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A Guide to Coding of Respiratory Care

British Thoracic Society

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A Guide to Coding of Respiratory Care

Dear Colleague

The enclosed guide has been produced, on behalf of the BTS, at a time when Respiratory Health Professionals may be struggling to understand the complexities of the evolutionary processes of recording, coding and costing of Respiratory activity.

It is hoped that this will stimulate colleagues to look more critically at our acquisition of data and liaise more closely with specialty coders and finance departments. The Government appears to be committed to the pursuit of a market economy approach and the evolution of Payment by Results (PbR) has necessitated the production of many more codes to provide greater definition of our activity. We have been successful in bids for several new codes but there is still some way to go before we iron out some of the residual bids and any frustrations associated with the lack of definition of some of our more specialised activity. The guide addresses some of these issues and it is hoped that this will also be seen as a wider consultation document which will stimulate ideas on costing packages of care and improving the reliability and accuracy of tariffs.

I would suggest that the guide could act as a discussion document in your local Governance structures. Issues that might be useful to address would include:

- diagnosis/coding ambiguities
- importance of the accurate recording of complications and comorbidities
- greater use of the newer OPCS codes including physiology measurement, AHP activity and interventions such as NIV support and oxygen assessment
- creation of formal links with commissioning services to consult on:
 - care packages supported by national consensus
 - activity outside PbR that requires local negotiation
 - innovative approaches to integrated care.

All of these initiatives require a local champion to recruit a coder who will become part of the Respiratory team and a finance representative, preferably with a good working understanding of NICE guidance and local commissioning arrangements. Junior doctor, specialty nurse, AHP and Pharmacy reps should already be part of the existing Respiratory Governance framework.

I appreciate that this is a lot to ask of already overburdened staff but the benefits include greater accuracy of our respiratory epidemiology, more accurate tariffs and the potential for patient level costing, the development of more trustworthy National benchmarking and consequent targeting of resources/support for under-performing Trusts where appropriate.

No one can be sure that this system of measuring resource consumption will not evolve in to some alternative but if we can agree basic principles at this stage we will be better positioned to drive the developments for the future in the best interests of patients.

Dr S J Connellan
Respiratory Expert Working Group Lead

A GUIDE TO CODING OF RESPIRATORY CARE

Dr Steve Connellan

On behalf of the British Thoracic Society

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EXECUTIVE SUMMARY

We are currently in the middle of an evolving and complex process of recording, coding and costing our Respiratory activity. The following guide has been produced, at the request of the BTS, in an attempt to clarify the background to the revision of Respiratory Healthcare Resource Groups (HRGs) and hopefully, provide practical advice in coping with these changes.

The guide considers:

- new HRGs which reflect the need for greater definition of emergency activity, recognition of previously 'invisible' activity such as Allied Healthcare Professional (AHP) interventions and physiological measurements.
- diagnosis/coding ambiguities and ways to improve the epidemiology of Respiratory care and reduce the risks of anomalous reference costs/tariffs.
- the importance of complications and comorbidity (CC) in the production of reference costs.
- the 'burning' and on-going issues relating to recording of Hospital at Home (HaH), Pulmonary Rehabilitation, interventions associated with sleep disordered breathing/NIV support and non face-to-face interventions.

INTRODUCTION

This guide has been timed to coincide with the publication of version HRG4 Healthcare Resource Groups and the OPCS 4.3 and 4.4 revisions (please see **Annexe B** for explanation of terminology). This offers us the opportunity to record our activity with greater definition and identify, within National data, activity that was previously not recognised. This would then improve the epidemiology of our workload. It is one further step forward in our attempts to improve the reference costing of our activity and reduce the risks inherent in the current system of Payment by Results (PbR). There are still a number of challenges with regard to achieving recognition, with new codes, of bundled packages of care such as Hospital at Home and Programmed Pulmonary Rehabilitation. The former requires a new discharge code via the Information Standards Board and the latter requires its own code separate from a period of rehabilitation within the post acute care setting.

Although the expansion of HRGs and new codes for ambulatory care gives us greater definition of activity, the revision is by no means the answer to all our concerns in the evolving NHS market place. However, one thing is for certain, unless we use the new codes as part of our routine practice, there will be no National recognition of our activity and future reference costs will have to rely on small data volume which will be translated in to anomalous and inaccurate tariffs which heighten financial risks in all settings. This guide is therefore produced primarily for Health Professionals who are responsible for the day-to-day investigations and care of Respiratory patients and for clinical coders (ideally with an interest in General and Respiratory Medicine). It is hoped that this will stimulate stronger liaison between both parties and in turn will generate discussion with finance departments. There will, inevitably, be a need for discussion at local level between Trusts and PCTs with regard to integration of some services in the best interests of patients and it is clear that the DH encourages such debate. However, as a basis for such liaison, it is essential that our records of activity reduce any potential ambiguity or inaccuracies. Until we look critically at the processes of data acquisition, with the involvement of all interested parties, any progress is likely to be limited and frustrating for all concerned.

INPATIENT GUIDING PRINCIPLES

In this section the aim is to consider those Healthcare Resource Groups (HRGs) which are high in volume and have been further divided to provide greater definition of resource consumption. We will consider examples of typical acute admissions and the related coding. (Please see **Annexe A** for a full list of the up-to-date HRGs.)

Acute exacerbation of COPD:

A patient with known COPD is admitted acutely following an exacerbation. He also has a background of Diabetes (Type 2) and chronic AF (on aspirin). He does not require any form of assisted ventilation and is in hospital for 10 days. In view of symptoms of haemoptysis, he has a bronchoscopy (fiberoptic) prior to discharge with no need for washings, brushings or biopsy.

Diagnoses:

COPD with acute exacerbation (**J44.1**)

Atrial fibrillation (**I48.X**)

Non-insulin-dependent diabetes mellitus without complications (**E11.9**)

Haemoptysis (**R04.2**)

Procedures:

Diagnostic Fiberoptic Bronchoscopy lower respiratory tract NOS (**E49.9**)

Grouped to:

HRG DZ21J – COPD or Bronchitis without NIV without intubation with CC

There would be no reimbursement for the bronchoscopy in this case as it was part of an acute admission > 1 day. If this had been carried out electively, as a day case procedure, it would group to HRG **DZ07Z** and be reimbursed separately.

Acute exacerbation of COPD requiring NIV support:

Acute exacerbation of COPD which required NIV support during the first 3 days and following this was complicated by Clostridium Difficile colitis. Discharged after 2 weeks.

Diagnoses:

COPD with acute exacerbation (**J44.1**)

Enterocolitis due to Clostridium Difficile (**A04.7**)

Procedures:

Non-invasive ventilation NEC (**E85.2**)

Grouped as:

HRG DZ21E – COPD or Bronchitis with NIV without intubation with Major CC

Acute exacerbation of COPD requiring intubation and ventilation:

Acute exacerbation of COPD requiring intubation soon after admission followed by 10 days in ITU complicated by aspiration pneumonia during the convalescent period. Discharged after 4 weeks.

