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ABSTRACTS

ROYAL ACADEMY OF MEDICINE IN IRELAND

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Irish Thoracic Society Annual Scientific Meeting 2022
Abstract Book
1 – 3 December 2022 , Naas, Ireland

Disclosure Statement

All content was reviewed and selected by the Irish Thoracic Society Annual Scientific Meeting Faculty which held full responsibility for the abstract selections.

The operational costs of the Irish Thoracic Society Annual Scientific Meeting 2022 are funded with the support of a number of commercial bodies through unrestricted educational grants. These are listed overleaf.

Irish Thoracic Society Annual Scientific Meeting 2022
1st2nd and 3rd December – Killashee Hotel Naas

Thursday 1st December 2022	
13.30 – 16.30	**Specialist Registrar Training**
17.30 – 20.30	**ITS Case Study Forum**
17.30 – 19.00	Case Study Poster Review
19.00 – 20.30	Case Study Oral Presentations followed by prize giving and supper
Friday 2nd December 2022	
08.00 – 10.15	**Poster Session I**
08.00 – 09.00	Poster Review
09.00 – 10.15	Parallel Poster Discussions
	1. Asthma
	2. Interstitial Lung Disease
	3. Lung Cancer
	4. Patient Care
	5. TB, Pleural and Sleep Disorders
10.15 - 10.45	**Tea and Coffee**
10.45 – 11.45	**Poster Session II**
10.45 – 11.45	Poster Review
11.45 – 13.00	Parallel Poster Discussions
	6. Cystic Fibrosis
	7. COPD
	8. COVID-19
	9. General Respiratory
	10.Telehealth
13.00 – 14.30	**Lunch and ITS AGM**
14.30 – 16.30	**Oral Presentations**
	1. Use of digital measurement of medication adherence and lung function to guide the management of uncontrolled asthma: The INCA Sun randomized clinical trial
	Elaine Mac Hale[1], presenting author on behalf of the INCA Sun randomized clinical trial work group.
	1. RCSI, Dublin, Ireland.
	2. A systematic assessment clinic for COPD reduces hospitalisation rates
	Finbarr Harnedy[1], Jack Allen[1], Michele Cuddihy[1], Eimear Ward[2], Ciara Feeney[2], Maeve Sorohan[2], Imran Sulaiman[1], Breda Cushen[1]
	[1]Department of Respiratory Medicine, Beaumont Hospital, Dublin 9
	[2]Respiratory Integrated Care, Beaumont Hub, Dublin North City and County CHO9
	3. The Benefit of a Liraglutide-Based Weight Loss Regimen Alone or in Addition to Standard CPAP Therapy on Metabolic Function, Atherosclerosis and Inflammation in Patients with Obstructive Sleep Apnoea - an Explorative, Proof of Concept Study
	Cliona O'Donnell[1,2], Shane Crilly[3], Anne O'Mahony[1], Jonny Dodd[2,3], Donal O'Shea[4], David Murphy[2,3], Silke Ryan[1,2]
	[1]Pulmonary and Sleep Disorders Unit, St. Vincent's University Hospital, Dublin, Ireland
	[2]University College Dublin, School of Medicine, Dublin, Ireland
	[3]Radiology Department, St. Vincent's University Hospital, Dublin, Ireland
	[4]Endocrinology Department, St. Vincent's University Hospital, Dublin, Ireland
	4. Evidence of mTORC1 pathway in Diffuse Idiopathic Pulmonary Neuroendocrine Cell Hyperplasia (DIPNECH)
	Maylis Alquier[1,2], Janet McCormack[2], Marissa O'Callaghan[4,6], Evelyn Lynn[4,6], Orla O'Carroll[4], David Murphy[5,7], Rachel Crowley[7], Dermot O'Toole[7], Cormac McCarthy[4,6], Aurelie Fabre [2,3,6,7]
	1. Faculty of Medicine, University of Limoges, France
	2. Research Pathology Core, Conway Institute, University College Dublin,
	3. Histopathology department, St. Vincent's University Hospital, Dublin, Ireland
	4. Department of Respiratory Medicine, St. Vincent's University Hospital, Dublin, Ireland

	5. Department of Radiology, St. Vincent's University Hospital, Dublin, Ireland
	6. School of Medicine and Medical Sciences, University College Dublin, Dublin, Republic of Ireland
	7. ENETS Centre for Excellence, St. Vincent's University Hospital, Dublin, Ireland
	5. Investigation of the Utility of Exhaled Breath Condensate (EBC) as a Liquid Biopsy in the Detection of Spatial Genomic Heterogeneity in Patients with Early-Stage Non-Small Cell Lung Cancer (ESLC)
	Robert Smyth[1, 2], Simon Furney[3], Siobhan Nicholson[4], Katherine Sheehan[5], Ronan Ryan[6], Daniel Ryan[2, 7] Liam Grogan[8], Oscar Breathnach[8], Patrick Morris[8], Bryan Hennessy[2, 8], Ross Morgan[7*], Sinead Toomey[2*]
	[1]Pulmonary Critical Care, Boston Medical Center, Boston, MA, United States, *[2]Department of Molecular Medicine, Royal College of Surgeons in Ireland, Dublin, Ireland*, *[3]Genomic Oncology Research Group, Royal College of Surgeons in Ireland, Dublin, Ireland*, *[4]Department of Pathology, St. James's Hospital, Dublin, Ireland*, *[5]Department of Histopathology, Royal College of Surgeons in Ireland, Dublin, Ireland*, *[6]Thoracic Surgery, St. James's Hospital, Dublin, Ireland*, *[7]Department of Respiratory Medicine, Beaumont Hospital, Dublin, Ireland*, *[8]Department of Medical Oncology, Beaumont Hospital, Dublin, Ireland.*
	6. Circulating soluble P2X7 receptor as a novel indicator of resolution of inflammation in patients with cystic fibrosis.
	Azeez Yusuf[1], Debananda Gogoi[1], Claudie Gabillard-Lefort[1], Cedric Gunaratnam[1,2], Noel G. McElvaney[1,2], Michelle Casey[1,2] & Emer P. Reeves[1]
	[1]The Irish Centre of Genetic Lung Disease, Dept of Medicine, Royal College of Surgeons in Ireland, Dublin, Ireland [2]Cystic Fibrosis Unit, Dept of Respiratory Medicine, Beaumont Hospital, Dublin, Ireland
	7. Results of the Irish Thoracic Society (ITS) Bronchoscopy questionnaire in preparation for the National Bronchoscopy Quality Improvement project
	Dr Daniel Ryan[1], Prof Marcus Kennedy[2]
	1. Department of Respiratory Medicine, Beaumont Hospital, Dublin
	2. Department of Respiratory Medicine, Cork University Hospital
	8. Incidence and outcomes of pulmonary arterial hypertension in the Republic of Ireland
	Sarah Cullivan[1], Brian McCullagh[1], Sean Gaine[1]
	1. National Pulmonary Hypertension Unit, Mater Misericordiae University Hospital, Dublin, Ireland
16.30 – 17.00	**Tea and Coffee**
17.00 – 17.45	**Guest Lecture I**
	Developments in sarcoidosis pathogenesis and treatment
	Dr Elliott Crouser, Ohio State University
19.00 – 19.45	**Prize Giving and Drinks Reception**
20.00 – late	**Gala Dinner**
Saturday 3rd December 2022	
09.30 – 10.00	**Pro/con debate**
10.00 – 10.45	**Guest Lecture II**
	Role of the pathologist in the diagnosis of interstitial lung diseases
	Professor Aurelie Fabre, St Vincent's University Hospital Dublin
10.45 – 11.15	**Tea and Coffee**
11.15 – 12.00	**Guest Lecture III**
	What physiology is essential to the respirologist in 2022?
	Professor Franco Laghi, University of Loyola Medical School
12.00 – 12.30	**Guest Lecture IV**
	Update on the National Clinical Programme Respiratory
	Dr Stanley Miller, National Clinical Lead Respiratory, Consultant Respiratory
	Physician Mater Misericordiae University Hospital Dublin
12.30	**Meeting close**

