Abstract P276 Table 1 MIC range, MIC 50, MIC 90 and% resistant *P.aeruginosa* isolates for Cystic Fibrosis (CF), Non Cystic Fibrosis Bronchiectasis (NCFB) and controls (C)

	Meropenem			Ceftazidime			Ticarcillin			Temocillin			Ciprofloxacin			Gentamicin		
	CF	NCFB	C	CF	NCFB	C	CF	NCFB	C	CF	NCFB	C	CF	NCFB	C	CF	NCFB	C
MIC Range	0.008-16	0.008 - 32	0.008-8	0.25-128	0.125 – 64	2-16	0.125-128	0.125 – 16	16-128	0.5-128	0.064 – 128	8-128	0.03-16	0.032 – 32	0.03-4	1-64	0.032-4	0.25-4
MIC 50	0.5	0.125	0.125	4	1.5	4	8	1	32	8	4	128	1	0.25	0.06	2	0.25	1
MIC 90	4	4	1	128	8	16	128	128	128	128	128	128	4	32	0.5	64	2	2
% Resistant	21%	18%	6%	28%	12%	16%	36%	18%	74%	NA	NA	NA	63%	47%	7%	32%	0%	0%
% Sensitive	79%	82%	94%	72%	88%	84%	64%	82%	26%	NA	NA	NA	37%	53%	93%	68%	100%	100%
EUCAST BP	S≤ 2, R>8			S≤ 8, R>8			S≤ 16, R>16			NA			S≤ 0.5, R>1			S≤4, R>4		

Therefore, temocillin may provide a useful alternative to the current anti-pseudomonal antibiotics in treating NCFB and CF patients.

P277 PHYSIOLOGICAL RESPONSE TO EXERCISE IN AN ADULT CYSTIC FIBROSIS POPULATION: INVESTIGATING THE RELATIONSHIP BETWEEN HRR AT ANAEROBIC THRESHOLD AND FEV1% PREDICTED

G Comber. *Royal Wolverhampton NHS Trust, Wolverhampton, UK*

10.1136/thoraxjnl-2015-207770.413

Introduction Cystic Fibrosis (CF) is an autosomal, recessive disease characterised by a mutation or dysfunction. Patients suffer a number of complications caused by poor sodium and chloride transport across cell membranes leading to viscous secretions. The disease is life limiting and around 85% of these early deaths are a result of respiratory failure with the most accurate prognosis marker being maximum volume of oxygen utilisation ($VO_{2\ max}$). This parameter is affected by a number of factors and can be increased or preserved through correct exercise prescription. For maximal benefits exercise should be targeted around anaerobic threshold however this is not easily identifiable during regular activities.

Method 15 patients with CF underwent Cardiopulmonary exercise testing (CPET) to establish whether there was a significant correlation between Forced Expiratory Volume in one second percent predicted (FEV^1%) and Heart Rate Reserve (HRR) at Anaerobic Threshold (AT) as a method of giving an easily monitored parameter (Heart Rate) as a target during exercise, for a given severity of lung disease, to gain maximal benefits from the activity.

Results The correlation between FEV^1% and HRR at AT was found to be very weak, $r(13) = 0.269$, $p > 0.05$ however there was a strong correlation between FEV1% and Maximum volume of utilised oxygen percent Predicted ($VO_{2\ max}$%), $r(13) = 0.601$, $p < 0.05$.

Discussion This study shows that FEV^1% can not be used as a predictor of HRR at AT, however the lack of correlation does show a narrow window for HRR in which patients with CF should aim in order to exercise near AT and ultimately improve their fitness and prognosis. The strong correlation between FEV^1% and $VO_{2\ max}$% serves a great purpose in the that prognosis and 5 year mortality risk can be estimated from a lung function test widely available and frequently performed as opposed to CPET which is only available in specialist centres.

