Pulmonary Rehabilitation

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Aims

– What is Pulmonary Rehabilitation
– Evidence national / local
– Referral considerations

What is Pulmonary Rehabilitation?

Pulmonary rehabilitation is…

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"a comprehensive intervention based on a thorough patient assessment followed by patient-tailored therapies that include, but are not limited to, exercise training, education, and behaviour change, designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence to health-enhancing behaviours"

ATS/ERS, 2015

In practical terms, pulmonary rehabilitation is…

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- Evidence-based intervention to help patients with chronic lung conditions manage breathlessness, improve ability to exercise & learn to self-manage
- Twice weekly six-week programme of:
  - supervised, individually- prescribed, progressive exercise training (aerobic & resistance)
  - defined & structured education programme.
- Delivered by qualified respiratory specialists (physiotherapists/nurses), & technical instructors
- Delivered in small groups in community venues
- Follows pre-programme assessment for suitability & outcomes measurement (followed by post-programme discharge assessment)
- Recommended to be repeated 12 months after completion, or sooner if symptom deterioration

Evidence grading - definitions

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GOLD*

- Grade A : Randomised controlled trials (RCT); Rich body of high quality evidence without any significant limitation or bias
- Grade B : RCTs with important limitations; Limited body of evidence
- Grade C : Non-randomised trials; Observational studies

BTS*

- 1++ : High quality meta-analyses, systematic reviews of RCTS, or RCTS with a very low risk of bias
- 1+ : Well conducted meta-analyses, systematic reviews of RCTs, or RCTs with a low risk of bias
- 2++ : High-quality systematic reviews of case-control or cohort studies or high-quality case-control or cohort studies with a very low risk of confounding, bias or chance and a high probability that the relationship is causal
- 2+: Well conducted case-control or cohort studies with a low risk of confounding, bias or chance and a moderate probability that they relationship is causal

* Global Initiative for Chronic Obstructive lung Disease: Guide for Healthcare Professionals* British Thoracic Society: Guideline on Pulmonary Rehabilitation in Adults 2013

Evidence for pulmonary rehabilitation (GOLD* 2016 & 2017)

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Grade A	Grade B	Grade C
Improves exercise capacity	Strength and endurance training of the upper limbs improves arm function	Education alone has not shown to be effective
Reduces the perceived intensity of breathlessness	Reduces hospitalisation among patients with recent exacerbation (≤ 4 weeks)	
Improves health-related quality of life		
Reduces the number of hospitalisations and days in the hospital		
Reduces anxiety and depression associated with COPD		

* Global Initiative for Chronic Obstructive lung Disease: Guide for Healthcare Professionals

Further evidence for pulmonary rehabilitation (BTS* 2013)

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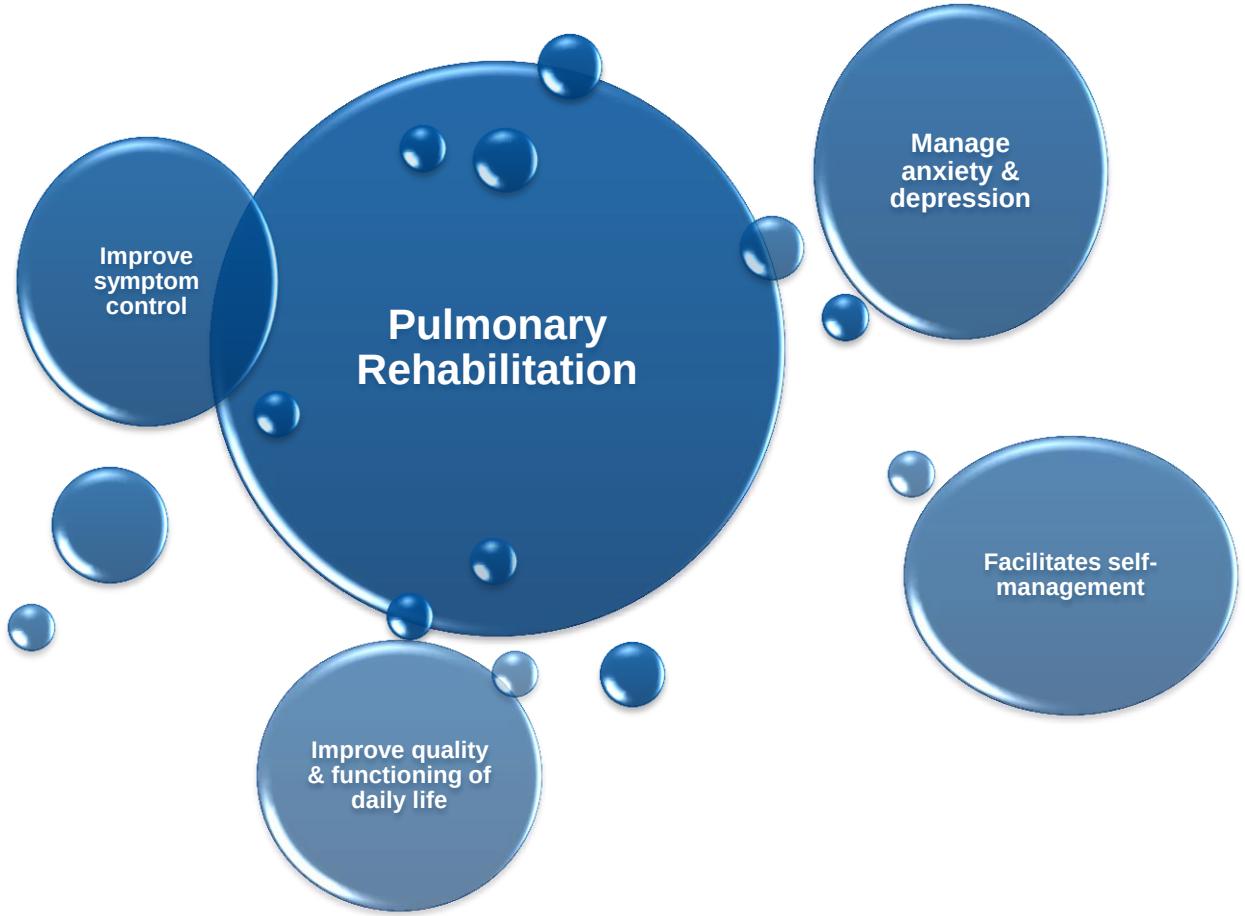
Evidence Level 1++	Evidence Level 1+	Evidence Level 2++	Evidence Level 2+
Improves exercise capacity	Increase quadriceps muscle strength	Improves physical activity modestly	Improves self-reported activities of daily living
Improves dyspnoea	Improves psychological status		
Improves health status			