Irish Thoracic Society Poster Review and Discussion
Friday 2nd December 2022

1. Asthma

1.1 Don't act on the ACT

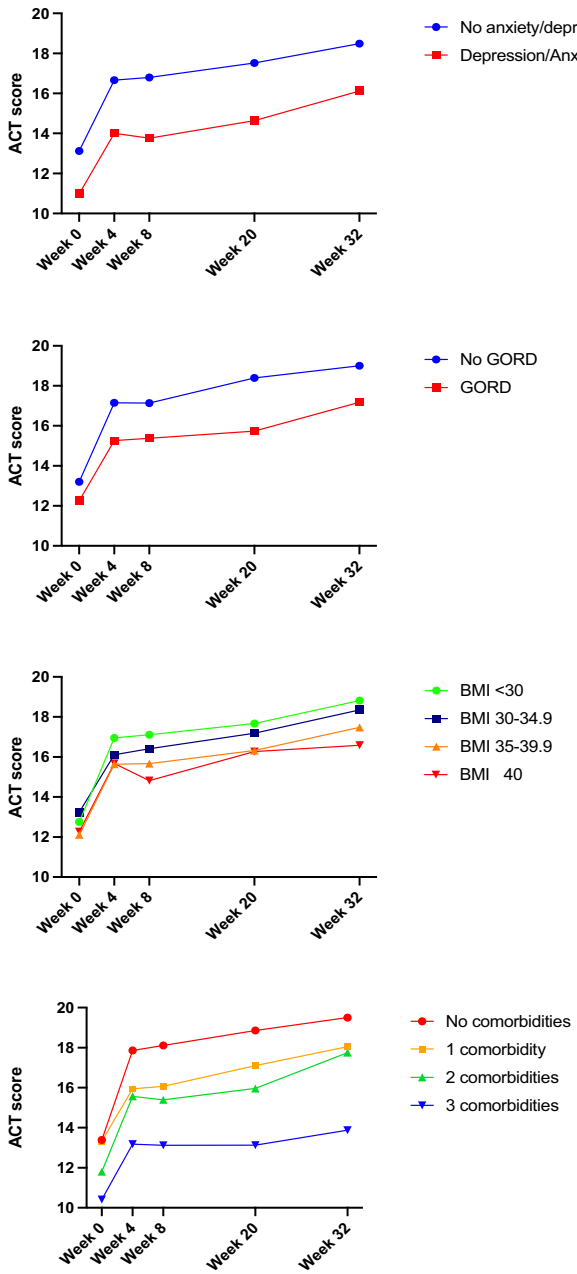
Vincent Brennan, Patrick Kerr, Garrett Greene, Lorna Lombard, Helen Doherty, Elaine Mac Hale, Richard Costello

RCSI

The Asthma Control Test (ACT) is a validated tool used in the assessment of asthma control, and, frequently, in clinical trials. We tested the hypothesis that, due to the non-specific nature of respiratory symptoms, the ACT may actually be influenced by comorbid conditions.
Using data from the INCA-SUN trial, gathered during 6 visits over a 32-week period, we compared ACT scores with objective markers of

asthma control, including spirometry and measures of T2 inflammation, and evaluated the influence of comorbidities, such as obesity, gastro-oesophageal reflux (GORD) and depression/anxiety. We discovered that the ACT showed no significant correlative relationship to objective measures of asthma control. Multiple logistic regression analyses accounting for age, sex, FEV1, T2 biomarkers and steroid exposure showed significantly lower ACT scores if GORD or depression/anxiety were present. Similar findings were noted using ordered logistic regression analyses for BMI classes. The number of comorbidities was found to correlate negatively with ACT scores at each visit, and patients with a co-morbidity were less likely to improve subjectively throughout the study. (See Fig. 1.) Given the ACT scores' lack of specificity, treatment decisions should be supported by objective evidence of poorly controlled asthma. Fig. 1 (1.1) A comparison of ACT scores based on the presence of common comorbidities.

Conflict of Interest: None to declare



1.2 Inflammatory Pathways in severe asthma

Vincent Brennan[1], Patrick Kerr[1], Garrett Greene[1], Lorna Lombard[1], Helen Doherty[1], Elaine Mac Hale[1], Heike Hawerkamp[2], Padraic Fallon[2], Richard Costello[1]

1. RCSI, 2. Trinity Biomedical Science Institute, Dublin

Asthma is characterised by inflammation and airflow limitation. Eosinophilic inflammation is linked to asthma and the 'T2 high' endotype has been well. The corollary of apparent 'T2 low' asthma however remains poorly described even though it is thought to account for nearly 50% of patients. We aimed to describe the different inflammatory pathways active in both 'T2 high' and apparent 'T2 low' patients and to compare these with healthy controls.Longitudinal evaluation of 200 patients from the INCA-SUN trial identified four groups: 'Consistently T2 low' (20% n = 40), 'Usually T2 low' (24% n = 48), 'Usually T2 high' (32% n = 64) and 'Consistently T2 high' (24% n = 48). Multiplex assays of inflammatory pathways associated with asthma including Th-1, T2 and Th-17 were performed in these patients, as well as 56 healthy controls. We found that the 'Consistently T2 high' cohort had significantly higher values of periostin ($p < 0.0001$) and IgE ($p < 0.0001$) as expected but they also demonstrated significantly higher levels of TNF-α ($p < 0.0001$) and IL-6 ($p = 0.0005$) when compared to the other cohorts. Patients in the 'Consistently T2 low' cohort showed no evidence of an alternate inflammatory pathway, with their cytokine results most closely resembling the cohort of healthy controls.These findings support the hypothesis that the apparent 'T2 low' endotype may reflect suppressed inflammation instead of an alternate inflammatory target.

Conflict of Interest: None to declare.

1.3. Screening for Hyperglycaemia in Accordance with '*Joint British Diabetes Societies for inpatient care*' Guidelines in Patients with Acute Asthma Exacerbations Treated with Systemic Corticosteroids in a Single Centre

Alexandra Brickley[1], Dominic Doyle[2], Philip Healy[3], Ciaran O'Donovan[4], Desmond Murphy[5]

Cork University Hospital

Systemic corticosteroids are employed for both acute and maintenance treatment of asthma, a chronic inflammatory disease. Rates of corticosteroid related hyperglycaemia and Diabetes Mellitus(DM) are estimated at 32.3% and 18.6% respectively[1]. The 'Joint British Diabetes Societies for inpatient care'(JDBS) 2022 guidelines 'Management of Hyperglycaemia and Steroid Therapy[2]' provide a framework for managing steroid induced DM and hyperglycaemia. This is a retrospective cohort study assessing patients with acute asthma exacerbations, managed with corticosteroids in accordance with JDBS guidelines in the following three areas: 1) Pre-treatment assessment with HbA1C/fasting/random glucose 1 year prior to treatment and screening for risk factors for hyperglycaemia. 2) Inpatient capillary blood glucose(CBG) monitoring. 3) Screening 3 months post-treatment with HbA1C/fasting/random glucose. 40% had any of the 3 markers checked pre-treatment with 3 abnormal HbA1Cs indicating undiagnosed prediabetes. 30% had any of the 3 markers checked 3 months post-treatment.50% had daily capillary blood sugar checks during inpatient admission. 46.15% of high risk patients had CBG checked daily.

DM is associated with significant morbidity and mortality, with steroids contributing to both de novo and uncontrolled pre-existing hyperglycaemia. This study demonstrated suboptimal screening pre, during and post treatment with systemic corticosteroids which highlights the need to tackle compliance of inpatient management and outpatient follow-up.

1. Liu XX, Zhu XM, Miao Q, Ye HY, Zhang ZY, Li YM. "Hyperglycemia induced by glucocorticoids in nondiabetic patients: a meta-analysis".(2014) Ann Nutr Metab. 65(4):324–332.
2. "Management of Hyperglycaemia and Steroid Therapy". (2022) *Joint British Diabetes Societies for inpatient care'*, Available at: https://www.diabetes.org.uk/professionals/resources/shared-practice/inpatient-and-hospital-care/joint-british-diabetes-society-for-inpatient-care

Conflict of Interest: None to declare.

1.4 Herpes Zoster in Mepolizumab Recipients. To Vax or not to Vax?

Tara Byrne, Emma Burke, Hilary Mc Loughlin

Portiuncula University Hospital

Background: Herpes zoster is a significant health burden that affects individuals of any age. It is more common among individuals aged ≥ 50 years, those with immunocompromised status, and those on immunosuppressant drugs. This is likely secondary to the immunosenescence associated with advancing age [2]. An increased incidence has been reported in asthmatics [1].**Methods**:A retrospective review was conducted of eosinophilic asthma patients who have commenced on Mepolizumab 100 mg subcutaneously in Portiuncula University Hospital in 2021-2022.**Results**:22.29% (n = 2) of patients who received Mepolizumab developed Herpes Zoster after the 1st or 2nd dose of Mepolizumab. Individuals' ages ranged from 55-71 years and cases were deemed to be mild or moderate.**Conclusion**:GSK reports a 0%-2% incidence of Herpes Zoster across 10 phase 3 clinical trials. The rationale for the increased risk of Herpes Zoster virus in individuals receiving Mepolizumab is unknown. A population-based case-control study yielded results noting an increased incidence of Herpes Zoster in individuals with asthma [1]. The study recommended that consideration should be given to immunizing adults with asthma aged more than 50 years as a target group.**Future Recommendations**:Patients aged > 50 years with a known history of Asthma receiving mepolizumab are at an increased risk of Herpes Zoster. Vaccination should be considered.

References

1 Kwon, H.J., Bang, D.W., Kim, E.N., Wi, C.-I., Yawn, B.P., Wollan, P.C., Lahr, B.D., Ryu, E., Juhn, Y.J., 2016. Asthma as a risk factor for zoster in adults: A population-based case-control study. J. Allergy Clin. Immunol. 137, 1406–1412. https://doi.org/10.1016/j.jaci.2015.10.032
2 Sheth, P., 2018. Epidemiology, treatment, and prevention of herpes zoster: A comprehensive review [WWW Document]. Indian J. Dermatol. Venereol. Leprol. URL https://ijdvl.com/epidemiology-treatment-and-prevention-of-herpes-zoster-a-comprehensive-review/ (accessed 8.2.22).