P278 IS THERE A ROLE FOR TELEMEDICINE IN CYSTIC FIBROSIS? A SYSTEMATIC REVIEW

[1]R Curley, [2]ZH Hoo, [2]R Archer, [1]MJ Wildman. *[1]Adult CF Centre, Northern General Hospital, Sheffield, UK; [2]ScHARR, University of Sheffield, Sheffield, UK*

10.1136/thoraxjnl-2015-207770.414

Background As a result of new medical advances people with CF are now able to live longer but still require frequent specialist care input and support. To cope with an ever increasing complex condition and demand for care, CF centres are having to rethink the way they work. Telemedicine is an evolving field which has the advantage of remote monitoring and real time review and may provide a solution.

Objectives To determine whether telemedicine has a role in the management of CF in terms of: 1) Feasibility and acceptability, 2) Early pulmonary exacerbation detection, and 3) Self-management and improving adherence to prescribed therapies.

Methods A systematic search was undertaken to identify relevant studies. This involved seven electronic databases, the top four peer reviewed journals reporting on CF and telemedicine, and the three major conference proceedings in CF and telemedicine. Clinical trial registers were searched to find ongoing studies as supplementary evidence. A mixed methods synthesis was performed to combine results from quantitative and qualitative studies.

Results 34 studies in total were included in the results synthesis. These consisted of mainly small pilot and feasibility studies. There were 7 RCTs largely reporting interim results rather than efficacy data. Rates of adherence to telemedicine varied between 10.16 to 59% but were generally poor with barriers including frequent measures being a burden, forgetting, and denial of results. There was a general consensus that pulmonary exacerbations can be detected early but no statistical tests of significance performed. There were also only 2 studies predominantly reporting qualitative evidence. After corroborating the results using thematic synthesis this led to 3 main themes (expectations, technical aspects, and impacts of telemedicine) linked to these were barriers and facilitators.

Conclusion The findings indicate that telemedicine in CF is feasible but the uptake amongst people with CF may be challenging. This is probably not surprising since adherence to treatment is often poor. Nevertheless telemedicine has the potential to play an important role in the early detection of pulmonary exacerbations and further studies are required.

P279 THE FEMALE DISADVANTAGE IN UK CF REGISTRY DATA 2008–2013

[1]S Hippolyte, [2]R Keogh, [3]S MacNeill, [1]N Simmonds, [4]U Griesenbach. *[1]Royal Brompton and Harefield NHS Trust, London, UK; [2]London School of Hygiene and Tropical Medicine, London, UK; [3]School of Social and Community Medicine, Bristol, UK; [4]Gene Therapy Group, NHLI, Imperial College, London, UK*

10.1136/thoraxjnl-2015-207770.415

Introduction and objectives The UK Cystic Fibrosis (CF) registry has been in its current form since 2006 offering annual review data comprising of detailed demographic and clinical information on 99% of the UK CF population (>10,000 individuals). Whilst widely accepted that FEV_1 and BMI are well-validated predictors of disease severity and outcome, the role of gender in CF remains debated. In some studies *Pseudomonas aeruginosa* (PsA) infection occurred earlier in females with a resulting deterioration in FEV_1. Here, we use CF registry data (2008–2013) to assess whether a female disadvantage in FEV_1or BMI exists in the UK population and whether PsA status differs by gender. This is the most complete UK CF registry gender-based analysis to date.

Methods and results Cross-sectional analysis of data from 2010 and 2013 supported decreased female survival (decreasing female prevalence with sequential age groups; 2013 p = 0.0001). It also highlighted lower BMI percentiles and more underweight (BMI <19) individuals amongst females (21.9%; males 13.6%: p = <0.0001), even when adjusted for lung function.

Females had worse lung function compared to males, particularly in adolescence; (females: mean FEV_1 71.3% at 16–19 yrs (CI 69.2–73.4), males: 78.9% (CI 76.9–81.0); p < 0.0001).