* British Thoracic Society: Guideline on Pulmonary Rehabilitation in Adults 2013

Overview of benefits



Outcomes from the Pulmonary Rehabilitation COPD audit 2015

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Working in strategic partnership:

Royal College of Physicians

British Thoracic Society

British Lung Foundation

PCRS

Supported by:

ACPRC

ARNS
Association of Respiratory Nurse Specialists

Association for Respiratory Technology & Physiology

Royal College of Nursing

BGS
British Geriatrics Society

ACADEMIC HEALTH SCIENCE NETWORK
NORTH EAST AND NORTH CUMBRIA

Care Quality Commission

Llywodraeth Cymru
Welsh Government

GIG CYMRU NHS WALES
Gwasanaeth Gwybodeg
Informatics Service

RCGP
Royal College of General Practitioners

Commissioned by:

HQIP
Healthcare Quality Improvement Partnership

Audit Outcomes , Recap

– **7,413 patients** were included

– *(81% of those approached for consent)*

– **210 PR services** participated

– *(Out of 230 eligible)*

National COPD Audit 2015: Clinical Outcomes

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For every 100 patients that completed either the 6MWT or the ISWT, both on initial assessment and discharge, the following responses were recorded:

- 63 improved after PR by more than the MCID*
- 20 improved after PR but by less than the MCID
- 17 had no change or a reduction

*National COPD Audit Programme 2017: Findings & Quality Improvement

Health status improvements

For every 100 patients that had a health status test (either CAT[A], SGRQ[B], or CRQ[C]) upon initial assessment and discharge:

61 improved by more than the MCID

13 improved but by less than the MCID

26 had no change or a worse score.

[A] COPD Assessment Test
[B] St George's Respiratory Questionnaire
[C] Chronic Respiratory Questionnaire

Mortality within 90 days

Overall mortality following assessment for PR:

0.7%

In patients who **did not complete PR,** mortality was **1.6%**.

In patients who did **complete PR,** mortality was **0.1%**.

Pulmonary rehabilitation delivers health outcomes

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	Patients reporting improvements on programme completion*
Walking Distance (Six-Minute Walk Test – measured, not self-reported)	74%
Quality of Life (Chronic Respiratory Disease Questionnaire)	75%
Anxiety (Hospital Anxiety and Depression Scale Questionnaire)	57%
Depression (as above)	64%

2017/18 Pulmonary Rehabilitation – CRQ (Increase 0.5)
Q1 17/18 (93 completers)

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	Pre Mean	Post Mean
Dyspnoea	3.79	4.38
Fatigue	3.53	4.17
Emotion	4.60	5.15
Mastery	4.61	5.40

- 33 persons did not complete CRQ (60)
- Dyspnoea – 45 person (75%) improved, 3 stayed the same, 12 worse
- Fatigue - 41 persons (68%) improved, 4 stayed the same, 15 worse
- Emotion – 42 persons (70%) improved, 2 stayed the same, 16 worse
- Mastery – 43 person (72%) improved, 6 stayed the same, 11 worse

2017/18 HADS - Reduction = Improvement - Q1 (93 completers)

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	Pre Mean	Post Mean
Anxiety	7.18	5.79
Depression	6.66	5.3