Conflict of Interest: None to declare

1.5 A Patient Experience Survey of asthma biologic patients self-administering at home under the care of the asthma service at Cork University Hospital

Casey D[1], Vairamani P[1], Arnott F [1],Walsh L [1],Murphy J[1],Leahy P[1],Gomez F[1],Plant BJ [1, 2], Murphy DM[1,2]

[1]Cork University Hospital, Wilton, Cork,[2] University College Cork, Cork

The asthma biologic outpatient service has been in operation in CUH since 2018. A survey to determine patient satisfaction on patients self-administering for a period of 6 months or longer was carried out in July 2021. A questionnaire was distributed to all (90) patients who received more than three infusions within the outpatient setting and had been self-administering at home for 6 months or more.
A 7 item Likert questionnaire was developed. Questions 1-6 were based on a scoring scale of 1-5 to rate the service, and question 7 was open ended to allow for feedback. These questionnaires were discussed with patients with help from administration staff whom the patients had never met previously to exclude any bias. Patients who responded to a text message agreed to being contacted, to complete the questionnaire. A total of 82 patients completed the questionnaire.
All patients felt they would be able to contact the respiratory team in an event of acute deterioration in their asthma symptoms. 100% of patients felt they were well educated on self-administering prior to discharge. Patients stated they were happy that the asthma nurse checked in monthly or 2 monthly to review asthma symptoms.Our results suggest that patients feel empowered to self-manage their asthma when given the opportunity to administer biologics in their own home.

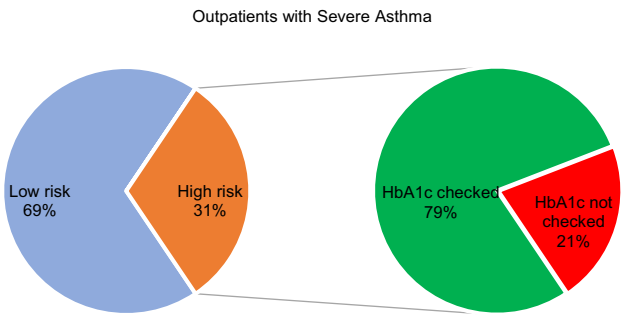
Conflict of Interest: None to declare

1.6 GLYCAEMIC CONTROL IN OUTPATIENTS WITH SEVERE ASTHMA

Dominic Doyle, Alexandra Brickley, Deborah Casey, Hammad Danish, Desmond Murphy

Cork University Hospital

Patients in our severe and difficult to control asthma cohort may be dependent on high and long-term doses of glucocorticoids which deranges their glycaemic control and predisposes to steroid-induced hyperglycaemia, which is not always reversible. We hypothesise that our outpatients with asthma who are on a steroid dose equivalent to prednisolone 2.5 mg daily average and above are at risk of hyperglycaemia and we internally audited this against the guidelines from the Joint British Diabetes Societies 2021. We identified 45 of these high-risk patients from a list of those requiring biologic drugs. Patient characteristics, history of diabetes and type, diabetes medication, HbA1c/glucose measurement and timing, and the average daily steroid dose preceding the HbA1c/glucose measurement by 3 months were recorded. 14 outpatients were on a dose of prednisolone at or above the threshold of 2.5 mg daily average. Among this group, 11 had HbA1c checked within a 3-month window following their course of steroids (see Fig.). Only 1 patient in the steroid group had HbA1c greater than 48 mmol/mol and this was a patient who had diabetes. The authors hope this audit reminds physicians to assess glycaemic control in all of our high-risk patients (1.6).



Conflict of Interest: None to declare.

1.7 Development of a Novel Pre-clinical Model of House Dust Mite Induced Allergic Airway Inflammation Using Transgenic Mice Expressing Human MIF

Hazel Dunbar[1], Ian Hawthorne[1], Myron Rebello, Brion Kennedy, Seamas Donnelly[2], Karen English[1]

[1]Maynooth University, Co. Kildare [2] Trinity College, Dublin and Tallaght Hospital, Dublin

The pro-inflammatory cytokine macrophage migration inhibitory factor (MIF) plays an important role in several inflammatory conditions including allergic asthma. A functional promoter polymorphism located at position -794 in the gene promoter for human MIF contains a tetranucleotide sequence, CATT, that is repeated between 5 and 8 times. MIF high (7-CATT) and low (5-CATT) expression allele is a prime example of major differences in the inflammatory microenvironment present in different asthma patient populations with a high correlation between 7-CATT MIF allele and severe asthma and 5-CATT allele with mild asthma.We have developed novel transgenic mice with high or low expression of human MIF. Challenge with house dust mite (HDM) leads to exacerbated allergic airway inflammation in 7-CATT mice compared to 5-CATT or wildtype controls. 7-CATT mice exhibit enhanced immune cell airway infiltration, significantly increased goblet cell hyperplasia, sub-epithelial fibrosis, airway hyper-responsiveness and bronchoconstriction. Eosinophils, total cell counts, IL-4, IL-5 and IL-13 were increased in the bronchoalveolar lavage fluid of 7-CATT mice. Administration of MIF inhibitor ISO-1 or SCD-19 ameliorated the exacerbation effect of human MIF expression in 7-CATT mice. This model provides a novel means to develop a scale of allergic airway inflammation following HDM-challenge using MIF expression.

Conflict of Interest: None to declare

1.8 A randomised trial of a T2-composite-biomarker strategy adjusting corticosteroid-treatment in severe asthma, a post- hoc analysis by sex

Matthew Chad Eastwood[1], John Busby, David Jackson, Ian Pavord, Catherine Hanratty CE, Ratko Djukanovic, Arron Woodcock A, Samantha Walker, Timothy Hardman, Joseph Arron, David Choy, Peter Bradding, Chris Brightling, Rekha Chaudhuri, Douglas Cowan D, Adel Mansur, Stephen Fowler, Peter Howarth, James Lordan, Andrew Menzies-Gow, Timothy Harrison, Douglas Robinson, Cecile Holweg, John Matthews, Liam Heaney[2] on behalf of the RASP-UK Investigators

University Belfast, Belfast, UK.

5–10% of patients with asthma have severe disease with a consistent female preponderance. Asthma guidelines recommend stepwise, symptom-driven disease control with no differential treatment considerations for either sex. This post-hoc analysis of a 48-week, multicentre, randomised controlled clinical trial, compared a T2 biomarker-defined treatment algorithm with standard-care, stratifying patient outcomes by sex. The primary outcome was the proportion of patients with a reduction in corticosteroid treatment (log-regression models). Secondary outcomes included exacerbation rates, hospital admissions and lung function (linear/Poisson/logistic/cox regression models).301 patients were randomised: 194 (64.5%) females and 107 (35.5%) males. The biomarker algorithm led to more females being on a lower corticosteroid dose vs standard-care, compared to males (effects estimate females: 3.57, 95% CI: 1.14, 11.18 vs. males 0.54, 95% CI: 0.16, 1.80). In T2-biomarker low females, reducing the corticosteroid dose was not associated with increased exacerbations. Females scored higher in all ACQ-7 domains, but with no difference when adjusted for BMI/depression/anxiety. Dissociation between symptoms and T2-biomarkers were noted in both sexes, with more females being symptom high/T2-biomarker low (22.8% vs. 15.5%; $p = 0.0002$), whereas males were symptom low/T2-biomarker high (11.5% vs. 22.3%; $p < 0.0001$).We identified females achieved a greater benefit from biomarker-directed corticosteroid optimisation versus symptom-directed treatment.

Disclosure of Conflicts of Interest

Dr Eastwood has nothing to disclose. Dr Busby reports personal fees from NuvoAir outside the submitted work. Dr Jackson reports personal fees from AstraZeneca, BI, Chiesi, Glaxo SmithKline, Sanofi Regeneron, grants from AstraZeneca outside the submitted work. Dr Pavord reports speaker fees, payments for organization of educational events, consultant fees, international scientific meeting sponsorship from Sanofi. Dr Pavord reports speaker fees, payments for organization of educational events, consultant fees, international scientific meeting sponsorship from Regeneron Pharmaceuticals Inc. Dr Pavord reports non-financial support from Excerpta Medica, during the conduct of the study. Dr Pavord reports speaker fees from Aerocrine AB, speaker fees and consultant fees from Almirall. Dr Pavord reports speaker fees, payments for organization of educational events, consultant fees, international scientific meeting sponsorship from AstraZeneca. Dr Pavord reports Speaker fees, consultant fees, international scientific meeting sponsorship from Boehringer Ingelheim. Dr Pavord reports grants, speaker fees, consultant fees and international scientific meeting sponsorship from Chiesi. Dr Pavord reports Speaker fees, payments for organization of educational events, consultant fees, international scientific meeting sponsorship from GSK. Dr Pavord reports Speaker fees, consultant fees from Novartis. Dr Pavord reports Speaker fees, payments for organization of educational events, consultant fees, international scientific meeting sponsorship from Regeneron Pharmaceuticals Inc. Dr Pavord reports Speaker fees, payments for organization of educational events, consultant fees, international scientific meeting sponsorship from Sanofi. Dr Pavord reports Speaker fees; payments for organization of educational events, consultant fees, international scientific meeting sponsorship Teva. Dr Paovord reports consultant fees from Circassia, Dey Pharma, Genentech, Knopp Biosciences, Merck, MSD, RespiVert, and Schering-Plough. Dr Paovord reports consultant fees international scientific meeting sponsorship from Napp Pharmaceuticals from outside the submitted work. Dr Hanratty has nothing to disclose. Dr Djukanovic reports receiving fees for lectures at symposia organised by Novartis, AstraZeneca and TEVA, consultation for TEVA and Novartis as member of advisory boards, and participation in a scientific discussion about asthma organised by GlaxoSmithKline. He is a co-founder and current consultant, and has shares in Synairgen, a University of Southampton spin out company. Dr Woodcock reports personal fees from GlaxoSmithKline, personal fees from Novartis, personal fees from Chiesi, Chairman (Food Allergy Diagnostics) at Reacta Biotech, Chairman (Cough drug in Phase 1) Axalbion, Chairman (Clinical Trials Unit) at Medicines Evaluation Unit outside the submitted work. Dr Walker has nothing to disclose. Dr Hardman has nothing to disclose. Dr Arron is a former employee of Genentech and holds stock in the Roche Group. Dr Arron is a current employee of and holds stocks/options in 23andMe. Dr Choy reports and is an employee of Genentech Inc and owns stocks/options in the Roche group. Dr Bradding reports grants provided from Medical Research Council during the conduct of this study. Dr Bradding reports a relationship with Genentech that includes consulting or advisory. Dr Bradding reports a relationship with Chiesi that includes travel reimbursement. Dr Bradding reports a relationship with Sanofi Genzyme that includes travel reimbursement. Dr Bradding reports a relationship with Teva that includes travel reimbursement. Dr Brightling reports grants and personal fees from Glaxo SmithKline, grants and personal fees from AstraZeneca, grants and personal fees from Sanofi, grants and personal fees from Novartis, grants and personal fees from Chiesi, grants and personal fees from Genentech, grants and personal fees from Gossamer, grants and personal fees from Mologic, grants and personal fees from 4DPharma outside the submitted work. Dr Chaudhuri reports grants