Diagnoses:

COPD with acute exacerbation (**J44.1**)

Pneumonitis due to food and vomit (**J69.0**)

Procedures:

Invasive ventilation (**E85.1**)

Grouped to:

HRG DZ21B – COPD or Bronchitis with intubation with Major CC

Acute exacerbation of COPD discharged home within 24 hours:

Acute exacerbation of COPD admitted to the Medical Admissions Unit and seen by specialist Respiratory nurses soon after admission. No evidence of pneumonia on CXR and checklist suggests that he is suitable for discharge home. Confirmed by responsible clinician and discharged to Hospital at Home (HaH) pathway with daily visits and assessment as per ICP for the next 7 days.

Diagnosis:

COPD with acute exacerbation (**J44.1**)

As the length of stay is < 1 day and discharged home this episode will be grouped as:

HRG DZ21A – COPD or Bronchitis with length of stay 1 day or less discharged home.

The tariff for this admission is currently £408 but does not reflect the true cost for this episode of care whether this is resourced predominantly via secondary or primary care. The first challenge is to get approval via the Information Standards Board for an additional discharge destination code which would identify this activity. This is currently in progress (please see the bid in **Annexe C**). It would facilitate National data acquisition which would provide the opportunity to compare the number of assisted early discharge/Hospital at Home episodes with the total number of acute COPD admissions. It would seem sensible, in the interim, to keep local data on all such HaH episodes and the agreed resource allocation, whether this is solely funded by secondary care, primary care or a combination of both.

Community Acquired Pneumonia:

Presents with clinical features and CXR evidence of acute lobar pneumonia, confirmed by clinician. No infecting agent identified. Period of atrial fibrillation during acute phase which settles spontaneously.

Diagnoses:

Lobar pneumonia, unspecified (**J18.1**)

Atrial fibrillation (**I48.X**)

Procedures:

None

Grouped to:

HRG **DZ11B – Lobar, Atypical or Viral Pneumonia with CC**

If the same history above included identification of Mycoplasma as a cause, the diagnosis would read: 'Pneumonia due to Mycoplasma pneumoniae' (**J15.7**) but the HRG would be unchanged. However, this would improve our National recognition of pneumonia causative organisms. It raises the question as to whether the KMR coding form should not be completed until any pending serology or bacterial confirmation is available. However, there is a new contract between acute Trusts and PCTs that states that the KMR results need to be available within 5 days of the end of the month to allow contract variations to be looked at. There is little opportunity for being flexible in this at present and so it is presumed that most Trusts will be trying to complete the KMR immediately. Perhaps

this requires further consultation if we want better National data on Community Acquired Pneumonia. This generic principle will potentially apply to other HRGs.

Bronchopneumonia:

An 80 yr old is admitted because of dehydration due to multi-infarct dementia. She is rehydrated but remains in hospital because of her confusion and the need to sort out Nursing home care. She remains very nursing dependant, gradually deteriorates and dies at 6 weeks following a brief acute but overwhelming lower respiratory tract infection which is considered to be a terminal bronchopneumonia.

Diagnoses:

Multi-infarct dementia (**F01.1**)

Volume depletion (**E86.X**)

Bronchopneumonia unspecified (**J18.0**)

Grouped to:

HRG **WD11Z All Patients older than 69 years with a Mental Health Primary Diagnosis [treated by a Non-Specialist Mental Health Service Provider] (this relates to the Mental Health Chapter)**

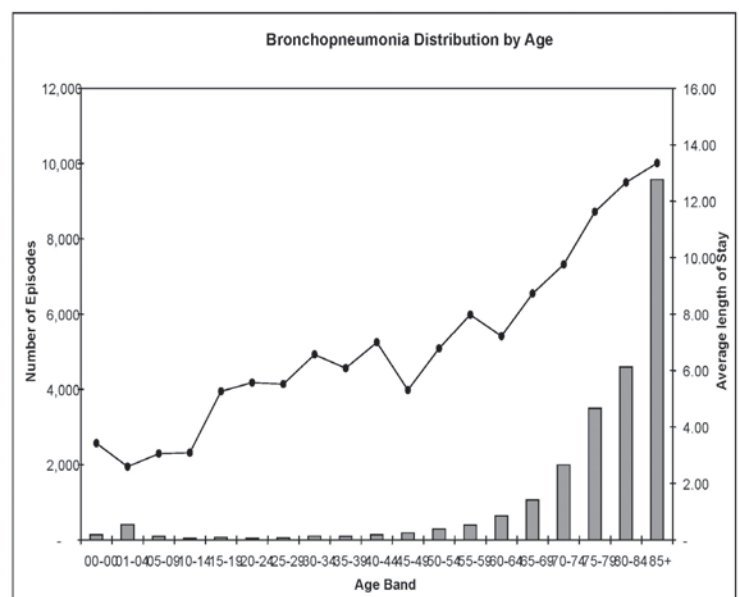
Although the death certificate may well state bronchopneumonia as the first diagnosis this should not be placed first on the coding form as it was not the main condition treated for that admission. However, if she had been admitted directly from a nursing home with all the features of Bronchopneumonia and treated as such then it is appropriate to put Bronchopneumonia as the first diagnosis on the coding form. This would then map to HRG **DZ23 (A, B or C depending on presence or not of CC)**.

In research we carried out in 2001/2, out of a total of 23,195 bronchopneumonia cases, 72.3% died. The resultant difference in average length of stay is 9.2 days for the records discharged alive and 12.5 days for those cases who died. The average mortality rate for all inpatients that year was 3.86%.

The age distribution and top 6 secondary diagnoses are as shown in the following table/graph and are likely to be the main conditions treated during these admissions rather than bronchopneumonia.

Top 6 High Mortality Secondary Diagnoses for Bronchopneumonia

ICD10 Diagnosis	N
I500 Congestive heart failure	1,668
J449 Chronic obstructive pulmonary disease unspecified	1,346
I259 Chronic ischaemic heart disease unspecified	1,044
I501 Left ventricular failure	857
I64X Stroke not specified as haemorrhage or infarction	830
I679 Cerebrovascular disease unspecified	480



Lung Cancer:

Patient with known diagnosis of lung cancer and not suitable for surgery/chemo/XRT, is admitted with cachexia, hypercalcaemia, dehydration and a pressure sore. He dies in hospital following best supportive care.

Diagnoses:

Malignant neoplasm of bronchus or lung, unspecified (**C34.9**)

Disorders of Calcium metabolism (**E83.5**)

Volume depletion (**E86.X**)

Cachexia (**R64.X**)

Decubitus ulcer (**L89.X**)

Grouped to:

HRG **DZ17A – Respiratory neoplasms with Major CC**

Asthma:

Patient admitted with acute severe asthma not requiring ventilatory support. Dehydrated on admission. Full recovery in 5 days.

Diagnosis:

Acute severe asthma (**J46.X**) – **NB** This is also the code for 'status asthmaticus'. If the diagnosis was simply 'asthma' it would be coded as **J45.9** – 'Asthma, unspecified' which tends to be the most commonly used code.