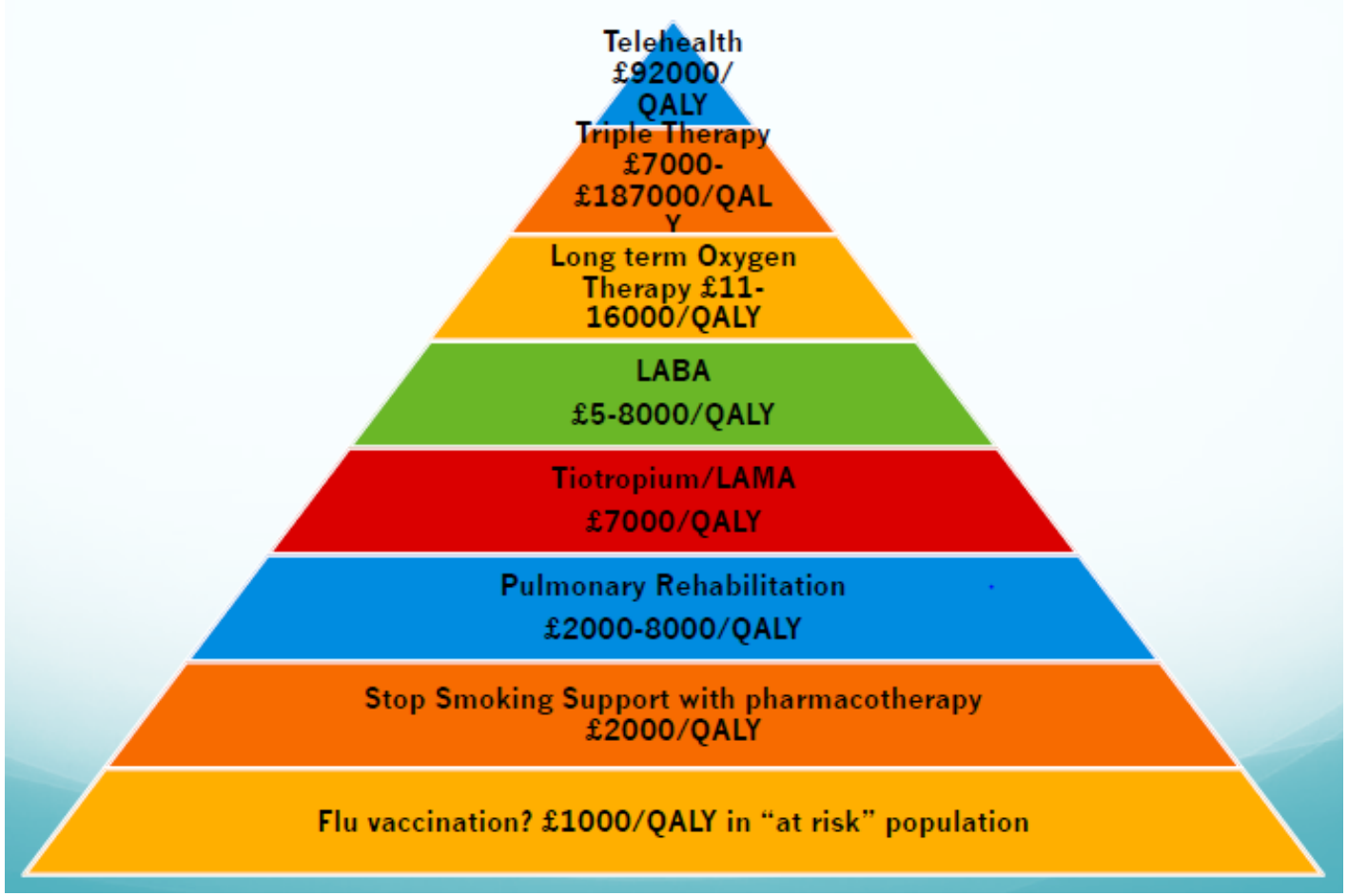
- 32 patients did not complete (61)
- 35 patients (57%) improved anxiety levels, 9 patients stayed the same, 17 patients worsening
- 39 patients (64%) improved depressions levels, 15 patients worsening, 7 person stayed the same

2017/18 Q1 6 min walk (93 completers)

	Pre Mean (meters)	Post Mean (meters)
6 min walk	261	316

- 83 results, 15 patients did not complete
- 67 patients improved significantly
- 7 patients remained the same
- 9 patient worse

The pyramid of value for COPD interventions



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Who should be referred for Pulmonary Rehabilitation?

Who can be referred to PR?

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- People with long-term respiratory conditions e.g. COPD, Bronchiectasis, Idiopathic Pulmonary Fibrosis (IPF)
- MRC 3-5
- MRC 2 whom are functionally disabled by their breathlessness

Medical Research Council (MRC) dyspnoea scale

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Grade	Degree of breathlessness related to activity
1	Not troubled by breathless except on strenuous exercise
2	Short of breath when hurrying on a level or when walking up a slight hill
3	Walks slower than most people on the level, stops after a mile or so, or stops after 15 minutes walking at own pace
4	Stops for breath after walking 100 yards, or after a few minutes on level ground
5	Too breathless to leave the house, or breathless when dressing/undressing

Adapted from Fletcher CM. The clinical diagnosis of pulmonary emphysema—an experimental study. Proc R Soc Med 1952;45:577–5

Referral guidelines

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Any patient with a diagnosed respiratory condition (COPD, bronchiectasis, asthma, ILD) with:

- MRC score of 3-5
- MRC score of 2 and functionally limited by breathlessness.

Any patient with recent COPD exacerbation or hospital admission for COPD (≤ 4 weeks).

Patients who have completed pulmonary rehabilitation previously but who have experienced deterioration in health status.

BTS Guidelines* state that patients should be referred:

- Regardless of smoking status
- Regardless of whether chronic respiratory failure
- Irrespective of coexistent stable cardiovascular disease
- Coexistent anxiety and/or depression should not preclude referral
- Coexistent abdominal aortic aneurysm (AAA) ≤ 5cm should not preclude referral provided blood pressure is controlled.