and personal fees from AstraZeneca. Dr Chaudhuri reports personal fees from Glaxo SmithKline and Novartis. Dr Chaudhuri reports personal fees and Fees for lectures and support for conference attendance from Sanofi. Dr Chaudhuri reports personal fees and Fees for lectures from Teva. Dr Chaudhuri reports personal fees and fees for lectures and support for conference attendance from Chiesi outside the submitted work. Dr Cowan has nothing to disclose. Professor Mansur reports grants from Medical Research Council during the conduct of the study. Grants, personal fees, institutional payments for lectures, advisory board payments, sponsorships to attend conferences, educational grants and research grants from Teva, Glaxo SmithKline, Novartis, AZ, PI, Sanofi, Chiesi, outside the submitted work. Dr Fowler reported grants and personal fees from Boehringer Ingelheim. Dr Fowler reported personal fees from AstraZeneca Chiesi, Glaxo SmithKline, Novartis and Teva outside the submitted work. Dr Howarth reports employment by Glaxo SmithKline. Dr Lordan has nothing to disclose. Dr Menzies-Gow reports grants and personal fees from Astra Zeneca, personal fees from Glaxo SmithKline, Novartis, Sanofi. Dr Menzies-Gow reported personal fees and non-financial support from Teva outside the submitted work. Dr Harrison reports grants, personal fees and non-financial support from AstraZeneca, grants and personal fees from Glaxo SmithKline, Vectura, Synairgen and Chiesi, outside the submitted work. Dr Robinson has nothing to disclose. Dr Holweg reports that she is an employee from Genentech Inc/Roche. Dr Matthews reports that he is a former employee of Genentech. Dr Matthews is a current employee of 23andMe and holds stocks/options in 23andMe. Professor Heaney reports having received sponsorship for attending international scientific meetings AstraZeneca, Boehringer Ingelheim, Chiesi, Glaxo SmithKline and Napp Pharmaceutical. Professor Heaney has reported personal fees from Novartis, Hoffman la Roche/Genentech Inc, Sanofi, GlaxoSmithKline, Astra Zeneca, Teva, Theravance, Circassia. Professor Heaney reports grants from Medimmune, Novartis UK, Roche/Genentech Inc, and GlaxoSmithKline, Amgen, Genentech / Hoffman la Roche, Astra Zeneca, Medimmune, GlaxoSmithKline, Aerocrine and Vitalograph outside the submitted work. Professor Heaney reports having received sponsorship for attending international scientific meetings AstraZeneca, Boehringer Ingelheim, Chiesi, Glaxo SmithKline and Napp Pharmaceutical. Professor Heaney has reported personal fees from Novartis, Hoffman la Roche/Genentech Inc, Sanofi, GlaxoSmithKline, Astra Zeneca, Teva, Theravance, Circassia. Professor Heaney reports grants from Medimmune, Novartis UK, Roche/Genentech Inc, and GlaxoSmithKline, Amgen, Genentech / Hoffman la Roche, Astra Zeneca, Medimmune, GlaxoSmithKline, Aerocrine and Vitalograph outside the submitted work.

1.9 Asthma patients discharged from the emergency department in Ireland: an unmet need?

Cameron Forward[1], Rory O'Loghlin[1], Helen Mulryan[1], Donna Langan[1], Mike Harrison[1], Robert Rutherford[1], Ruth P Cusack[1]

Galway University Hospital[1]

Introduction: Appropriate ED management of asthma including discharge planning is critical. The BTS/ITS have an asthma discharge bundle to improve outcomes. The aim of this audit was to assess patients discharge plans from ED and determine if patients receive suboptimal follow up.
Methods: A retrospective audit of 145 patient visits who attended ED with a diagnosis of an asthma exacerbation from 1/10/2020 to 30/9/2021 in a tertiary referral centre in the west of Ireland.
Results: Data was collected on 99 patients from 145 visits, with 27 patients having > 1 visit with an exacerbation of asthma. A total of 106 patients were discharged from ED. Four patients received inhaler technique education, one received peak flow diary, five patients received an asthma action plan, no patients received trigger avoidance advice. Fifty-five patients were discharged with oral corticosteroids, thirty-six with inhaled corticosteroids and sixty-four with inhaled SABA. Seven patients were referred to the respiratory service, fifty-three discharged to GP, with forty-five who received no follow up.
Conclusion: Adherence with the asthma discharge bundle is poor. We have identified a need for asthma patients that could receive specialist review after ED discharge. We are re-designing the asthma ED pathway to reflect this need.

References

1. Department of Health- Management of an Acute Asthma attack in Adults. National Clinical Guideline No. 14. November 2015. ISSN 2009-6259
2. Respiratory Health of the Nation 2018. Irish Thoracic Society
3. Emergency Asthma Guideline: Management of the Acute adult asthma patient. HSE National Asthma Programme. 2012
4. Improving Outcomes in Asthma: Asthma Care Bundle. Asthma UK. British Thoracic Society. 2016

Conflict of Interest: None to declare

(1.10 Not for publication—Pulmonary rehabilitation versus usual care for adults with asthma – a Cochrane systematic review)

1.11 Establishment of a Specialist Respiratory Pharmacist Outpatient Clinic

Cairine Gormley

Altnagelvin Hospital, Western Health and Social Care Trust (WHSCT), Derry

The National Review of Asthma Deaths (2014), reported asthma deaths in the United Kingdom remain among the highest in Europe. Recent Northern Ireland data from 2012–16 revealed 182 deaths were registered due to asthma.A local audit of asthma management based on the National Asthma and Chronic Obstructive Pulmonary Disease Audit Programme (NACAP) adult asthma clinical audit 2019/20 found good practice in the initial treatment of patients admitted with asthma. However after care post discharged was sub-optimal- only 31% having the asthma care bundle completed.A Specialist Respiratory Pharmacist Outpatient clinic was established. Patients were telephoned one week after discharge with a face to face appointment scheduled one month later. A database was developed to collate data. 74 patients were reviewed between June 2021 and March 2022, with 305 episodes of care. All interventions made were recorded and graded for clinical significance using the Eadon Criteria — a scale from 1 to 6 where a score of 4 or greater represents an improvement in quality of patient care. There were 356 grade 4 interventions. University of Sheffield School of Health and Related Research (ScHARR) model was used to estimate potential healthcare savings associated with the interventions in the region of £20,000–50,000.

Conflict of Interest: None to declare.

1.12 MIF Enhances Human Mesenchymal Stromal Cell Longevity In Vivo In Allergic Airway Inflammation

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1 Maynooth University [2]Trinity College Dublin and Tallaght Hospital
Bone marrow derived mesenchymal stromal cells (MSCs) are currently under investigation in clinical trials as immunomodulatory therapeutics for acute respiratory distress syndrome and other inflammatory conditions. Previously we have identified the capacity for pro-inflammatory signals to enhance MSC therapeutic efficacy. In some cases, increased efficacy is associated with enhanced human MSC survival in vivo. The pro-inflammatory cytokine macrophage migration inhibitory factor

(MIF) is present at high levels in severe asthma. This study sought to elucidate the influence that MIF licensing has on human MSC survival and function; cyto-protection and immune modulation.
Moreover, the effect of MIF on MSC therapeutic efficacy in vivo was investigated using a clinically relevant acute house dust mite (HDM) (Dermatophagoides pteronyssinus) model of allergic airway inflammation in humanised MIF mice. MIF enhanced human MSC proliferation in vitro and drove MSC migration in transwell assays in a CXCR4 dependent manner. MIF pre-stimulation enhanced MSC promotion of wound healing in airway epithelial cells in a VEGF dependent manner. MSCs protected against allergic airway inflammation in mice expressing higher levels of human MIF. Importantly, higher level expression of human MIF in our transgenic mouse model of allergic airway inflammation significantly enhanced longevity of human MSCs in vivo.