Volume depletion (**E86.X**)

Grouped to:

HRG **DZ15E – Asthma with CC without intubation**

Sleep study:

A bid was submitted to Connecting for Health (CfH) in order to differentiate sleep studies specifically aimed at the diagnosis of Obstructive Sleep Apnoea from studies which concentrate on sleep disorders which are unrelated to respiratory dysfunction. We suggested 'Respiratory Polysomnography' (**U331**) for the former with mapping to **HRG DZ50Z** which would be re-named 'Cardio-pulmonary sleep study'. We recommended that sleep studies unrelated to Respiratory dysfunction should be termed 'Full Polysomnography' (**A84.7**) and should map to the Neuroscience chapter. **However, this was rejected and we are, as yet, unaware of the reason. Please see Annex D for the details of this bid.**

As a compromise and as a result of the changes to the OPCS codes being rejected by CfH, the NHS Information Centre has agreed to the following interim action:

Code **A84.7** (sleep studies) was mapped to **DZ18** but will be moved to Neurology. HRG **DZ50Z** to be renamed '**Respiratory Sleep Study**' and OPCS code **U33.1** will remain as 'Polysomnography'.

If a patient is admitted for overnight cardio-pulmonary sleep study with reference to possible obstructive sleep apnoea the entry on the coding form should be recorded as:

Polysomnography (U33.1)

Grouped as:

HRG **DZ50Z – Respiratory Sleep Study**

It is important to note that as a result of CfH's resistance to our recommendations there is still the potential for many technicians to just write 'polysomnography' and there will be a confusion between both the technicians and the coders about whether polysomnography is 'full' or not. Coders will need to be aware that if a diagnosis of polysomnography is generated via the Respiratory specialty code (340), this should map to DZ50Z. However, if Respiratory Physicians are actually performing 'full polysomnography' (albeit, much less commonly), coders will need to be informed, on a case by case basis, that that study should map through A84.7 and not U33.1.

If a patient is admitted for a period of stabilisation specifically related to Obstructive Sleep Apnoea or is diagnosed with the condition during an admission > 1 day and this is the main resource driver for that admission, then the appropriate entry on the coding form is:

Sleep apnoea (G47.3)

Grouped as:

HRG **DZ18Z Sleeping Disorders Affecting Breathing**

'Chest Infection':

If a diagnosis of 'chest infection' is recorded this will be coded **J22X** and will map to HRG **DZ22 (A, B or C depending on CC splits)**. However, we would strongly recommend that this vague diagnosis is not used anymore if at all possible. We appreciate that in paediatrics this may be more difficult to achieve but it should be possible in adults to define such an admission with greater clarity e.g. pneumonia, COPD, asthma, bronchopneumonia etc.

Previous research has shown that this code is used by coders to reflect 'infective exacerbation' and may obscure the real condition treated during that admission which can be identified in the subsequent codes e.g. asthma etc. If it is felt essential to note that the admission was precipitated by a lower respiratory tract infection then this could be used in the secondary position as follows:

Patient admitted with acute asthma following a coryzal illness and cough productive of purulent sputum. CXR is normal. There are no associated comorbidities.

Diagnoses:

Asthma (**J45.9**)

Acute lower respiratory tract infection (**J22X**)

Grouped as :

HRG **DZ15E Asthma with CC without intubation**

The following table taken from research we carried out on data from 2001/02 shows how cases of asthma may be hidden behind vague primary diagnoses, especially acute upper or lower respiratory tract infection.

In this analysis, if National data were based solely on the primary diagnoses there would be an underestimate of acute asthma admissions by 11,000 for that year.

Unspecified Primary Diagnoses with Asthma Secondary Diagnosis			
Condition	ICD10	Code/Description	N
Asthma	A492	Haemophilus influenzae infection unspecified	2
Asthma	J069	Acute upper respiratory infection unspecified	2,065
Asthma	J22X	Unspecified acute lower respiratory infection	8,212
Asthma	J960	Acute respiratory failure	20
Asthma	J961	Chronic respiratory failure	21
Asthma	J969	Respiratory failure unspecified	53
Asthma	R048	Haemorrhage from other sites in respiratory passages	2
Asthma	R05X	Cough	231
Asthma	R060	Dyspnoea	549
Asthma	R061	Stridor	26
Asthma	R062	Wheezing	279
Asthma	R064	Hyperventilation	73

This is less likely to occur in the case of acute infective exacerbations of COPD as there is now a code which takes in to consideration the associated infective element, i.e. **J440** 'COPD with acute lower respiratory infection'.

Pneumothorax

A 60 yr old man admitted with a pneumothorax on a background of emphysema. Treated with intercostal drainage and makes uneventful recovery. No other comorbidities apart from Emphysema. Discharged 10 days later.

Diagnoses:

Pneumothorax (**J93.9**)

Emphysema (**J43.9**)

Procedure:

Drainage of pleural cavity NEC (**T122**)

Grouped as:

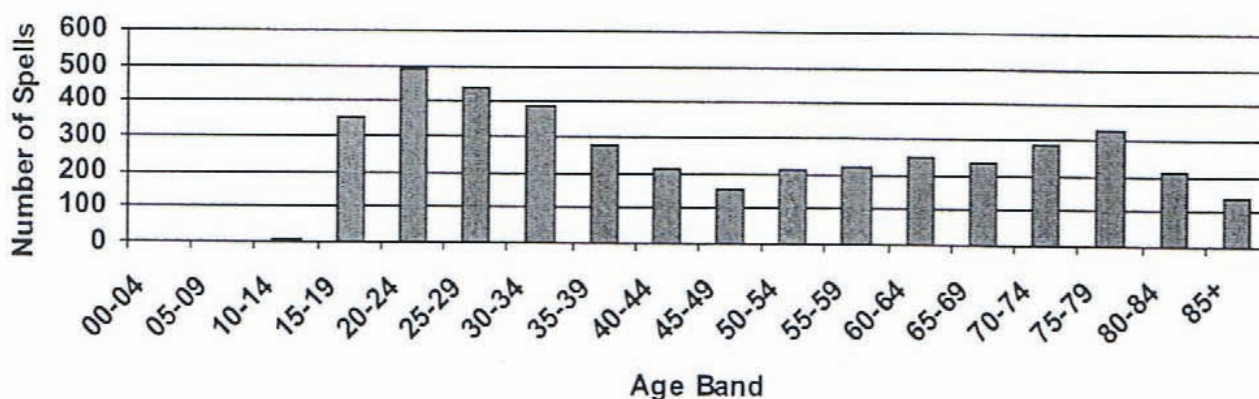
HRG DZ26A - Pneumothorax with CC

It is very important to document the underlying Emphysema in order to differentiate this from a spontaneous pneumothorax in an otherwise healthy young man.

As can be seen, from the below average length of stay, there is a 10-day difference and much greater extension of trimpoint (**please see Annexe E for definitions**) when comparing a complex with an uncomplicated pneumothorax. This has obvious implications for reimbursement. Note also the bimodal age distribution which fits well with the casemix involved.