* British Thoracic Society: Guideline on Pulmonary Rehabilitation in Adults 2013

Referring patients

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Referral forms are available in Word and PDF Format:

- A Word document can be provided which can be photocopied or uploaded onto your patient system
- PDF forms are available on our website www.bochealthcare.co.uk

Completed referral forms can be:

- **Emailed**, along with a patient summary, to BOC.clinicalservices@nhs.net or
- **Faxed**, along with a patient summary, to 0845 600 0096
- **Contact BOC -** clinical services team on 0800 0121 858

- Referral guidance on where to send completed forms plus Inclusion and Exclusion criteria is also included on the referral form

- PR referrals are received by out Patient Service Team. Missing information will be requested by them prior to triage by a Healthcare Professional

At point of referral please also consider:

- Sharing consent
- Patient information leaflets

Evidence guidelines for referral to pulmonary rehabilitation

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- Patients with Medical Research Council (MRC) dyspnoea score of 3-5 who are functionally limited by breathlessness should be referred for outpatient pulmonary rehabilitation. *BTS Guideline on Pulmonary Rehabilitation in Adults (Sept 2013)*
- Patients with a MRC dyspnoea score of 2 who are functionally limited by breathlessness should be referred for pulmonary rehabilitation. *BTS Guideline on Pulmonary Rehabilitation in Adults (Sept 2013)*
- People admitted to hospital for an acute exacerbation of COPD start a pulmonary rehabilitation programme within 4 weeks of discharge. *NICE Quality Standard COPD in Adults: Quality Statement 5 (Feb 2016)*
- Pulmonary rehabilitation should be made available to all appropriate people with COPD (see 1.2.8.2) including those who have had a recent hospitalisation for an acute exacerbation. *NICE Clinical Guideline CG101 (2010)*
- Pulmonary rehabilitation should be offered to all patients who consider themselves functionally disabled by COPD (usually MRC grade 3 and above). *NICE Clinical Guideline CG101 (2004)*
- Pulmonary rehabilitation can improve exercise capacity in people with a variety of respiratory conditions other than COPD that affect activities of daily living such as bronchiectasis, interstitial lung disease (ILD) and asthma. *BTS Guideline on Pulmonary Rehabilitation in Adults (Sept 2013)*

National PR Audit: Outcomes Audit Supplementary Report (Report 3: Published Dec 2017)

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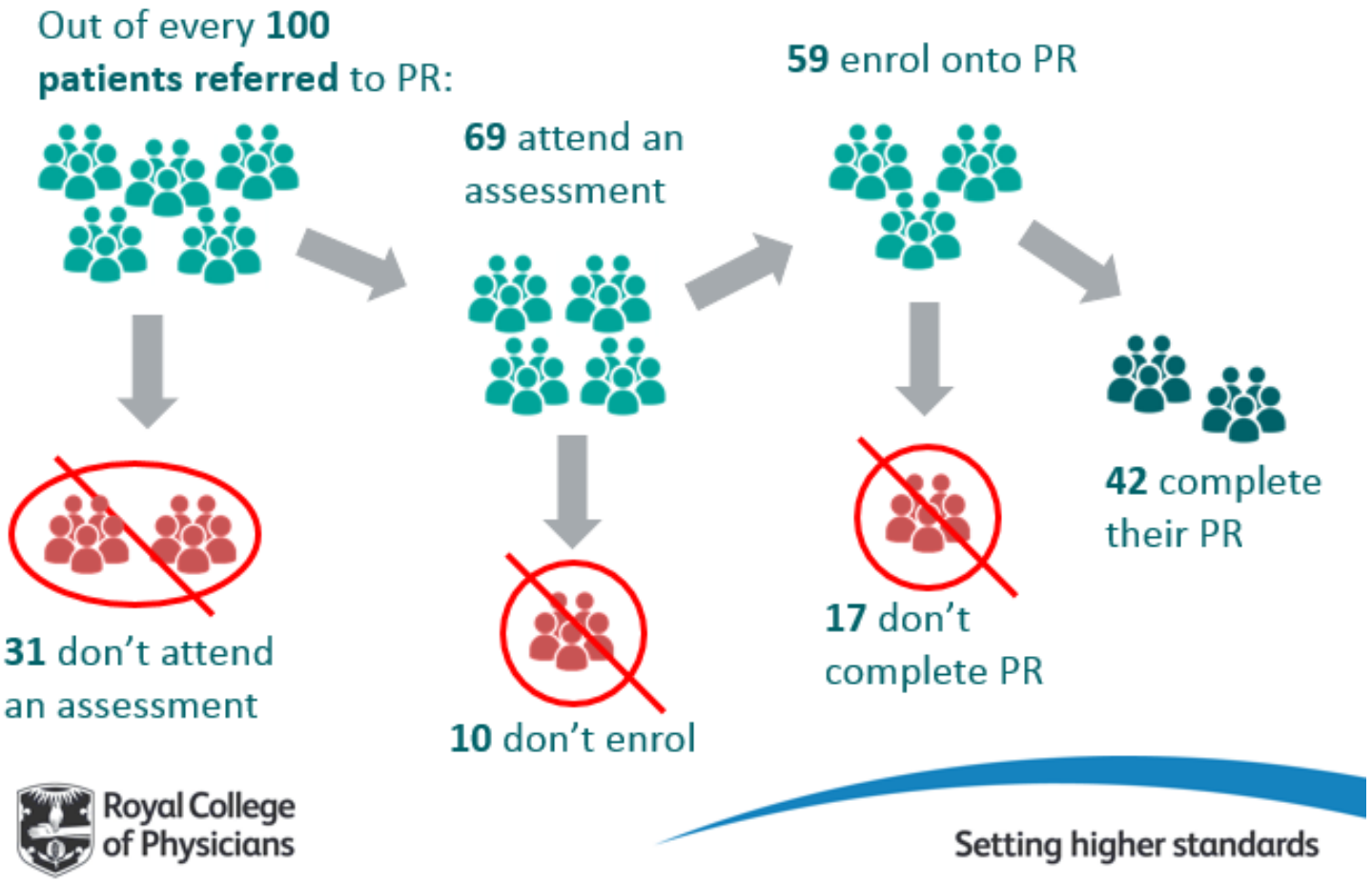