Conflict of Interest: None to declare

1.13 Effect of Mandatory Face Coverings on Asthma Control For a Severe Asthma Cohort

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Prior studies have demonstrated a decrease in asthma exacerbations during the Covid-19 pandemic.[1] One of the primary reasons is thought to be decreased exposure to respiratory viral pathogens due to face coverings and social distancing.[1] Mandatory face covering legislation ceased in Ireland on February 28th 2022. We undertook to assess the impact of mandatory face coverings on asthma control for our severe asthma cohort in Tallaght Hospital.We reviewed the medical records of 60 patients with severe asthma on biologic therapy. 27 patients (45%) were on Omalizumab and 33 patients (55%) on anti IL-5 therapy. We compared patients Asthma Control Questionnaire (ACQ) score, peak expiratory flow rate (PEFR) and number of exacerbations from April 2021 to June 2021 inclusive with the same data for April 2022 to June 2022.55% of patients were female. The mean age was 55 years. We found our cohort had improved asthma control during our chosen time period in 2021 compared to 2022 with lower mean ACQ score and exacerbations and higher mean PEFR.Our cohort demonstrated improved asthma control during the period with mandatory face covering legislation. Several confounding factors exist including difference in lockdown/social distancing rules and Covid-19 incidence during these time periods.

References

1. SA Shah, JK Quint, A Shiekh. Impact of COVID-19 pandemic on asthma exacerbations: etrospective cohort study of over 500,000 patients in a national English primary care database. Lancet Regional Health- Europe. 2022; 19:100,428.

Conflict of Interest: None to declare.

1.14 Pathway utilization in the Management of Asthma

Elizabeth Kavanagh, Diane Moran, Elaine Hayes

Our Lady of Lourdes Hospital, Drogheda, Co Louth Asthma is the most common chronic respiratory disease in Ireland, resulting in a significant number of presentations to the Emergency Department annually with episodic exacerbations of asthma that could potentially be life threatening. Asthma also imposes a significant burden on health care systems, society and the family. A Respiratory Care Pathway 'The Management of Acute Asthma' is currently employed within the Emergency Department in order to enhance the quality of care across the continuum in line with international evidence based best practice.A retrospective chart audit was conducted to measure concordance with the care pathway.
Analysis of the results indicated that the asthma pathway was oftentimes incomplete or even in some cases not utilized.
In response to these findings a review and redesign of the care pathway was undertaken and comprehensive education provided to all stakeholders involved in the implementation and utilization of the care pathway.

Conflict of Interest: None to declare.

1.15 Analysis of the relationship between FeNO and blood eosinophil count in severe asthma patients

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[1]Beaumont Hospital, Dublin,[2]RCSI Medical School, [3]Beaumont Hospital, Dublin

Both FeNO and blood eosinophil count (BEC) are biomarkers of Th2 airway inflammation. FeNO can be easily measured in a clinic setting. We examined whether FeNO alone was sufficient to determine control of airway inflammation.
Sixty-five contemporaneous FeNO and BEC measurements from 18 patients were analysed. Concurrent ACT scores were available for 18 measurements. Non-parametric data was log-transformed prior to pairwise correlation analysis to determine the strength of the relationship, if any, between FeNO, BEC and ACT score. Data is reported as mean(SD) or median(IQR).
All patients had severe asthma prescribed high-dose inhaled corticosteroid plus additional controller therapy. No patients were prescribed asthma biologic therapy. The mean age was 56.7 years, 56% female. Mean FEV1 was 2.01 L. The median FeNO was 14(24) ppb, median BEC 0.28(0.41) cells/mm^3 and median ACT score 18.5(7). FeNO and BEC were positively correlated but the relationship was weak ($r = 0.406$, $p = 0.0008$). Of FeNO recordings < 25 ppb (66%), 42% had a BEC > 300 cells/mm^3. There was moderate negative correlation between FeNO and ACT ($r = -0.559$, $p = 0.02$) but no relationship between BEC and ACT ($r = -0.243$, $p = 0.33$). FeNO and BEC are independent biomarkers with variable relationship to ACT score. Both biomarkers should be considered when evaluating severe asthma patients.

Conflict of Interest: None to declare.

1.16 Patients' satisfaction with care provided by a Respiratory Clinical Nurse Specialist in an out-patient setting

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[1]Our Lady of Lourdes Hospital, Drogheda

Benefits for nurse-led service provision by a Clinical Nurse Specialist (CNS) are well documented in international literature. The quality of the information and education given in a clinic setting by a CNS directly impact the Asthma patient, asthma control and their quality of life.A patient satisfaction survey was conducted in order to ascertain patient satisfaction with the CNS led service and to highlight areas which required improvement thus allowing any potential deficits in the service to be identified for future development. 56 Questionnaires were posted to patients who attended appointments with the CNS during 2021. 24 completed questionnaires were returned, yielding a response rate of 42%.Analysis of the responses demonstrated overall high levels of satisfaction (95.8%) with the educational value and care provided. Areas of improvement were highlighted with 25% of respondents stating they would like to have discussed other issues and 41.7% stating they did not receive written literature on their condition. This information will be utilised to improve and standardise service delivery. Having under treated asthma can have a negative impact on asthmatic patient

health and quality of life. Feedback from the patient plays a fundamental role in improving the quality of service provision.

Conflict of Interest: None to declare

1.17 Challenges in determining suitability for home self-administration of asthma biologic therapies

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Home administration of targeted asthma biologics has recently become an option for patients with severe Il5 mediated asthma, allowing patients greater independence in the management of their disease and more convenience around work, study and travel. Organisational gains include time and cost savings. In 2022 a directive was issued by the HSE stating that from the third dose patients should be self-administering at home. Fundamentally as experienced Clinical Nurse Specialist's (CNS) we recognised that despite this directive not all patients would be ready within the time frame indicated, or at all.In addition to the assessment for, management, co-ordination and administration of asthma biologic therapies the respiratory CNS service in the Mater Misericordiae University Hospital is responsible for determining suitability for home administration, a process requiring sound clinical judgement. Challenges identified by our service in determining suitability included poor health literacy, low executive function, lack of commitment to treatment and overall suboptimal adherence to baseline treatment plans.Initially interest in the concept of home administration was high. However, not all patients met the criteria due to one or multiple challenges identified. Conversely a number of patients were initially reluctant and lacked confidence in their ability to self-administer therapy. However, the majority overcame this fear and successfully transitioned to home self-administration with good CNS-led support, education and training.

Conflict of Interest: None to declare

1.18 Safety of Bronchoscopy in Asthma

Noreen Tangney[1], Fiona Arnott[1], Desmond Murphy[1]

[1]Cork University Hospital

The British Thoracic Society reports that up to 10% of patients with asthma can develop respiratory symptoms following bronchoscopy. It is imperative to monitor and record the safety outcomes of such procedures in order to maintain a standard of care in the investigation and management of patients with asthma. Our study retrospectively reviews the occurrence of adverse events in asthmatic patients who have undergone bronchoscopy in our institution in the last 1-2 years. We recruited patients and determined the occurrence of adverse events peri-procedurally by two methods. The first being via review of patient medical notes and the second by telephoning patients individually and enquiring of their experiences within 72 h of the procedure. Specific adverse events that were reviewed included fever, extra ventolin or nebuliser use, antibiotics, steroids, GP visits, or hospital admission. The stage at which these medications were required (pre-emptively, post-procedure, or post-discharge) was examined. Pre-procedural nebuliser use was also recorded. Our study illustrates the safety profile of bronchoscopy in asthma and highlights potential adverse events albeit in the minority of patients undergoing the procedure.

1.19 Real-World Clinical Outcomes of Asthma patients switched from Reslizumab to either Mepolizumab or Benralizumab

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Treatment of severe refractory asthma often involves the use of targeted biological therapy. Randomised controlled trials have shown improvements in clinical parameters with these treatments but real-world data is lacking.The clinical parameters, frequency of exacerbations, number of hospital admissions, asthma control questionnaire score (ACQ), forced expired volume in one second (FEV_1) and maintenance corticosteroid dose of twenty asthma patients switched from reslizumab to benralizumab or mepolizumab at 1 year prior and 6 months after switching were compared.The mean frequency of exacerbations (0.7 v 0.3) improved post switch, albeit non-significantly. The mean ACQ was essentially unchanged (1.6 v 1.5). The number of hospital admissions remained at one pre and post switch. 25% were on maintenance steroid before and after switching but one patient required an increased dose post switch resulting in an increase in the mean maintenance oral corticosteroid dose (1.6 mg to 2.4 mg). The mean FEV_1 was unchanged (80% v 77.9%) six months post switching. Regarding asthma control (n = 19), 47.4% were controlled pre and post switch (ACQ < 1.5), 36.8% remained uncontrolled despite switching but n = 4 reduced exacerbation frequency, 10.5% improved control while 5.3% disimproved. We present real-world clinical outcomes of asthma patients switched from reslizumab to either benralizumab or mepolizumab with improvements in ACQ and exacerbation frequency observed without a loss of clinical effectiveness in the majority.