Females had higher absolute rates (57.1% on any intravenous antibiotics; 44.8% males) and greater total duration of intravenous antibiotic use across all adult age groups (p <).

Females had higher rates of CF-related diabetes from 16–29 years (females 28.2%, males 17.7%: p < 0.005), itself independently associated with worse prognosis.

On full analysis from 2008–2013 the age at which chronic PsA was first reported occurred earlier in females (mean 15.5 yrs 95% CI 14.9–16.1) than males (16.7 yrs; 95% CI 16.1–17.3) p = 0.01.

Conclusions Disease severity appears worse in CF females compared to males on cross-sectional analysis of data from 2010 and 2013. Females have earlier PsA infection and lower BMI, both of which are individually associated with worse outcomes and increased intravenous antibiotic use. Females also have reduced lung function, and receive more treatment. These data suggest a persistent and measurable gender difference in the UK CF population which we aim to explore more closely in longitudinal analysis.

P280 A SINGLE CENTRE EXPERIENCE OF SPONTANEOUS CLEARANCE OF MYCOBACTERIUM ABSCESSUS IN CYSTIC FIBROSIS PATIENTS

HD Green, PJ Barry, R Bright-Thomas, AM Brennan, AK Webb, R Lord, A Horsley, AM Jones. *University Hospital of South Manchester, Manchester, UK*

10.1136/thoraxjnl-2015-207770.416

Introduction The *Mycobacterium abscessus* complex is an emerging group of pathogens, which pose significant management challenges in CF. Current guidelines specify treatment is indicated in patients with repeated sputum culture positivity alongside radiological or clinical deterioration. However, identifying NTM as the cause of deterioration in the polymicrobial CF lung is challenging. Additionally, *M. abscessus* complex isolates are usually multi-resistant, requiring lengthy and complex treatment regimens. Whether to treat patients based on culture results alone is contentious and approaches differ between centres. Here we analyse our experience of *M. abscessus* at a large UK adult CF centre.

Methods All patients with 1 or more positive sputum culture for *M. abscessus* since 2010, and minimum of 1 mycobacterial culture and 1 year of follow-up since first positivity were included. Anti-mycobacterial treatment and culture results following first positivity were recorded. *M. abscessus* eradication was defined as 4 consecutive negative cultures spanning at least 1 year.

Results 21 patients were included. Of these, 6 (29%) have received/are receiving, anti-mycobacterial therapy based on clinician diagnosis of *M. abscessus* pulmonary disease. All 6 currently remain culture positive. Of the 15 remaining patients, 6 are consistently culture positive (duration 12 months - 5 years), but do not have evidence of NTM pulmonary disease. Spontaneous clearance of *M. abscessus* from sputum has occurred in 7 patients (Table 1). Of these, 5 (71%) had ≥3 positive cultures including 1 patient with 5 positive samples spread over 2 years and 1 patient with 5 positive samples spread over 9 months. In 2 patients infection status cannot yet be confirmed as these patients have ≤4 mycobacterial culture results following their initial positive result.

Abstract P280 Table 1 *Mycobacterium abscessus* Sputum Culture and Treatment Status of Patients Attending Manchester Adult Cystic Fibrosis Centre

Persistently culture positive with history of treatment, n (%)	6 (31.6)
Persistently culture positive but never treated, n (%)	6 (31.6)
Spontaneous clearance from sputum, n (%)	7 (36.8)
Total number of patients	19

NB: 2 patients with <4 follow up sputum cultures were excluded from this table.

Conclusion Patients may spontaneously clear *M. abscessus* from their sputum, even with a history of multiple positive cultures over many months. If patients are treated on culture results alone there is a risk of initiating potentially unnecessary, lengthy and poorly tolerated treatment. Our results suggest that adhering to clinical guidelines of recognising clinical deterioration secondary to *M. abscessus* remains paramount before commencing treatment and assessment of treatment success without control data may be very misleading.