Comparison - Numbers

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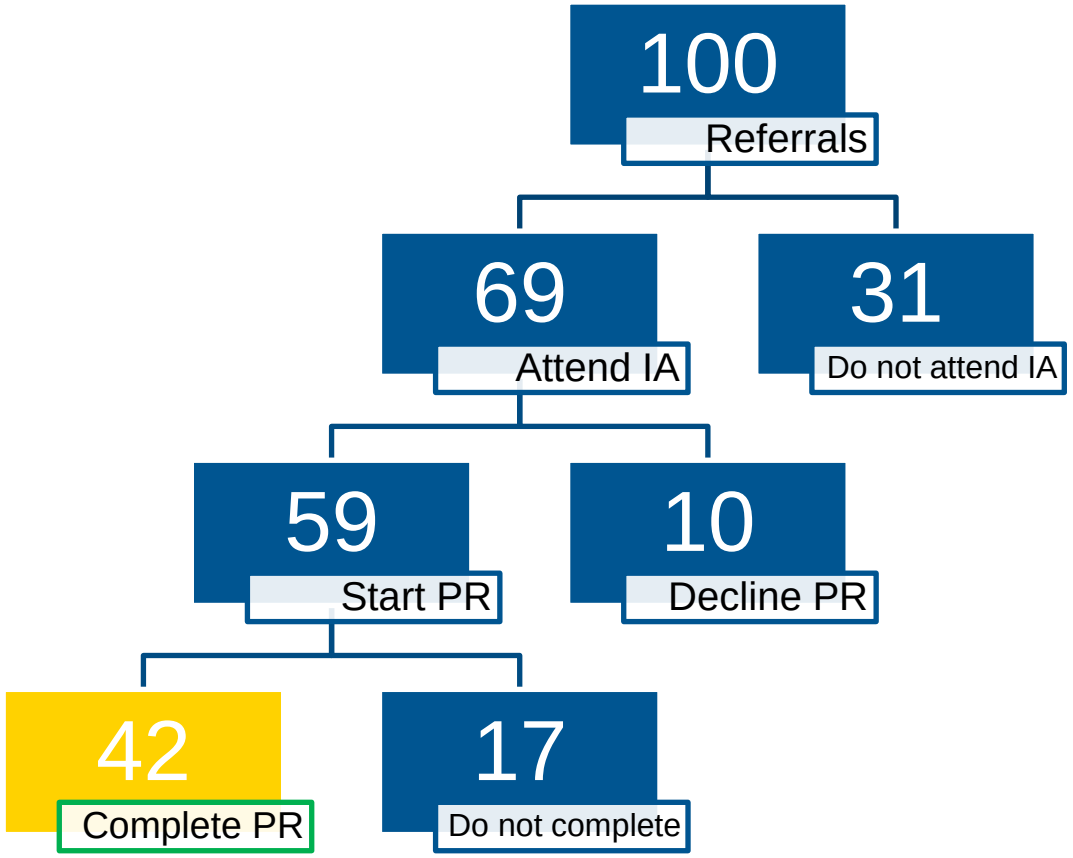
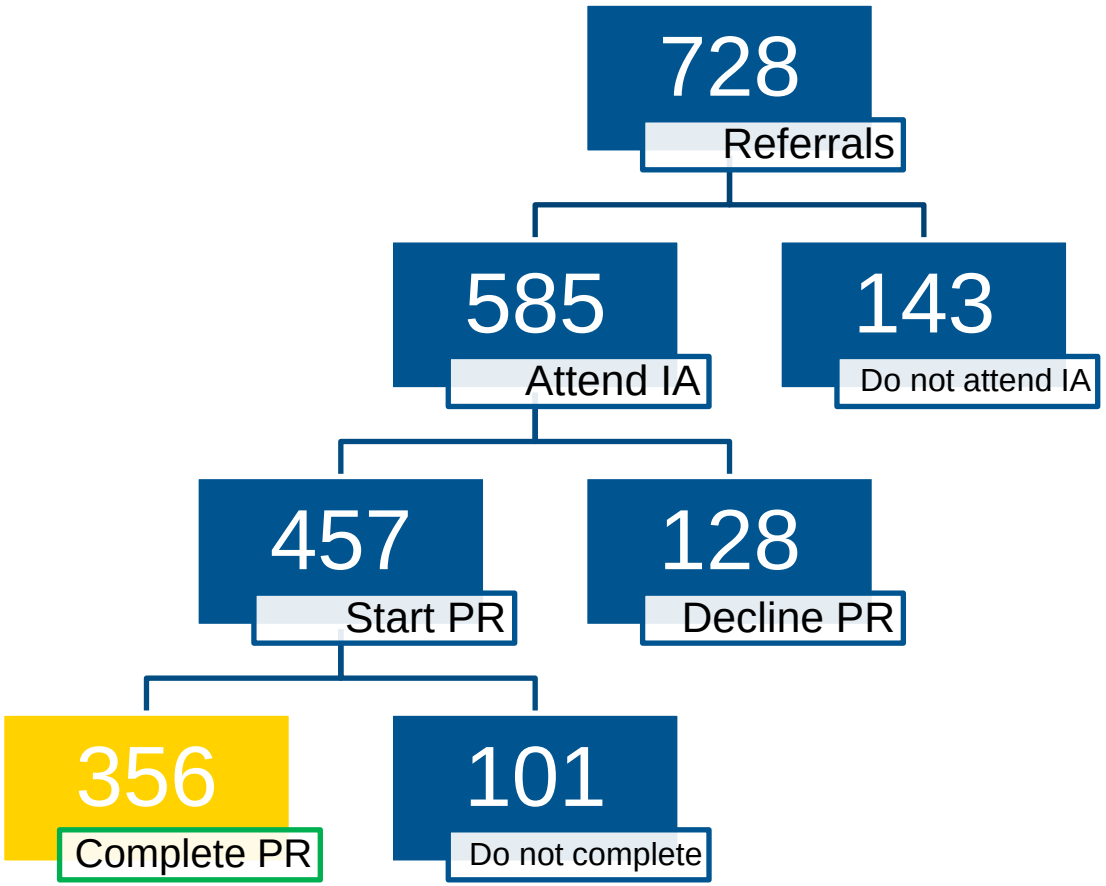
National COPD Audit (published 2017)