Conflict of Interest: None to declare

1.20 Implementation of an Asthma QI project in Galway University Hospital

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Galway University Hospital (GUH) [1], Respiratory Integrated Care, Galway [2]

Following a review of all patients with an asthma exacerbation who visited the emergency department (ED) and Acute Medical Unit (AMU) at GUH, we identified that 50% of the patients received no follow up care from their GP also, they were not referred to the respiratory team. A review of GUH's asthma discharge care programme was required. A Quality Improvement (QI) project was carried out. It identified a number of key areas for improvement, including personalised asthma action plans, smoking cessation advice, minimising aeroallergen exposure, inhaler therapy and technique education. An Asthma Proforma was also devised to assist the review of asthma patients. Identification and referral of patients was a key component of the QI project.
All patients discharged from the ED/AMU who met the inclusion/exclusion criteria received an asthma education pack on discharge. A virtual consultation one-week post discharge with an ANP/CNSp, with an asthma education and self-management care plan was implemented. All additional investigations including PFTs/FeNo and bloods were performed prior to their face to face review. On review in the Respiratory clinic their asthma self-management care plan was reviewed and if patients were stable they were discharged from clinic.

Awaiting Conflict of Interest

1.21 Has Anyone Checked Your Inhaler Technique? A Safe Asthma Discharge Care Pathway (SADCP) Clinic Quality Improvement Project

Paul McGowan[1, 2], Kathryn Ferris[1, 2], Katie McMullan[2], Catherine Russell[2], Gillian Gallagher[2], Patrick McCrossan[1, 2], Dara O'Donoghue[1, 2]

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The National Review of Asthma Deaths (2104) reported that, in children and adults who died with asthma, few had documentation of their

inhaler technique.[1] As part of a quality improvement project to implement a Safe Asthma Discharge Care Pathway (SADCP), we assessed documentation of newly referred patients to the nurse-led asthma clinic from the Emergency Department to determine the frequency of documentation of inhaler education.A SADCP was developed as a standard record of asthma care following stakeholder consultation and expert consensus. Data was gathered retrospectively from Emergency Department referrals pre-implementation. New referrals to the clinic were then assessed for completed documentation post implementation. Our results include a total of 38 newly referred patients. In 24 patient records (63%) there was no documentation of inhaler technique. In 14 patient records (36%) had documentation included, of which 12 (31%) had complete and 2 (5%) had incomplete documentation. Post referral there was a significant improvement with 100% of new referrals having correct documentation. Going forward, the SADCP will be integral to ensuring documentation of many aspects of asthma care including inhaler technique. Introduction of a SADCP has optimised written documentation of inhaler technique education to help improve paediatric asthma care.

1. Royal College of Physicians. Why asthma still kills: The National Review of Asthma Deaths (NRAD) 2014

Conflict of Interest: None to declare.

1.22 How inhaler technique is assessed in children and young people: a scoping review

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Current guidelines recommend that all asthma review appointments must include an assessment of inhaler technique. However, most guidelines do not provide information on how the healthcare professional should conduct this assessment. The aim of this scoping review was to explore the published literature on methods used to assess inhaler technique.
We searched Medline, Embase, Cinahl and the Cochrane library for studies published from 1st January 1956 to 1st February 2022, on methods of assessing inhaler technique in children and young people with asthma. Two reviewers completed screening and data extraction independently.
Sixty-six papers were identified for full text analysis. Primary themes included assessment through both subjective measures including checklists or global scoring and objective measures including inspiratory flow and drug deposition. Secondary themes included observer variability, validation of checklists, impact on asthma outcomes and remote assessments. A consultation exercise with a parent group provided valuable insights and allowed us to map their experiences to the overarching themes.This scoping review provides a broad overview of currently used methods to assess inhaler technique in children and young people with asthma. The analysis of which will allow us to consider how these methods might be used in clinical practice and research settings.

Conflict of Interest: None to declare.

Irish Thoracic Society Poster Review and Discussion

Friday 2nd December 2022

2. Interstitial Lung Disease

2.1 Nintedanib for progressive pulmonary fibrosis: 12-month outcome data from a multicentre observational study

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- Royal Brompton Hospital, London, UK, 2. Imperial College London, London, UK,3.North Bristol NHS Trust, Bristol, UK,4.University of Ulster, Northern Ireland, UK,5.University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK,6.Royal Devon & Exeter NHS Foundation Trust, Exeter, UK,7.Oxford University Hospitals NHS Foundation Trust, Oxford, UK,8.Guys & St Thomas' NHS Foundation Trust, London, UK,9.Manchester University NHS Foundation Trust, Manchester, UK,10.Royal Papworth Hospital NHS Foundation Trust, Cambridge, UK,11. Presenting Author

Introduction: Nintedanib attenuates non-IPF progressive pulmonary fibrosis (PPF) in clinical trials but real-world safety and efficacy are lacking. We assessed the impact of nintedanib on the clinical course of patients with PPF.
Methods: Eight UK centres collected standardised data retrospectively and prospectively from patients in whom nintedanib was initiated for PPF between 2019-2020 through an early access programme. Primary analysis included ung function change in the 12 months pre- and post-nintedanib initiation. Secondary analyses included symptoms, drug safety and tolerability.
Results: 126 patients were included of which 67(53%) females with mean age 60(± 13) years. At initiation of nintedanib, mean FVC was 58% and DL_{CO} was 33%. 63% of patients were prescribed oxygen, 68% were prescribed prednisolone (median dose 10 mg) and 69% were prescribed steroid sparing agents. In the twelve months after nintedanib initiation, lung function decline was significantly lower than in the preceding twelve months; FVC -113 mL vs -235 ml, ($p = 0.013$) and absolute DL_{CO} -2.87% vs -5.79%; ($p = 0.02$). Response to nintedanib was not influenced by ILD diagnosis, age, CT pattern, or MRC dyspnoea grade. 71% of patients reported side effects. 80% of patients were still taking nintedanib at 12 months. There were no serious adverse events.
Conclusion: In PPF, real-world efficacy of nintedanib mirrors that of clinical trials reducing lung function decline by approximately 50%. Nintedanib was safe and tolerable.

Conflict of Interest: None to declare

2.2 – Abstract withdrawn

2.3 – Abstract withdrawn

2.4 – Abstract withdrawn

2.5 Sarcoidosis Prevalence Western Health & Social Care Trust

Liam Coyle, Caoimhe McGarrigle, Jan Kara, Juan Pastrana, Jason Wieboldt

Terence McManus

South West Acute Hospital, Enniskillen

Sarcoidosis is a multi-systemic condition of uncertain aetiology, characterised by granulomatous inflammation. It predominantly affects the lungs but can affect any organ.
On a global scale it is recognised that there are differences in prevalence of sarcoidosis across geographic regions. The British Lung Foundation study [Respiratory health of the nation] demonstrated a

consistently higher prevalence of sarcoidosis in Northern Ireland in comparison with other regions of the UK. We aimed to identify if there was a difference in the prevalence of sarcoidosis in the Western Trust [Southern Sector] in comparison to the rest of Northern Ireland and the UK. We also aimed to identify any clusters of sarcoidosis in local population areas.
We collected data by identifying living patients who had been coded with a diagnosis of Sarcoidosis and seen in secondary care over the previous 10 years. There were 207 cases identified, demonstrating a prevalence of 157 cases per 100,000 population. We also divided patients into postcode areas and estimated the point prevalence in each area. Clusters of higher prevalence were identified at BT75, BT92 and BT94. There is a need for further prevalence studies as this could identify an under resourced health care need within specific trust areas.

Conflict of Interest: None to declare.

(Not for Publication)

2.6 Reviewing the Spectrum of Presentations associated with Myositis-Related Interstitial Lung Disease (ILD) – A Single Centre Series

2.7 Clinical characteristic and cyst burden score in patients with Lymphocytic Interstitial Pneumonia

2.8 Clinical Characteristics in Lymphangioleoimyomatosis)

2.9 An Evaluation of an Interstitial Lung Disease Clinic in a Regional Hospital Using Subspecialist Network with an Academic Centre

Sarah Farrell, Moeez Maqbool, Elaine Curran, Tidi Hassan

Our Lady of Lourdes Hospital, Drogheda

Multidisciplinary team (MDT) diagnosis of interstitial lung disease (ILD) has been proposed as gold standard. We review the activities of a dedicated clinic, supported by a nurse practitioner at Our Lady of Lourdes Hospital, using the MDT platform with Beaumont Hospital.From June 2020 to June 2021, 93 patients were referred with confirmed interstitial abnormalities on CT thorax. The mean waiting list time to appointment was 69 ± 21 days. Fifty-nine cases were discussed at the MDM meeting with 42 (71%) confirmed a usual interstitial pneumonitis (UIP) pattern and 29 (31%) confirmed as progressive pulmonary fibrosis on surveillance as per guideline (2022). Three cases were referred to cardiothoracic surgery for VATS biopsy. Nine patients (33%) commenced on an anti-fibrotic therapy. Twelve patients (13%) were commenced on morphine for palliation.
Here we report the feasibility to see high volume of ILD cases in a dedicated regional clinic with MDM support in an academic centre, in line with *Slaintecare* to deliver care at the right place.