HRG Code	HRG Chapter	HRG sub chapter	HRG label	Episode Trimpoint (Days)	Spell Trimpoint (Days)
DZ26A	D	DZ	Pneumothorax with CC	16	27
DZ26B	D	DZ	Pneumothorax without CC	6	9

Age Distribution



AMBULATORY DAYCASE AND OUTPATIENT CARE

The expansion of OPCS codes in 4.3 and 4.4 revisions has offered us the opportunity to document activity previously 'invisible' and subsumed within top down costs. It is possible that local agreements, to recognise such activity, have been in place but there has not been any way of producing National data to allow benchmarking and real time analysis of our ambulatory and outpatient work.

The Clinical Advisory Panel have proposed the following:

"We will have tariffs for single professional (first and follow-up) and multi-professional (first and follow-up) outpatient appointments. These tariffs will not distinguish between consultant led and non-consultant led activity. Doing so could encourage "gaming" with providers seeking to involve consultants to gain a higher tariff, when their involvement is not clinically necessary. It would also create a grey area in how the activity of highly skilled staff, like nurse consultants, should be counted. However, this approach does risk lower levels of reimbursement for services that have a very high-level of consultant input, which would be expected to have above average costs. This might particularly affect more specialised providers."

There have also been consultations on the issue of non face-to-face consultations as follows:

"We will set a single fixed price for a non face-to-face appointment. In our reference cost guidance for 2006/07 a non face-to-face appointment is defined as:

"an appointment which must directly entail contact with a patient or with a proxy for the patient such as a parent of a young child. A non face-to-face contact should be instead of a face-to-face appointment. Telephone contacts solely to inform a patient of test results are excluded from this category."

We have yet to finalize this single price, but it is likely to be circa £18 pounds.

A possible risk here would be that if there are specialties making use of video conferencing for a large proportion of their activity, then this might be under-reimbursed in a tariff that will be driven primarily by telephone calls.

A second option for non face-to-face outpatients, would be to set the tariff as a percentage of the single professional follow-up outpatient tariff. If this approach were used we would need to decide what an appropriate percentage would be."

At the time of producing this guidance no formal decision has been made as to how non face-to-face consultations should be costed.

Outpatient/daycase ambulatory care interventions which do not extend beyond 24 hours

There are new codes for a wide variety of such activity which include AHP interventions, lung function testing and smoking cessation. Some examples are as follows:

Physiotherapy

A patient with bronchiectasis is seen by a physiotherapist and is taught techniques such as postural drainage and use of PEP mask to facilitate clearance of secretions.

Procedure:

Clearance of secretions of respiratory tract (**E89.1**)

Grouped as:

HRG **DZ30Z - Chest Physiotherapy**

Respiratory Nurse Specialist

A patient with asthma is seen by a respiratory nurse specialist who gives guidance and education on self management.

Procedure:

Education for self management of respiratory health (**E97.3**)

Grouped as:

HRG **DZ49Z - Respiratory Nurse Education/Support**

TB Nurse specialist

A patient is seen by a TB nurse in the OP setting as part of a contact tracing screening.

Procedure:

Contact tracing (**E95.4**)

Grouped as:

HRG **DZ42Z - TB nurse support**

Smoking Cessation

A Health Professional sees a patient as part of a supportive role in smoking cessation and gives advice on Nicotine patches.

Procedure:

Nicotine replacement therapy using Nicotine patches (**E98.1**)

Grouped as:

HRG **DZ41Z - Smoking cessation support**

LUNG FUNCTION TESTS

The majority of lung function tests, ranging from complex exercise testing down to simple measures such as Peak Flow Rate, are now covered by new OPCS codes. It is hoped that these codes will be used as a matter of routine and, in liaison with ARTP, any teething problems and improvements will be ironed out for the next versions of OPCS. There is an opportunity to produce costs for each derived HRG (particularly those more costly such as complex exercise testing) which should then be implemented Nationally via PbR tariffs.

In the situation where a visit to Lung Function entails carrying out a package of tests then this package would comprise a number of codes:

e.g. Measurement of maximum expiratory and inspiratory flow volume (**E93.7**)

Carbon monoxide transfer factor test (E92.1)
Measurement of static lung volume (E93.5)

Some examples of the more common tests performed are as follows (please see *Annexe A* for a full list of HRGs relating to Respiratory measurements).

Simple airflow studies

Measurement of peak expiratory flow rate (E93.1) Spirometry (E93.2)
Measurement of maximum expiratory and inspiratory flow volume loop (E93.7)

Grouped as:

HRG **DZ44Z Simple airflow studies**

Lung volume studies

Measurement of static lung volume (E93.5)
This includes Helium dilution and body plethysmographic techniques.

Grouped as:

HRG **DZ45Z Lung volume studies.**

Simple lung function exercise test

Simple lung function exercise testing (E926)
This includes six minute walk, shuttle walk and exercise induced asthma testing.

Grouped as:

HRG **DZ32Z Simple lung function exercise testing**

Complex gas exchange

Carbon monoxide transfer factor test (E92.1)

Grouped as:

HRG **DZ39Z Complex gas exchange studies**

Oxygen assessment and monitoring

Long term oxygen assessment (E87.2)
Ambulatory oxygen assessment (E87.3)
Diagnostic assessment of circulatory oxygenation using reduced oxygen air (E87.4) (The latter terminology produced by CfH - Otherwise known as 'flight assessment'!)

Grouped as:

HRG **DZ38Z Oxygen assessment and monitoring**

Domiciliary sleep studies

The following bid has been presented to CfH but, so far, has been rejected:

There are circumstances when it is possible or preferable to carry out a simplified version of cardio-pulmonary sleep study in the home environment. This is separate from a cardio-pulmonary sleep study carried out as an inpatient as it requires fewer technological and human resources and is in a domiciliary setting. This would generate a different reference cost to an inpatient procedure and is important to differentiate from the latter as it takes in to account patient choice and 'care closer to home'. Domiciliary cardio-pulmonary sleep study would be one of the prelimi-

nary investigations prior to establishing CPAP and would map to DZ37Z 'Non-invasive ventilation support assessment'.

There is, however, a code to cover overnight oximetry (E91.3) and this could be used in the interim to recognise the measure of oxygen desaturation index (ODI). This will map to HRG **DZ37Z** 'Non-invasive ventilation support assessment', as it is part of the preliminary assessment of the need for CPAP which also maps to this HRG. This would need to be recorded as outpatient or daycase activity.

NB – Unfortunately, inspite of clearly stipulating the need for a separate code for establishing and monitoring CPAP support this was not carried through in this version and has been combined with **E85.2** 'Non-invasive ventilation NEC'.

The procedure codes which will map to HRG **DZ37Z** are as follows:

'Non-invasive ventilation NEC' (E85.2) which includes establishing/monitoring NIV support and establishing/monitoring CPAP support.

'Overnight oximetry' (E91.3)

To clarify – if a patient is suspected of suffering with obstructive sleep apnoea and has overnight oximetry set up and analysed (ODI) as an outpatient or day case, this will be coded as **E91.3**. This will serve as a proxy code for a simple sleep study in the current absence of an agreed code.