BOC Somerset 2017



Comparison - Percentages

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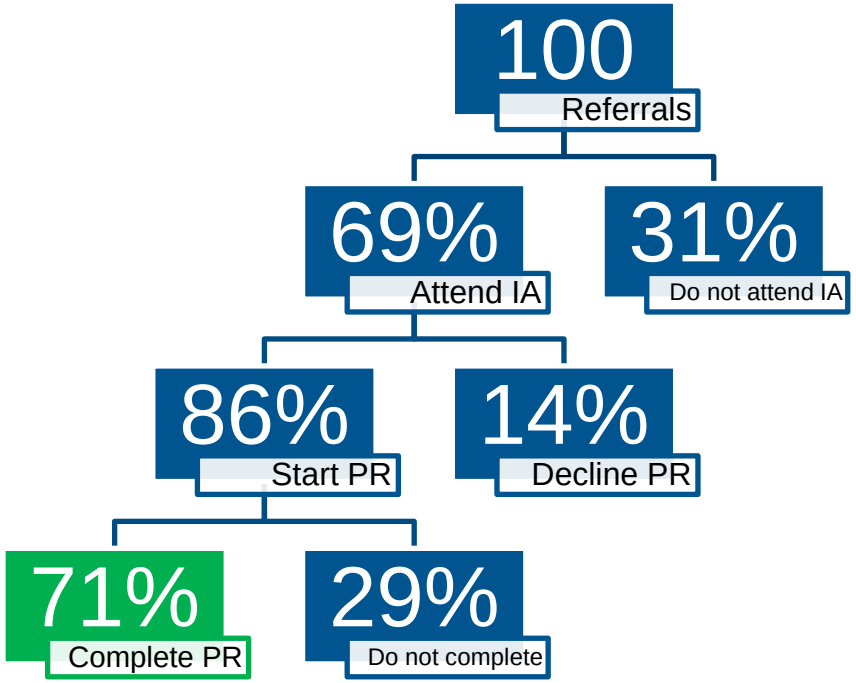
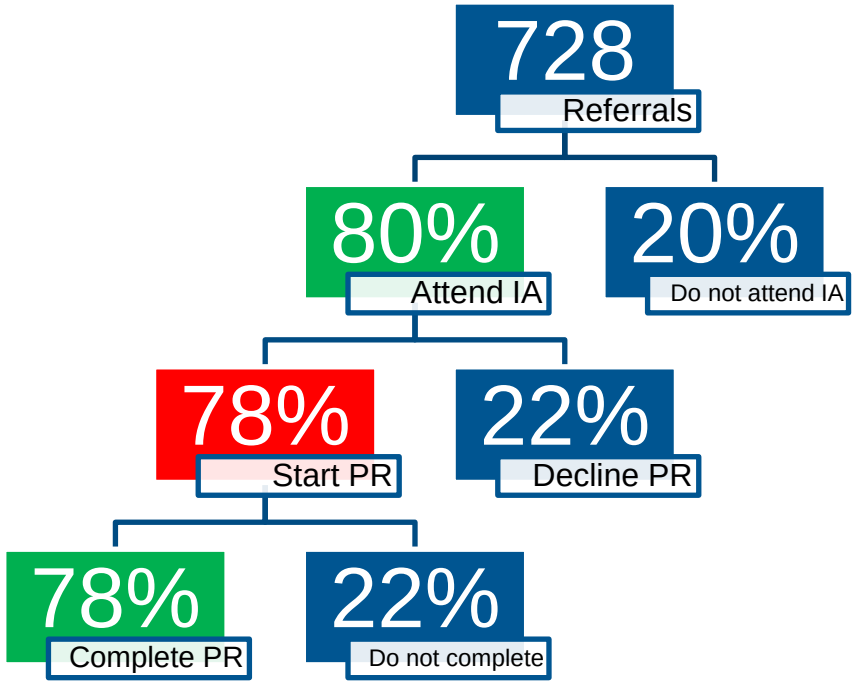
National COPD Audit (published 2017)



Completer to Referrals % 42%

BOC Somerset 2017



Completer to Referrals % 49%

Referral considerations

BTS Guidelines* & NICE† state that patients should NOT be referred when:

- Unstable cardiac disease or locomotor difficulties preclude exercise (eg. severe arthritis or severe peripheral vascular disease)
- Significant cognitive or psychiatric impairment would lead to an inability to follow simple commands in a group setting (however carers are welcome to attend to assist)
- Housebound or unable to walk
- Recent myocardial infarction.