References

1. Raghu G, Remy-Jardin M, Richeldi L, Thomson CC, Inoue Y, Johkoh T, et al. Idiopathic Pulmonary Fibrosis (an Update) and Progressive Pulmonary Fibrosis in Adults: An Official ATS/ERS/JRS/ALAT Clinical Practice Guideline. American Journal of Respiratory and Critical Care Medicine. 2022 May 1;205(9):e18–47.

Conflict of Interest: None to declare

2.10 Compliance with American Thoracic Society (ATS)/European Respiratory Society (ERS) guidelines for lung fibrosis reporting in CT-Thorax in University Hospital Kerry, and demographic distribution of pulmonary fibrosis in Kerry Group

Asma Mehmood [1], Anwar Ali [1], Aimal Khan Danish [1], Umar Khan [1], Usman Haider [1]

[1]University Hospital Kerry

Audit is aimed to assess reporting practices of CT-Thorax with lung fibrosis based on ATS/ ERS guidelines in UHK. Retrospective data were collected from 01/05/2022 to 31/07/2022. A total of 221 CT-Thorax were surveyed. CT-Thorax reporting of pulmonary fibrosis should be done according to ATS/ERS guidelines as (1)Usual Interstitial Pneumonia (UIP), (2)Probable UIP, (3)Indeterminate UIP, (4)Alternative diagnosis. Out of 221, 24 were reported as fibrosis (Table 1) and 15 were reported according to ATS/ERS guidelines. An improvement of 62.5% (15/24) was found compared to previous audit (11/07/2021-11/01/2022), where 23.7% (23/74) of the reports were according to the ATS/ERS guidelines.

Table 1 (2.10) Demographic distribution of pulmonary fibrosis on CT-Thorax in UHK

Age group	Gender		Total
	Male	Female	
≥ 80	3 (12.5%)	4 (16.7%)	7 (29.2%)
60 – 79	9 (37.5%)	7 (29.2%)	16 (66.7%)
40 – 59	1 (4.2%)	0	1 (4.2%)
Total	13	11	24

Ct-Thorax reporting as per ATS/ERS guidelines would help physicians for better investigation/management of pulmonary-fibrosis. 95.9% patients with pulmonary-fibrosis were > 60 years old (29.2% from ≥ 80 years group and 66.7% from 60 – 79 years group; Table 1), notably same percentage as national/international data. ATS/ERS guidelines and results of previous 2 audits were discussed with local radiology group on different levels to improve overall reporting practices. Temporary staffing is a factor where guidelines are not properly followed. Proper reporting can reduce referrals to speciality and can help physicians in better investigation/management of patients.

Conflict of Interest: None to declare

2.11 Computed tomography pulmonary fat attenuation volume (PFAV); a novel idiopathic pulmonary fibrosis biomarker?

Marissa O'Callaghan,[1,3] John Duignan,[1] Elizabeth J. Tarling,[2] Darragh Waters,[1] Meghan McStay,[1]

Orla O'Carroll,[1] Marcus W. Butler,[1,3] Aurelie Fabre,[1,3] Michael P. Keane,[1,3] David J. Murphy,[1]

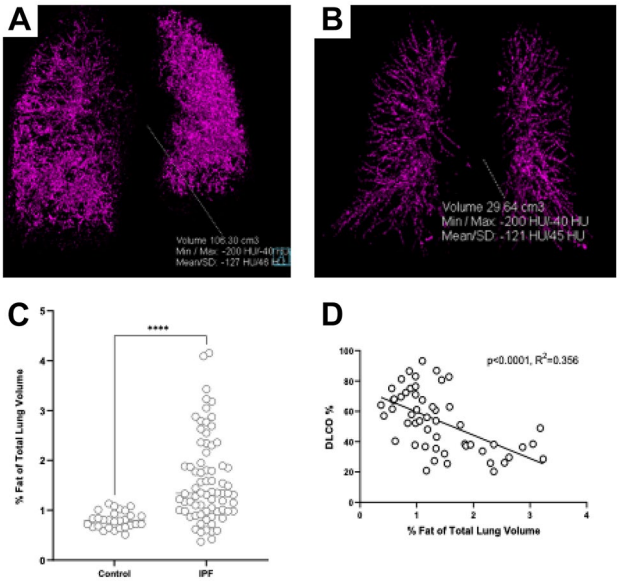
Cormac McCarthy[1,3]

[1]St. Vincent's University Hospital, Dublin [2]University of California, [3]University College Dublin

There is increasing interest in the role of lipids in pulmonary fibrosis. Based on the o increased focal subpleural fat observed in IPF biopsies and increased mediastinal fat radiologically, we hypothesised that objective measures of pulmonary lipid may have utility as an IPF biomarker. IPF and control lung biopsies were analysed by immunohistochemistry and unbiased lipidomics. Pulmonary fat attenuation volume (PFAV) was assessed on CT images with SyngoVia (Siemens Healthineers). Aerated lung was automatically segmented and PFAV calculated by Hounsfield-unit thresholding of segmented dataset and expressed as percentage of total lung volume. PFAV was compared to objective markers of disease severity.The total lipid content was significantly increased in IPF lung tissue (23.16 nmol/mg) compared to controls (18.66 mol/mg)($n = 10, p = 0.0317$). The median PFAV in IPF was significantly higher than control (1.35% vs 0.79%)($n = 75{:}28, p < 0.0001$) and PFAV correlated with

FVC ($R^2 = 0.407$, $p < 0.0001$) and DLCO ($R^2 = 0.356$, $P < 0.0001$) (Fig. 1A-D). Moreover, PFAV was higher in IPF even with preserved FVC ($p = 0.0024$) and DLCO ($p < 0.0001$). PFAV correlates with radiological features of fibrosis. PFAV is a novel non-invasive measure of pulmonary lipids which shows good correlation with pulmonary function, is automated and easily quantifiable. It could function as a novel biomarker for disease severity assessment in IPF.

(2.11)



Conflict of Interest: None to declare

2.12 Do all patients who have a transbrochial biopsy (TBBx) performed during bronchoscopy need a chest Xray: a single centre study

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University Hospital Limerick

Bronchoscopy is one of the most commonly performed procedures in the respiratory specialty. The risk of pneumothorax after TBBX is one of the major complications that can occur. The aim of our study is to identify risk factors for developing a pneumothorax and clinical findings indicating one has occurred.In this retrospective study, 163 patients underwent flexible fibreoptic bronchoscopy with TBBx (without fluoroscopy) with different pulmonary pathologies at UHL. We assessed patient demographics, clinical sign and symptoms, CT and bronchoscopic findings, and final diagnosis.
Of the 163 patients, 11 (6.7%) developed a pneumothorax. 7 were male; the mean age was 69 ± 2 years; 8 were ex-smokers (72.7%). Out of 163 patients 21 patients had chest pain and 16 complained of shortness of breath. All the patients who had pneumothorax had chest pain and shortness of breath. Only 6 patients required chest drain insertion and the remainder were managed conservatively. The mean duration of hospital stays of those patients requiring chest drain were 4 days (± 1).7% of patients who had a TBBx developed a pnemothorax and the most common presenting complaints were chest pain and shortness of breath. We suggest that CXR not be performed routinely after TBBX, and only in symptomatic patients, and thus reducing the burden on radiology and wasting of valuable resources.

Conflict of Interest: None to declare

2.13 Lung aging in a dish – Induced pluripotent stem cell-derived type 2 alveolar epithelial cells undergo telomere length attrition following prolonged 3D culture

Anja Schweikert[1,2], Mari Ozaki[1,2], Irene Oglesby[1,2], Killian Hurley[1,2]

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Pulmonary Fibrosis can be linked with mutations in surfactant protein production and telomere length (TL) regulation. Mutations causing shortened telomere length in type II alveolar epithelial cells (AT2) result in severe, early-onset disease. We hypothesise that pro-fibrotic signalling is activated by telomere attrition and that AT2 cells generated from induced pluripotent stem cells (iPSC) (iAT2) can be used as a preclinical model.Genomic DNA samples were acquired on Days 0, 3, 200 and 400 during directed differentiation to iAT2. TL was measured by high-throughput quantitative fluorescent *in-situ* hybridization, real-time quantitative PCR and Southern blot. The expression of pro-fibrotic, inflammatory and senescence genes at the different timepoints was measured by qPCR to investigate associations with telomere shortening.Analogous to the telomere attrition occurring *in-vivo*, TL decreased 25-65% from D0 to D200 and 65-80% from D200 to D400 in our model, associated with increased expression of senescence, pro-fibrotic and anti-apoptotic genes and decreased expression of pro-apoptotic genes.This is the first reported model of telomere shortening in human iAT2 cells and explores the relationship of telomere length and pro-fibrotic pathways. Our preliminary data showed a negative association between telomere shortening and pro-inflammatory signalling, indicating an important role in the onset of fibrosis.