If the same patient has, as a result, a confirmed diagnosis and requires a health professional consultation, as an outpatient or day case, to establish CPAP, this will be coded as E85.2 until we can get agreement for a separate code for CPAP interventions in further versions.

Until we can achieve better defined coding in this field of activity it will be necessary to take a pragmatic approach with the production of an average cost for this day case/OP intervention which will inform future PbR reference costs. For the time being such interventions continue to be outside PbR tariffs and will require local negotiation. However, colleagues are encouraged to record these procedures as a starting point in these local negotiations.

NB – In spite of the DH's emphasis on the need for 'care closer to home' and patient choice these codes cannot be generated in the domiciliary setting and reimbursement for this activity can only be achieved if the intervention setting is recorded as outpatient or day case.

Other Respiratory Diagnoses

This HRG comprises a number of ICD10 codes which would not logically map to any of the others and could not be justified as being of enough volume or clinically homogeneous enough to merit their own HRG. This HRG is predominantly driven by symptom codes and the hope was that doctors would not use symptom codes as the primary descriptor of an episode of care. However, more recent analysis, over a the financial year 06/07, suggests that this is far from the case:

A Guide to Coding of Respiratory Care

Entry on coding form	Code	Number
Haemoptysis	RO42	12,364
Cough	RO5X	6,944
Dyspnoea	RO60	40,524
Wheeze	RO62	410
Hiccough	RO66	175
Total		60,417

It is appreciated that on occasions it may be difficult to enter a more definitive diagnosis at the time of completion of the coding details e.g. the diagnosis in a patient being bronchoscoped for haemoptysis may not yet be clear. However, it is unlikely that all the cases noted above, particularly those that were admitted for investigation, continued to have a diagnosis as vague as e.g. dyspnoea. It is hoped that the definition of these cases can be improved on with education and by the example of senior colleagues as we are missing out on a large volume of important casemix epidemiology.

Tariffs

Within General Medicine, reference costing and the derivation of tariffs is predominantly driven by length of stay/spell. These act as a proxy for cost as the majority of the resource relates to the staffing/hotel costs/general overheads rather than individual expensive bits of equipment/drugs. There are exceptions which often lie within the Specialty Services National Definition Set, e.g. expensive antibiotics in the treatment of Cystic Fibrosis patients.

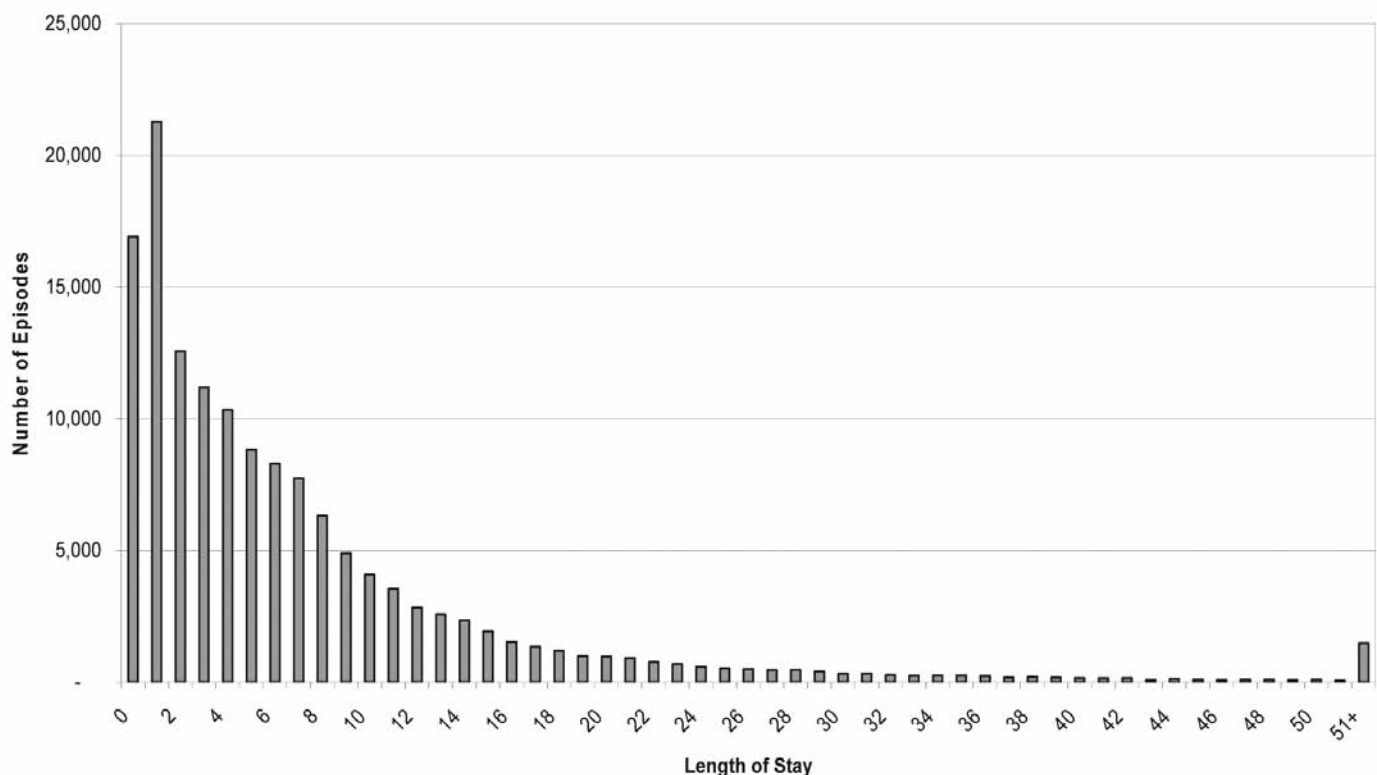
The length of stay distribution for a given HRG is usually skewed because of a tail of patients staying much longer than the mean/median. In the absence of a normal distribution it is not possible to derive average lengths of stay and this is why trimpoints are derived for each HRG beyond which a reduced cost per day is attributed. The tails of such distributions are however very important and often require closer inspection as they represent multifactorial causes of delayed discharge and although they are reimbursed at a lower, per diem, rate they may well still be just as demanding on resources as they were earlier in their stay. There should also be more detailed analysis of the peaks at the beginning of these distribution curves and what influence the admitting Consultant FCE length of stay has, bearing in mind that patients will move on to another Consultant FCE in many cases, when distributed to other wards, after transfer from Medical Admission Units. The use of Spells rather than FCEs will reduce this effect to some extent but raises the new requirement to ensure that the Spell (complete episode of inpatient care comprising all FCEs) represents the most resource consuming component of that admission.