– NB. COPD patients' bronchodilator therapy must be in line with NICE COPD guidelines before referral for pulmonary rehabilitation

If in any doubt about appropriateness of a patient for pulmonary rehabilitation, please contact us.

*British Thoracic Society: Guideline on Pulmonary Rehabilitation in Adults 2013
†NICE Clinical Guideline CG101 (2004)

Sometimes it’s not all about the patient

Think about the patient’s family/carer & what they have to gain from their ‘patient’:

- Being less fearful about breathlessness
- No longer feeling totally restricted by their condition
- Regaining confidence in daily activities
- Meeting other people & realising that they are not alone
- Better managing their condition & experiencing fewer sever exacerbations
- With a self-management plan for the family to follow
- Needing fewer admissions to hospitals.

Your Practice's Referrals

Target: 20% of COPD Register referred
Less than 10%
10-15%
16% and above

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2	Registered Practice	Practice ID	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	YTD	2017-18 MLO	Target No. if 20% COPD Register	MLO in % terms vs Register
55	AXBRIDGE SURGERY	L85055	0	0	0	1	0	0	0	0					1	2	30	1.0%
56	NORTH PETHERTON SURGERY	L85056	1	0	0	1	0	0	0	0					2	3	21	2.9%
57	L85060 (VINE SURGERY)	L85060	0	0	0	1	0	0	1	0					2	3	23	2.6%
59	LYNGFORD PARK	L85062	1	0	0	1	1	1	0	0					4	6	35	3.4%
62	ILCHESTER SURGERY, ILCHESTER	L85066	1	0	0	0	0	0	1	0					2	3	10	6.0%
63	BRENT AREA MEDICAL CENTRE	L85601	0	0	0	0	0	0	0	0					0	0	7	0.0%
64	SOMERSET BRIDGE MEDICAL CENTRE	L85607	0	0	0	1	0	0	0	0					1	2	14	2.2%
65	PORLOCK MEDICAL CENTRE	L85608	0	0	0	0	0	0	0	0					0	0	14	0.0%
66	CREECH	L85609	0	0	0	0	0	0	0	0					0	0	15	0.0%
67	OAKHILL SURGERY	L85611	2	0	1	0	0	0	1	0					4	6	9	13.3%
69	TAWSTOCK MEDICAL CENTRE, CHARD	L85619	0	1	1	2	0	0	0	0					4	6	27	4.5%
71	CHURCH VIEW SURGERY, ILLMINSTER	L85624	0	0	0	0	0	0	1	0					1	2	9	3.2%
72	ABBEY MANOR MEDICAL PRACTICE	Y00189	0	0	0	0	4	0	1	2					7	11	10	20.6%
73	WESTLAKE (S)	Y01163	0	0	0	0	0	1	0	0					1	2	16	1.9%
75			40	30	41	56	50	41	49	63	0	0	0	0	370	555	2,489	4.5%

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		Referrals Received													KEY EVALUATION DATA		
Registered Practice	Practice ID	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	YTD	2017-18 MLO	Target No. if 20% COPD Register	MLO in % terms vs Register
FRENCH WEIR HEALTH CENTRE	L85001	0	0	1	1	0	0	0	1					3	5	66	1.4%
WELLS HEALTH CENTRE	L85002	1	0	0	0	0	0	0	1					2	3	41	1.5%
EXMOOR MEDICAL CENTRE	L85003	0	0	0	0	0	0	1	0					1	2	20	1.5%
CREWKERNE HEALTH CENTRE, CREWKERNE	L85004	1	1	0	2	1	0	1	1					7	11	49	4.3%
BUTTERCROSS HEALTH CENTRE	L85005	2	2	0	4	2	3	2	3					18	27	26	21.1%
CROWN MEDICAL CENTRE	L85006	1	0	1	0	0	0	1	4					7	11	34	6.1%
CHURCH STREET SURGERY, MARTOCK	L85007	0	2	0	2	0	0	0	1					5	8	42	3.6%
FROME MEDICAL CENTRE	L85008	2	3	1	1	1	5	2	1					16	24	113	4.2%
WEST SOMERSET HEALTHCARE	L85009	1	0	1	0	3	2	4	2					13	20	54	7.2%
HIGHBRIDGE MEDICAL CENTRE	L85010	2	1	3	2	2	1	1	1					13	20	69	5.7%
CHEDDAR MEDICAL CENTRE	L85011	0	0	0	1	0	1	0	0					2	3	24	2.5%
WELLINGTON MEDICAL CENTRE	L85012	1	2	1	1	0	1	0	0					6	9	63	2.9%
QUANTOCK MEDICAL CENTRE	L85013	0	0	0	1	0	1	0	0					2	3	21	2.9%
TAUNTON VALE HEALTHCARE	L85014	1	0	0	0	4	2	1	0					8	12	72	3.4%
PRESTON GROVE MEDICAL CENTRE, YEOVIL	L85015	0	0	1	2	1	1	0	1					6	9	50	3.6%
BURNHAM MEDICAL CENTRE	L85016	1	0	2	5	1	1	2	2					14	21	113	3.7%
PENN HILL SURGERY, YEOVIL	L85017	0	0	0	0	1	1	0	2					4	6	45	2.7%

