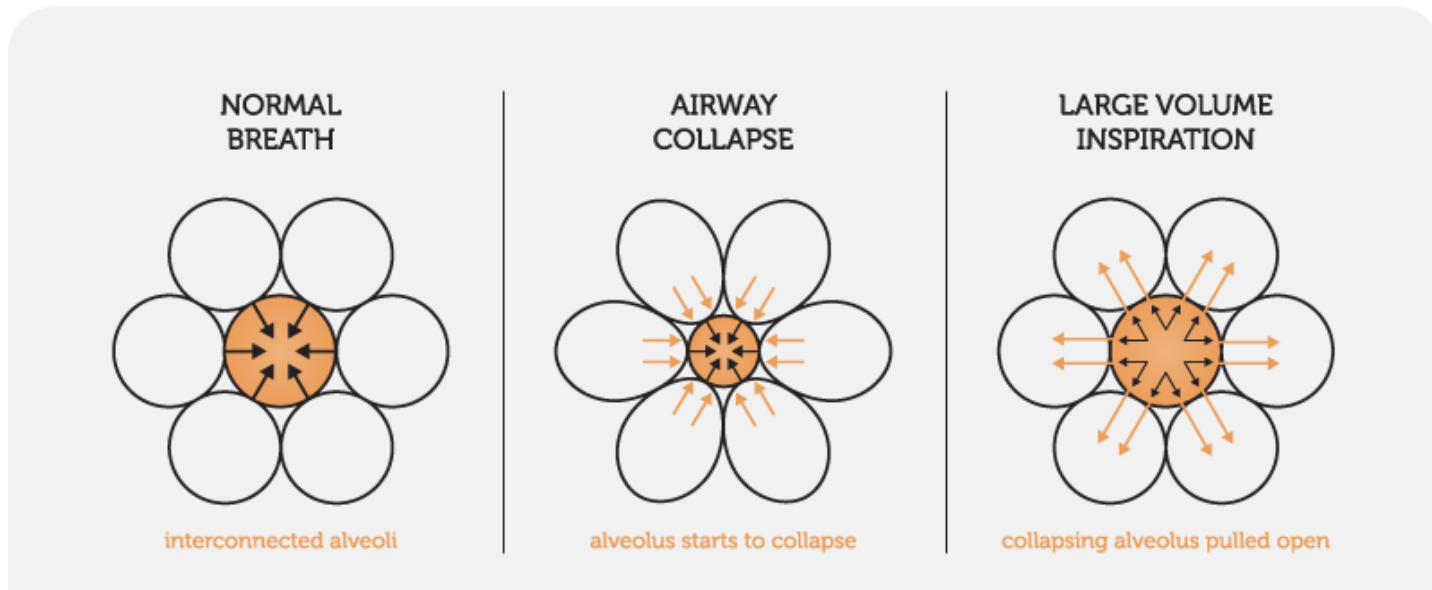
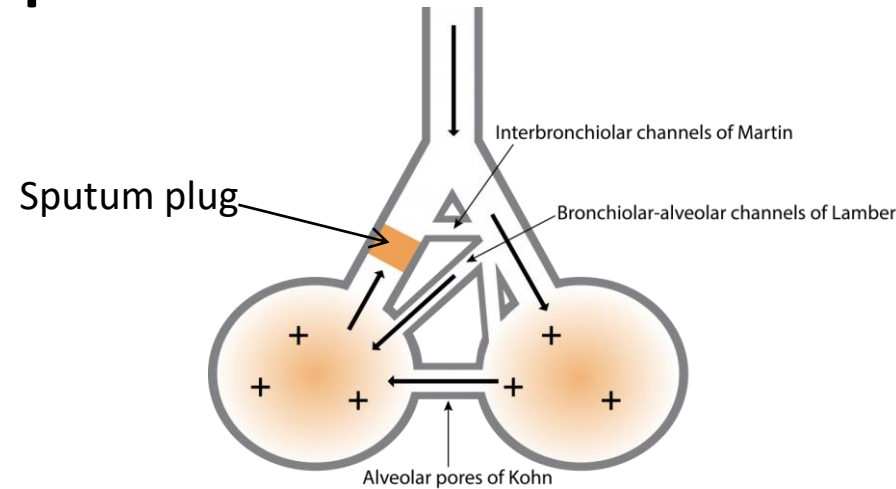


# Airway clearance



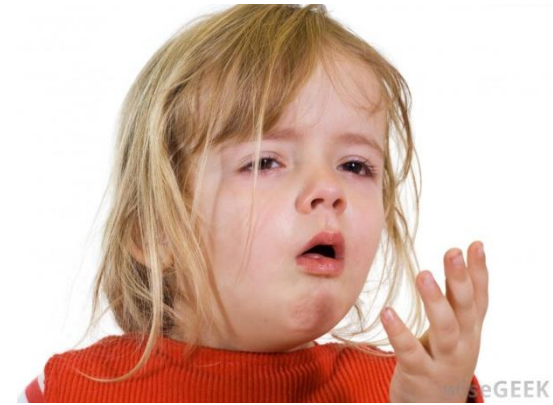
# Choosing an airway clearance technique

- Optimising ventilation:
  - interdependence
  - collateral ventilation
  - positioning



# Choosing airway clearance techniques (2)

- Enhancing expiratory air flow
  - huff
  - oscillations
  - vibrations
- Promoting independence, ability to follow instructions, “wanting to feel normal”, fatigue



	ACBT	AD	PEP	OPEP	Exercise	Vest	Manual Techniques	NIV
Collateral ventilation	✓	✓ (with breath hold)	✓ (with breath hold)	✓ (with breath hold)	✓	✗	✗	✓
Interdependence	✓	✓	✗	✗	✓	✗	✗	✓
Oscillations /Vibrations	✗	✗	✗	✓	✗	✓	✓	✗
Increase expiratory airflow	✓	✓	✗	Flutter, not Acapella	✗	✓	✓	✗

**Key:** ACBT = active cycle of breathing technique; AD = autogenic drainage; PEP = positive expiratory pressure; OPEP = oscillatory positive expiratory pressure; NIV = non-invasive ventilation

# Further information...



REVIEW  
AIRWAY CLEARANCE




CrossMark

## Personalising airway clearance in chronic lung disease

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 @ERSpublications

Understanding the basis of airway clearance assists in determining the most appropriate technique for the patient <http://ow.ly/uQuz307iCIZ>

Cite this article as: McIlwaine M, Bradley J, Elborn JS, *et al.* Personalising airway clearance in chronic lung disease. *Eur Respir Rev* 2017; 26: 160086 [<https://doi.org/10.1183/16000617.0086-2016>].

McIlwaine, M., Bradley, J., Elborn, J.S. and Moran, F., 2017. Personalising airway clearance in chronic lung disease. *European Respiratory Review*, 26(143).

# Exercise and CF

- Daily exercise is recommended for all children, including those with CF
- Benefits include improvement in physical and mental health and wellbeing
- ACSM guidelines suggest 60 minutes of exercise per day for children, 150 minutes of exercise per week for adults
- Exercise should be: fun, age appropriate, teach correct skills, varied, adapted to suit the individual



American College of Sports Medicine,  
2015

[www.acsm.org](http://www.acsm.org)

# Benefits of exercise in CF

- ✓ Improved strength
- ✓ Improved muscle mass
- ✓ Increased self-esteem
- ✓ Increased exercise tolerance and decreased breathlessness
- ✓ Improved aerobic capacity
- ✓ May help with airway clearance
- ✓ Regulation of blood sugar levels
- ✓ Increase pelvic floor strength
- ✓ Improved posture



# Questions