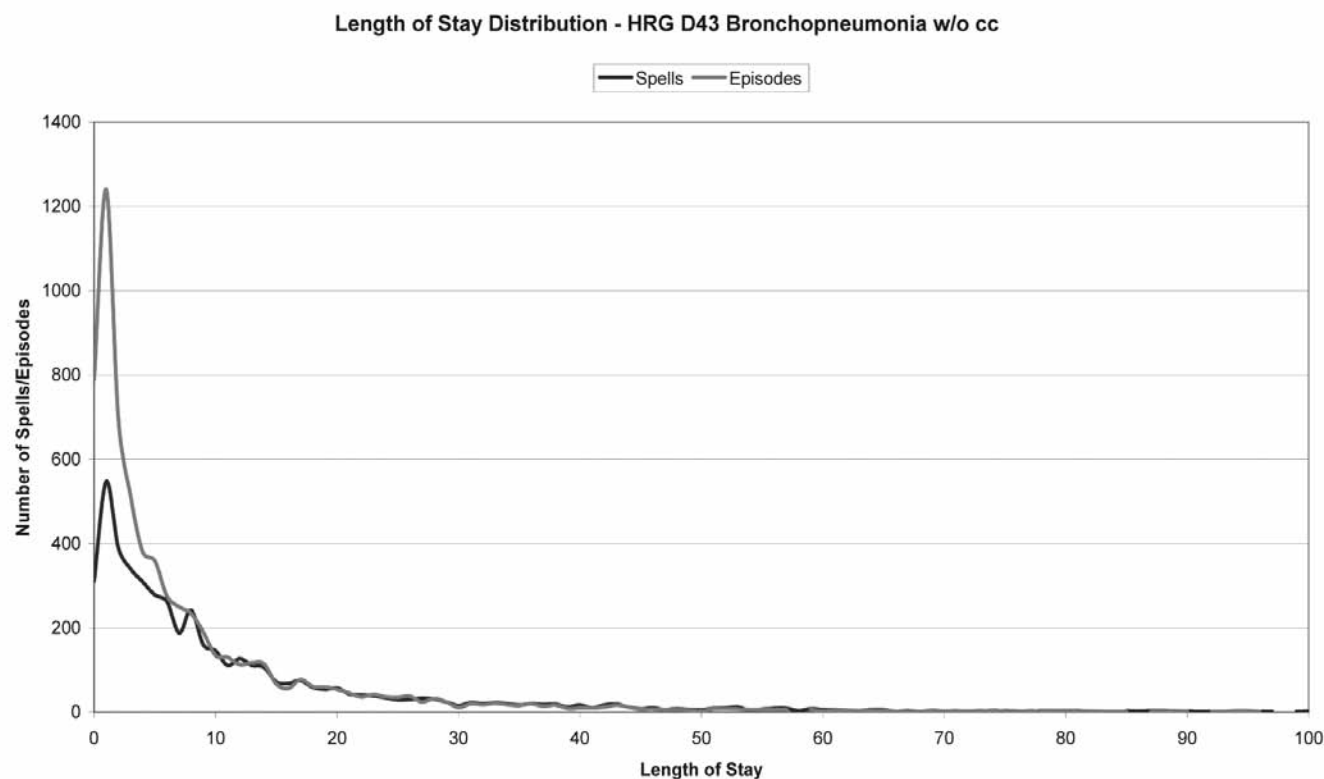
The graph below, which looks at patients aged > 35 years admitted with a primary diagnosis of COPD, demonstrates the typical shape of length of stay distribution.

The graph right, demonstrates the change in curve when the data for Bronchopneumonia is analysed in terms of Spells rather than FCEs. Note the blunting of the peak of the curve.

If we are to derive more accurate data on e.g. how many COPD patients receive NIV during admission it is important that we ensure that these

COPD Length of Stay (Age 35+)





data are captured through the new codes that are available. We can then follow through on the current drive to estimate the cost of care with more sophistication than just average length of stay (LOS). It may simply be, in such an example, that we add a supplement to the average LOS, which reflects the average resources consumed in a period of acute NIV support, whenever that HRG is generated.

Having gained new codes for lung function testing and NIV (establishment and monitoring), we should be proactive in costing these individual interventions or consider bundling relevant ones together in costed packages.

Hospital at Home and Programmed Pulmonary Rehabilitation are highly suited to patient-level costing as they are well-defined pathways of care with established National standards and this will be essential as tariffs based on LOS are inappropriate in these cases. The same will apply to procedure driven HRGs such as Respiratory Sleep Study where a tariff based on a LOS < 1 day may not truly reflect the cost of that episode

when the staffing and technical aspects are all taken in to consideration.

Conclusion

It is hoped that this guide will stimulate health professionals and coders to look more critically at our approach to the whole question of data acquisition and help formulate progressive thinking, in liaison with our respective finance departments, in the field of costing our health care. If the Government remains committed to the pursuit of a market economy approach then we need to be actively involved in striving for better quality data which underpins our goal of better casemix accuracy and costing. It is essential that Healthcare Professionals use their Governance procedures to liaise more closely with specialty coders to gain a mutual understanding of the remaining barriers to progress. This should not be driven by a ‘them and us’ approach but should be based not only on a more accurate reflection of resource consumption for the whole Health Economy but also on pathways of integrated care which are recommended by national consensus in the best interests of patients.

Dr S J Connellan

Respiratory HRG Expert Working Group Lead

On behalf of the British Thoracic Society

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A Guide to Coding of Respiratory Care