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	Registered Practice	Practice ID	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	YTD	2017-18 MLO	Target No. if 20% COPD Register	MLO in % terms vs Register
0	CANNINGTON HEALTH CENTRE	L85018	0	0	0	0	0	0	0	1					1	2	33	0.9%
1	HARLEY HOUSE SURGERY	L85019	1	0	0	1	2	0	0	0					4	6	37	3.3%
2	BECKINGTON FAMILY PRACTICE	L85020	0	0	0	0	0	0	1	0					1	2	34	0.9%
3	COLLEGE WAY SURGERY	L85021	2	0	1	2	1	2	4	1					13	20	49	7.9%
4	HENDFORD LODGE MEDICAL CENTRE, YEOVIL	L85022	0	0	0	0	3	1	4	10					18	27	55	9.8%
5	ST JAMES MEDICAL CENTRE	L85023	1	1	0	1	1	0	0	1					5	8	50	3.0%
6	POLDEN MEDICAL PRACTICE	L85024	1	1	0	0	1	2	1	1					7	11	49	4.3%
7	CRANLEIGH GARDENS MEDICAL CENTRE	L85025	2	0	4	1	2	0	1	1					11	17	34	9.7%
8	HAMDON MEDICAL CENTRE, STOKE-SUB-HAMDON	L85026	0	0	0	1	1	0	1	0					3	5	18	4.9%
9	WINCANTON HEALTH CENTRE	L85027	2	1	0	0	0	1	1	1					6	9	31	5.8%
0	SPRINGMEAD SURGERY, CHARD	L85028	0	2	1	1	1	3	0	1					9	14	41	6.6%
1	L85029 (VINE SURGERY)	L85029	0	0	1	1	1	0	1	1					5	8	33	4.5%
2	ESSEX HOUSE MEDICAL CENTRE, CHARD	L85030	1	5	4	1	2	0	0	2					15	23	43	10.4%
3	MILBORNE PORT SURGERY	L85031	0	0	0	0	0	0	0	0					0	0	21	0.0%
4	BRUTON SURGERY	L85032	0	0	0	1	0	1	0	0					2	3	16	3.7%
5	LANGPORT SURGERY	L85033	0	0	2	1	0	0	0	0					3	5	52	1.7%
6	WELLS CITY PRACTICE	L85034	1	0	1	1	1	1	1	1					7	11	21	10.0%
7	EAST QUAY MEDICAL CENTRE	L85035	1	1	3	1	0	1	2	1					12	27	60	0.0%

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Registered Practice	Practice ID	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	YTD	2017-18 MLO	Target No. if 20% COPD Register	MLO in % terms vs Register
WELLS CITY PRACTICE	L85034	1	0	1	1	1	1	1	1					7	11	21	10.0%
EAST QUAY MEDICAL CENTRE	L85035	1	1	3	1	8	1	2	1					18	27	60	9.0%
QUANTOCK VALE SURGERY	L85036	0	0	0	1	0	1	0	0					2	3	25	2.4%
NORTH CURRY	L85037	0	0	0	0	0	2	0	1					3	5	17	5.2%
LISTER HOUSE PARTNERSHIP	L85038	0	2	0	1	0	0	0	1					4	6	29	4.1%
GLASTONBURY SURGERY	L85039	0	0	1	2	0	0	1	0					4	6	54	2.2%
MILLBROOK SURGERY, CASTLE CARY	L85040	0	1	0	1	0	1	1	0					4	6	16	7.5%
IRNHAM LODGE SURGERY	L85041	1	0	1	0	0	0	0	0					2	3	39	1.5%
TAUNTON ROAD MEDICAL CENTRE	L85042	1	0	2	0	3	0	2	2					10	15	76	3.9%
PARK MEDICAL PRACTICE	L85043	0	0	1	0	0	0	4	2					7	11	47	4.4%
QUEEN CAMEL MEDICAL CENTRE	L85044	0	0	1	1	0	0	0	0					2	3	27	2.2%
MENDIP COUNTRY PRACTICE	L85046	0	0	0	0	0	0	0	1					1	2	32	0.9%
GLASTONBURY HEALTH CENTRE	L85047	0	1	0	2	0	1	1	4					9	14	25	10.6%
RYALLS PARK MEDICAL CENTRE, YEOVIL	L85048	0	0	0	1	0	0	0	1					2	3	22	2.7%
LUSON	L85050	2	0	2	0	0	1	1	3					9	14	32	8.3%
REDGATE MEDICAL CENTRE	L85051	0	0	0	1	0	0	0	0					1	2	33	0.9%
WARWICK HOUSE MEDICAL PRACTICE	L85052	0	0	1	1	0	2	0	2					6	9	35	5.2%
GROVE HOUSE SURGERY	L85053	3	2	1	1	0	0	1	2					10	15	31	9.6%
SUMMERVALE SURGERY	L85054	3	0	0	1	1	0	1	0					6	9	35	5.1%

Thank you for your attention.

Governance: Pulmonary rehabilitation

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