different mix of patients in the CF registry than the US insurance based health system despite the US CF foundation's attempts to reduce barriers to care. This study compared registry and routine deaths in UK and USA.

Methods UK and US routine deaths for ICD-10 E84 are provided in 5 year age bands and the age of death was taken as the midpoint age in the band. Medians were calculated with STATA.

Results US routine data are not yet published for 2007 onwards. The Abstract P236 table 1 shows total deaths and median age at death derived from routine and registry data for USA and UK.

Abstract P236 Table 1

Year	UK Total deaths routine	UK median age at death registry/ routine	UK registry Total deaths (n) (%) missing	US total deaths routine	US median age at death registry/ routine	US registry total deaths (n) (%) missing
2009	147	27/27	141 (6) (4%)	NA	26.1/NA	440 (NA) (NA)
2008	122	27/27	100 (22) (18%)	NA	26.3/NA	420 (NA) (NA)
2007	133	24/27	106 (27) (20%)	NA	25.9/NA	394 (NA) (NA)
2006	112	NA/27	NA	438	25.2/27	362 (76) (21%)
2005	108	NA/27	NA	414	NA/27	NA
2004	137	26/27	123 (14) (10%)	461	24.2/27	358 (103) (29%)
2003	117	24/24	136 (33) (24%)	447	25.4/27	370 (77) (21%)
2002	118	NA/24	NA	485	25.2/27	426 (59) (14%)

CF deaths in UK and US 2002 to 2009.

Discussion Both the US and UK have around 20% of CF deaths occurring outside centres though in 2009 in the UK this fell to 4%. In 3 out of the 5 years that allow comparison the median age at death was higher in UK registry data compared to the USA. Contrary to expectation the median age at death derived from routine data are higher than the age of death from registry data in all years where comparison is possible. Interestingly, in the US routine data the distribution were different to the UK with many more very old (over 70) patients. The increased age at death in routine data may in part reflect the imprecision related to the routine data only providing age at death in 5 year bands. The apparent higher proportion of very elderly in the US is intriguing and invites further study.

P237 DOES DESATURATION ON EXERCISE PREDICT NOCTURNAL HYPOXIA IN CHILDREN WITH CYSTIC FIBROSIS?

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Introduction Exercise induced arterial hypoxia (EIAH) is well documented in cystic fibrosis (CF); though its relationship with nocturnal hypoxia remains unclear. In adult CF, hypoxia occurs more frequently during sleep than exercise,[1 2] but this has not been investigated in children.

Aim To identify whether EIAH is a reliable predictor of nocturnal hypoxia in CF children.

Methods Retrospective case note review of 34 children with CF. All performed the modified shuttle test,[3] overnight pulse oximetry and spirometry in the second week of an elective admission for intravenous antibiotics. EIAH was defined as drop in SpO_2 ≥4% from baseline.[4] There is no agreed definition of nocturnal hypoxia, we assessed numerous overnight variables, mean and lowest SpO_2 and % time with SpO_2 <92% in sleep. Data were analysed using SPSS software (SPSS).

Results 34 subjects were assessed, median age 12 (range 7–16) years, and FEV_1 72 (25–103) % predicted. Nine demonstrated EIAH and five had nocturnal desaturation (SpO_2 <92% >10% sleep time). All children with SpO_2 <92% for >10% of sleep also had EIAH, this was significant (p=0.0086). The relationship between nocturnal hypoxia and lowest exercise SpO_2 (p=0.0076) was also significant. However, 6 of those with EIAH were not hypoxic overnight. The sensitivity of EIAH detecting sleep hypoxia was 75% and specificity 80%. Positive predictive value (PPV) was 33% and negative predictive value 96%.

Conclusion The PPV of EIAH for detecting nocturnal hypoxia is poor, but the definition of EIAH must be questioned. SpO_2 varying from 90% to 87% does not meet EIAH criteria, yet a fall from 97% to 93% does. We must also note that although the relationship between nocturnal hypoxia and EIAH appears significant the number of subjects in this group is extremely small. We conclude EIAH is not a reliable predictor of nocturnal desaturation and advocate a sleep study to confidently detect sleep hypoxia.

Abstract P237 Table 1

Sleep Exercise	SpO_2 < 92% for <10% of sleep n=32	SpO_2 <92% for >10% of sleep n=3	p Value	Drop in SpO_2 <4% n=11	Drop in SpO_2 ≥4% n=23	p Value
Baseline SpO_2	97 (87–99)	94 (89–97)	0.1449	97 (94–99)	97 (87–99)	0.5397
% Change in SpO_2	1 (−5–7)	10 (4–13)	0.0128	1 (−6–3)	2 (−11–18)	0.294
Number with EIAH	6 (16%)	3 (100%)	0.0086	1 (9%)	6 (26%)	0.3844
Lowest SpO_2	95 (88–100)	84 (79–90)	0.0076	95 (93–99)	95 (79–100)	0.204

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P238 PRESCRIPTION ISSUE DATA AS A MEASURE OF ADHERENCE WITH NEBULISED THERAPY IN AN ADULT CYSTIC FIBROSIS CENTRE

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Introduction and Objectives Patients with cystic fibrosis are often prescribed complex time-consuming medication regimens. We know from studies in chronic diseases that most patients will be at best only partially adherent with their medication. We studied adherence with nebulised therapy in our adult CF clinic, by measuring the actual quantity of medication prescribed as recorded in General Practitioner and hospital computer prescribing records. The results were compared with the CF centre staff's predictions of adherence on an individual patient basis.

Methods We requested prescription issue data for 26 patients on nebulised dornase α, colistin and tobramycin both from the patient's general practitioners and from the hospital pharmacy. We compared the actual quantity of medication prescribed to each patient to the expected number of doses that they should have received during a 12-month period and calculated a percentage adherence based on these figures. Based on previous work in our difficult asthma clinic we assigned obtaining =80% of doses as being adherent; =50% but <80% as partially adherent and <50% as non-adherent with the medication.