ANNEXE A

HRG Code	Resp. Chapter	HRG Chapter	Thoracic Procedures or Disorders
DZ01Z	D	DZ	Lung Transplant
DZ02A	D	DZ	Complex Thoracic Procedures with Major CC
DZ02B	D	DZ	Complex Thoracic Procedures with CC
DZ02C	D	DZ	Complex Thoracic Procedures without CC
DZ03A	D	DZ	Major Thoracic Procedures with CC
DZ03B	D	DZ	Major Thoracic Procedures without CC
DZ04A	D	DZ	Intermediate Thoracic Procedures with CC
DZ04B	D	DZ	Intermediate Thoracic Procedures without CC
DZ05Z	D	DZ	Other Thoracic Procedures
DZ06Z	D	DZ	Minor Thoracic Procedures
DZ07Z	D	DZ	Fibre optic Bronchoscopy
DZ08Z	D	DZ	Rigid Bronchoscopy
DZ09A	D	DZ	Pulmonary Embolus with Major CC
DZ09B	D	DZ	Pulmonary Embolus with CC
DZ09C	D	DZ	Pulmonary Embolus without CC
DZ10A	D	DZ	Lung Abscess-Empyema with Major CC
DZ10B	D	DZ	Lung Abscess-Empyema with CC
DZ10C	D	DZ	Lung Abscess-Empyema without CC
DZ11A	D	DZ	Lobar, Atypical or Viral Pneumonia with Major CC
DZ11C	D	DZ	Lobar, Atypical or Viral Pneumonia without CC
DZ12A	D	DZ	Bronchiectasis with CC
DZ12B	D	DZ	Bronchiectasis without CC
DZ13A	D	DZ	Cystic Fibrosis with CC
DZ13B	D	DZ	Cystic Fibrosis without CC
DZ14A	D	DZ	Pulmonary, Pleural or Other Tuberculosis with CC
DZ14B	D	DZ	Pulmonary, Pleural or Other Tuberculosis without CC
DZ15A	D	DZ	Asthma with Major CC with Intubation
DZ15B	D	DZ	Asthma with CC with Intubation
DZ15C	D	DZ	Asthma without CC with Intubation
DZ15D	D	DZ	Asthma with Major CC without Intubation
DZ15E	D	DZ	Asthma with CC without Intubation
DZ15F	D	DZ	Asthma without CC without Intubation
DZ16A	D	DZ	Pleural Effusion with Major CC
DZ16B	D	DZ	Pleural Effusion with CC
DZ16C	D	DZ	Pleural Effusion without CC
DZ17A	D	DZ	Respiratory Neoplasms with Major CC
DZ17B	D	DZ	Respiratory Neoplasms with CC
DZ17C	D	DZ	Respiratory Neoplasms without CC
DZ18Z	D	DZ	Sleeping Disorders Affecting Breathing
DZ19A	D	DZ	Other Respiratory Diagnoses with Major CC
DZ19B	D	DZ	Other Respiratory Diagnoses with CC
DZ19C	D	DZ	Other Respiratory Diagnoses without CC
DZ20Z	D	DZ	Pulmonary Oedema
DZ21A	D	DZ	Chronic Obstructive Pulmonary Disease or Bronchitis with length of stay 1 day or less discharged home
DZ21B	D	DZ	Chronic Obstructive Pulmonary Disease or Bronchitis with Intubation with Major CC
DZ21C	D	DZ	Chronic Obstructive Pulmonary Disease or Bronchitis with Intubation with CC
DZ21D	D	DZ	Chronic Obstructive Pulmonary Disease or Bronchitis with Intubation without CC
DZ21E	D	DZ	Chronic Obstructive Pulmonary Disease or Bronchitis with NIV without Intubation with Major CC
DZ21F	D	DZ	Chronic Obstructive Pulmonary Disease or Bronchitis with NIV without Intubation with CC
DZ21G	D	DZ	Chronic Obstructive Pulmonary Disease or Bronchitis with NIV without Intubation without CC
DZ21H	D	DZ	Chronic Obstructive Pulmonary Disease or Bronchitis without NIV without Intubation with Major CC
DZ21J	D	DZ	Chronic Obstructive Pulmonary Disease or Bronchitis without NIV without Intubation with CC
DZ21K	D	DZ	Chronic Obstructive Pulmonary Disease or Bronchitis without NIV without Intubation without CC
DZ22A	D	DZ	Unspecified Acute Lower Respiratory Infection with Major CC
DZ22B	D	DZ	Unspecified Acute Lower Respiratory Infection with CC

ANNEXE A continued

HRG Code	Resp. Chapter	HRG Chapter	Thoracic Procedures or Disorders
DZ22C	D	DZ	.Unspecified Acute Lower Respiratory Infection without CC
DZ23A	D	DZ	.Bronchopneumonia with Major CC
DZ23B	D	DZ	.Bronchopneumonia with CC
DZ23C	D	DZ	.Bronchopneumonia without CC
DZ24A	D	DZ	.Inhalation Lung Injury or Foreign Body with Major CC
DZ24B	D	DZ	.Inhalation Lung Injury or Foreign Body with CC
DZ24C	D	DZ	.Inhalation Lung Injury or Foreign Body without CC
DZ25A	D	DZ	.Fibrosis or Pneumoconiosis with CC
DZ25B	D	DZ	.Fibrosis or Pneumoconiosis without CC
DZ26A	D	DZ	.Pneumothorax with CC
DZ26B	D	DZ	.Pneumothorax without CC
DZ27A	D	DZ	.Respiratory Failure with Intubation with Major CC
DZ27B	D	DZ	.Respiratory Failure with Intubation with CC
DZ27C	D	DZ	.Respiratory Failure with Intubation without CC
DZ27D	D	DZ	.Respiratory Failure without Intubation with Major CC
DZ27E	D	DZ	.Respiratory Failure without Intubation with CC
DZ27F	D	DZ	.Respiratory Failure without Intubation without CC
DZ28Z	D	DZ	.Pleurisy
DZ29A	D	DZ	.Granulomatous, Allergic Alveolitis or Autoimmune Lung Disease with CC
DZ29B	D	DZ	.Granulomatous, Allergic Alveolitis or Autoimmune Lung Disease without CC
DZ30Z	D	DZ	.Chest Physiotherapy
DZ31Z	D	DZ	.Complex Lung Function Exercise Testing
DZ32Z	D	DZ	.Simple Lung Function Exercise Testing
DZ33Z	D	DZ	.Hyperbaric Oxygen Treatment
DZ34Z	D	DZ	.Complex Bronchodilator Studies
DZ35Z	D	DZ	.Simple Bronchodilator Studies
DZ36Z	D	DZ	.Bronchial Reactivity Studies
DZ37Z	D	DZ	.Non-Invasive Ventilation Support Assessment
DZ38Z	D	DZ	.Oxygen Assessment and Monitoring
DZ39Z	D	DZ	.Complex Gas Exchange Studies
DZ40Z	D	DZ	.Simple Gas Exchange Studies
DZ41Z	D	DZ	.Smoking Cessation Support
DZ42Z	D	DZ	.TB Nurse Support
DZ43Z	D	DZ	.Complex Airflow Studies
DZ45Z	D	DZ	.Lung Volume Studies
DZ46Z	D	DZ	.Respiratory Muscle Strength Studies
DZ48Z	D	DZ	.Respiratory Drive Studies
DZ49Z	D	DZ	.Respiratory Nurse education/support
DZ50Z	D	DZ	.Respiratory Sleep Study

ANNEXE B

Healthcare Resource Groups (HRGs) are standard groupings of clinically similar patients who consume similar levels of resources. The HRG for COPD is a composite of many diagnosis codes (ICD10) which include descriptions such as:

COPD with acute exacerbation (J441)

COPD with acute lower respiratory infection (J440)

COPD unspecified (J449)

Emphysema (J439)

Acute bronchitis unspecified (J209)

These all 'map' or 'group' to the COPD HRG. 'Acute bronchitis' was included in this HRG because the length of stay (LOS) distribution was very similar to COPD and it was felt likely that this diagnosis implied a significant element of COPD.

Further revisions of the COPD HRG, in version 4, have taken in to account as to whether there are any associated complications/comorbidity (CC) or any support with NIV or intubation. These factors will have an influence on LOS and cost.

OPCS (Office for Population Censuses and Surveys) codes are used to identify specific health interventions carried out by medical professionals. These have, in the past, been driven predominantly by surgical procedures but with the development of the PbR programme it has been necessary to add new codes to account for changing clinical practice in

specialty services activity and also to define other interventions such as AHP activity, physiological measurement etc. OPCS 4.3 version was available in April 2006 and, as part of an annual update, suggestions for clinical activity, not currently captured by OPCS-4.3, were sought. The NHS Classifications Service evaluated nearly 800 requests for change over the summer of 2006, from all sources in the NHS, and OPCS-4.4 was produced.

Whenever a doctor or coder enters a diagnosis (ICD10) or procedure (OPCS) on a **Körner Medical Records (KMR) form**, at the front of the patients' notes, this information is 'translated' in to the relevant codes and acts as the building block for all our casemix activity and epidemiology. It also provides data on complications/comorbidity and length of stay which is ultimately 'translated' in to reference costs (tariffs) for hospital admissions. The responsibility for entering this important information in the notes is not standardised and may fall to an inexperienced junior doctor who may not have a full appreciation of the crucial nature of these data.

ANNEXE C

Need to identify a new intervention:

A previous request for Chapter D (ref 20070427182923) to identify the intervention of Hospital at Home for an acute exacerbation of COPD was turned down.

This request is once again fully supported by the Respiratory EWG, Specialist Society (BTS) and is fully in line with the Government's views on 'Care closer to Home' and admission avoidance.

This activity is already occurring in many Trusts throughout the UK but there is no current data flow to identify, reference cost or bench mark it.

The Government is keen to support and promote any initiatives which reduce unnecessary hospital admissions and 'care closer to home' is one of its 'visions'. The British Thoracic Society (BTS) has produced clear guidance on one such intervention, Hospital at Home (Thorax 2007;62:200–210.) Active treatment is provided by health professionals, in the patient's home, for a limited period, for an exacerbation of COPD.

A Cochrane report in 2003 concluded that this intervention was safe and effective and that 1:4 patients presenting as an emergency to hospital would be suitable for treatment at home with nursing support (BMJ 2004; 329:315–8). It has been recommended that assisted or early discharge schemes followed by home care and avoided admission with care at home would be encompassed under the overall umbrella of Hospital at Home (HaH).

There is support from NICE guidance on commissioning which looks at benchmarks for a standard population and service components. (www.nice.org.uk/usingguidance/commissioningguides)

In order to recognize such activity on a National scale it is important that we introduce a method of identification which specifically defines this activity so that we can benchmark across the NHS and relate this activity to the overall admission rates for acute COPD. There are Integrated Care Pathways published for these episodes of care and such an HRG would be ideal for patient-level costing. Current practice is for the patient to be assessed by a hospital respiratory health professional with subsequent out of hours cover undertaken by the acute Trust.

This intervention is a well-defined package of care which is described in terms of an Integrated Care Pathway with clear standards and can be patient-level costed. The unique situation arises when a patient suffering from an acute exacerbation of COPD may be safely treated in the home environment, usually up to 7 days, by experienced health professionals provided specific criteria are satisfied.

There may be occasions when this intervention is activated without hospital admission as part of admission avoidance in the community but current commissioning practice assumes that the pathway begins following acute admission and assessment in hospital.

Further to helpful consultation with Jayne Harding (CfH) we understand that the most appropriate way forward would be to request an addition to the Minimum Dataset via the Information Standards Board. This addition to the data dictionary would be termed 'Hospital at Home (COPD)' and whenever an acute exacerbation of COPD was discharged to the care of a Hospital at Home team and this was documented on the KMR form, a discharge code would identify this intervention.

ANNEXE D

Bid to CfH re: Sleep studies

"There is confusion around the definition of what constitutes full polysomnography or sleep studies.

The DH document, "What is physiological measurement", refers to these measurements which include oximetry, actigraphy, cardio-pulmonary sleep studies (without electroencephalography EEG) and full polysomnography which includes EEG, electrooculography (EOG), and surface electromyography (EMG) together with multiple sleep latency test (MSLT) and the maintenance of wakefulness test (MWT). These tests have all been promoted in the DH in recent documents.

*It has come to our attention that A84.7 (Sleep studies) has been mapped to **DZ18Z** (Sleep disorders affecting breathing). This was never the intention of the Respiratory EWG as this code refers to the full polysomnography as described above which is aimed predominantly at the diagnosis of sleep disorders which do not affect breathing.*

Our recommendation is as follows:

U331 code, 'polysomnography' should now map to **DZ50Z**

U331 should be re-named '**Respiratory Polysomnography**' and the description for **HRG DZ50Z** should be changed to: '**Cardio-pulmonary sleep study**'.

A84.7 should be termed 'full polysomnography' and should map to the Neuroscience chapter.

DZ18Z 'Sleep Disorders Affecting Breathing' should stay as it is. This will cover the eventuality of a patient **not** being admitted specifically for cardio-pulmonary sleep studies but subsequently being diagnosed as suffering with this condition during the inpatient episode. Alternatively, the patient may already be diagnosed but is admitted for further treatment or stabilisation of the condition."

ANNEXE E – DEFINITIONS

Term	Description
A&E	Accident and emergency contracts have developed from block contracts to more differentiated tariffs dependent on case severity, i.e. high cost, standard cost, and minor injuries.
Electives	Non emergency admissions generally have lower costs when compared to emergency admissions.
Excess bed days	The number of additional days of an admission for a given HRG over and above the trimpoint. It is derived mathematically as follows: spell duration – upper trimpoint for a specific HRG = excess bed days. Excess bed days are only calculated when the spell duration is greater than the upper trim point.
Flexibility	This is applied where locally agreed tariffs are used instead of the national tariffs. There are many variations on this and for further details the national guidance as well as local commissioning plans need to be scrutinised.
Market Forces Factors	Additional top ups for providers in high cost areas such as London.
Outliers	Events that have unusual characteristics. In relation to HRGs these usually are admissions where the LOS (i.e. length of admission) is longer than expected. The expected range of LOS for a given HRG is defined by values known as trimpoints.
Outpatients	New referrals are paid a higher tariff to follow-up referrals. A follow-up referral is a referral to the same medical clinic within a six month period. Outpatient tariffs have been augmented in 2007/8 for certain procedures e.g. colposcopy, epidural injections (for non obstetric pain services), fine needle biopsy of breast, flexible sigmoidoscopy.
Per diem cost	A cost per day specific for a given HRG that is used to calculate the additional cost for outliers. The total cost of the outliers is as follows: HRG tariff + (per diem cost x excess bed days > 0) = total cost.
Short stays	Patients admitted for short length of stay cost the hospital less than the full tariff price. This has been mathematically adjusted by a short stay discount that is specific to certain HRGs where the length of stay is less than 2 days.
Spell	An admission. The spell length is time in days from admission date to discharge date. Spells are sometimes called finished hospital stay (FHS) and should not be confused with finished consultant episode (FCE).
Spell duration	The length of an admission in days; sometimes known as length of stay (LOS).
Top up payments	Additional payments that are factored into the HRGs based on a number of parameters – especially children's services. Specialised services have unique HRGs These include bone marrow transplants, cystic fibrosis, renal transplant, chemotherapy, burns, and radiotherapy. There are specific HRGs for regular outpatient attenders and pathology.
Upper trimpoint	A statistically derived length of stay that denotes the upper end of a range of expected length of stays for an admission with a given HRG.



British Thoracic Society, 17 Doughty Street, London WC1N 2PL
Telephone: 020 7831 8778 Fax: 020 7831 8766

www.brit-thoracic.org.uk