Conflict of Interest: None to declare

2.14 The role of acute lower respiratory tract infection and microbial colonisation in interstitial lung disease exacerbations

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Interstitial lung disease (ILD) is an umbrella term for a heterogenous group of parenchymal lung disorders that are characterised by a similar clinical phenotype, overlapping radiographic disease patterns, and early mortality. It has been reported that in-hospital mortality for acute exacerbations of idiopathic pulmonary fibrosis (IPF) exceeds 50%[1].
The aim of this study was to explore the role of acute lower respiratory tract infection (LRTI) and microbial colonisation in ILD exacerbations by analysing sputum cultures in a cohort of patients with ILD.342 patients were reviewed at the ILD centre over a 5 year period. 49%(n = 169) had a diagnosis of IPF. 10% (n = 17) of these patients had a positive sputum culture. Escherichia coli, Klebsiella pneumoniae, Proteus mirabilis, and Haemophilus influenzae were the most commonly isolated bacteria and accounted for 64.5% of all bacteria cultured.There was a low use of sputum sampling in this study likely secondary to patient and care delivery characteristics. The prevalence of gram negative bacteria was an unexpected result and may be due in part to a selective advantage from the repetitive use of antimicrobials in the community in this population. The relationship between IPF exacerbations, LRTI's and microbial colonisation is complex and requires further study.

References

1. Brereton CJ, Jo HE. Acute exacerbations of idiopathic pulmonary fibrosis and the role of corticosteroids. Breathe (Sheff). 2020 Sep;16(3):200,086. https://doi.org/10.1183/20734735.0086-2020. PMID: 33,447,274; PMCID: PMC7792795.

Conflict of Interest: None to declare

2.15 Evaluating Patients Admitted with an Exacerbation of Idiopathic Pulmonary Fibrosis (IPF)

Seamus Lehane, Cara M Gill, Omaima Omar, Harry Hughes, Orla O'Carroll, Lindsay Brown Emmet McGrath, Michael P Keane, Cormac McCarthy

St. Vincent's University Hospital, Dublin

IPF is a chronic progressive lung disease with high associated mortality and 20% annual incidence of exacerbations[1]. Patients with IPF are also at increased risk of venous thromboembolism (VTE)[2]. The aim of this study is to review diagnostic approaches in patients admitted with an exacerbation of IPF.A database of patients with IPF was screened for admissions to a single centre from January 2018 to December 2019. Data was collected from health records including demographics, d-dimer, computed tomography and pulmonary function testing.
Overall, 16% of IPF patients were admitted with a mean length of stay of 12.2 days. Median age at exacerbation was 80.2 years. Only 5% had d-dimers measured. Thirty-one percent of patients were evaluated with CT. Of these, 1/3 underwent CTPA with negative studies. Patients who were admitted with an exacerbation had lower forced vital capacity than those who were not admitted (65.4% vs 76% predicted). Patients admitted with an exacerbation had higher mortality at 2 years than those not admitted (81% vs 30%).
A small cohort of IPF patients required admission with an exacerbation resulting in high mortality. Amongst these, few were evaluated for VTE. Factors influencing this should be further evaluated.

References

[1]Song JW, Hong SB, Lim CM, Koh Y, Kim DS. Acute exacerbation of idiopathic pulmonary fibrosis: incidence, risk factors and outcome. Eur Respir J. 2011 Feb;37(2):356-63. https://doi.org/10.1183/09031936.00159709. Epub 2010 Jul 1. PMID: 20595144.
[2]Sprunger DB, Olson AL, Huie TJ, Fernandez-Perez ER, Fischer A, Solomon JJ, Brown KK, Swigris JJ. Pulmonary fibrosis is associated with an elevated risk of thromboembolic disease. Eur Respir J. 2012 Jan;39(1):125-32. https://doi.org/10.1183/09031936.00041411. Epub 2011 Jul 7. PMID: 21737559; PMCID: PMC3757572.

Conflict of Interest: None to declare

2.16 A review of investigative procedures in the multidisciplinary diagnosis of Interstitial Lung Disease

O'Sullivan Grace, Musameh Khaled & Henry Michael

Cork University Hospital

Recent research indicates an increase in diagnostic confidence in diagnosing Interstitial Lung Disease (ILD) with Bronchoscopic Lung Cryobiopsy (BLC) over Surgical Lung Biopsy (SLB)[1]. In this study, we reviewed the investigations performed prior to the diagnosis of various ILD cases discussed in our Multidisciplinary Team Meeting (MDT).A retrospective review of the MDT cases between July 2019 and May 2022 was performed. This yielded a total of 137 ILD cases, of that, 48 of those were diagnosed with Idiopathic Pulmonary fibrosis. Investigations included CT imaging, Bronchoscopy with bronchoalveolar lavage (BAL), BLC or both; SLB and serological testing.Of the 48 IPF patients, BAL was performed in 46, BLC in 19 and SLB in 3. Both CT and serological testing were performed in all IPF cases. Data from other ILD cases of different aetiologies were also collected, 36 patients underwent BLC, of which 23 had histological features that helped establish a diagnosis, SLB was performed in 6 and the remaining cases did not have any tissue sampling. Thus, BLC supports diagnostic confidence in IPF and other ILD within this regional ILD centre and the reliance on SLB is reduced.

1.Tomassetti S., Well A.U., Costabel U., Cavazza A., Colby TV., Rossi G., Sverzellati, N., Carloni A., Carretta E., Buccioli M., Tantalocco P., Ravaglia C., Gurioli C., Dubini A., Piciucchi S., Ryu JH., & Poletti V. (2016) Bronchoscopic Lung Cryobiopsy Increases Diagnostic Confidence in the Multidisciplinary Diagnosis of Idiopathic Pulmonary Fibrosis. *American Journal of Respiratory and Critical Care Medicine* 193(7), 745- 752.

Conflict of Interest: None to declare

2.17 Practice changing hypersensitivity pneumonitis guidelines?

Marissa O'Callaghan .,[1,2] Omaima Omar.,[1] Lindsay Brown,[1] Michael Keane.[1,2], Emmet McGrath, [1,2] Cormac McCarthy [1,2]

[1]St. Vincent's University Hospital, Dublin;[2]University College Dublin

Until 2020, most patients who received a diagnosis of hypersensitivity pneumonitis (HP) required an invasive lung biopsy. The novel HP guidelines recommend that a confident HP diagnosis can be made with a *typical or compatible* HRCT, identifiable antigen and BAL lymphocytosis > 30%. A biopsy is still indicated with diagnostic uncertainty. The aim of our study was to see if our practice has changed in the wake of these guidelines. This retrospective observational study collected data on patients diagnosed with HP at MDT between January 2020 and December 2021.

42 patients were included; 57% male, mean age 59.7 years. 54.7% had a documented exposure with corresponding antibodies in 5/23. HRCT was categorised by degree of fibrosis in 39 cases. 17 patients had a BAL; 8 of whom had lymphocytosis > 30%. 50% of patients had a tissue biopsy (Table 1), only 1 of whom had a BAL lymphocytosis and identifiable exposure. While exposure identification and HRCT categorisation are now synonymous with our practice, BAL was performed in only 40%. 50% of patients still had a tissue biopsy. Going forward we should have a lower threshold for BAL and careful consideration of whether biopsy is truly needed.

Procedure (n = 21)	No. (%)
VATS Biopsy	10 (23.8%)
Transbronchial biopsy*	10 (23.8%)
EBUS**	3 (7%)

Table 1 (2.17): Method of tissue biopsy. *One patient later underwent VATS biopsy. **One patient later underwent transbronchial biopsy

Conflict of Interest: None to declare

2.19 Idiopathic pulmonary fibrosis & palliative care: a qualitative exploration of nurses' experiences

O'Sullivan Grace[1], Watson Chanel[2], Murray Bridget[2] & Henry Michael[1]

[1] Regional ILD centre, Cork University Hospital

[2]Royal College of Surgeons, Dublin

Symptom burden in Idiopathic Pulmonary Fibrosis (IPF) is evident and often multidimensional. Thus,national and international IPF guidelines recommend early palliative care implementation[1,2]. Despite this, delayed palliative care implementation and inappropriate referral timing in IPF has been identified as a common trend[3].
The research aim was to explore nurses' experiences in relation to the delivery of palliative care in IPF which may have the potential to improve both the future care of patients and the experience of providing care to patients with IPF by nursing staff.
A qualitative description approach was used. Purposive sampling yielded nine nurses working within an acute respiratory department.

Data was collected through semi-structured interviews over 10 weeks and analysed using thematic analysis.
Based on the nurses' experiences, palliative care implementation timing should be assessed on an individual basis due to the unpredictability of one's disease trajectory. The respiratory nurses suggested that palliative care discussions should not take place at the time of the diagnosis and information should be provided gradually. Advanced care planning (ACP) was identified as a strategy by the nurses to ensure patient centred care in the event of an acute deterioration. While barriers to appropriate palliative care implementation existed within the nurses' experiences, they deemed education as an essential to improve or resolve the current barriers between palliative care and IPF.
While ambiguity still surrounds the most appropriate implementation time, palliative care should be implemented at an earlier stage to reduce symptom burden. ACP is an initiative that may positively contribute to IPF care going forward.

References

1. Irish Lung Fibrosis Association, (2015). National Patient Charter for Idiopathic Pulmonary Fibrosis. Available from: https://ilfa.ie/wp-content/uploads/2021/10/ILFA_CharterBooklet_lores-1.pdf [accessed on 15/10/22].
2. 3. Raghu, G., Collard, H. R., Egan, J. J., et al. (2011) An Official ATS/ERS/JRS/ALAT Statement: Idiopathic Pulmonary Fibrosis: Evidence-based Guidelines for Diagnosis and Management. American Journal of Respiratory Critical Care Medicine, 183(6), 788–824.
3. Lindell, K. O., Liang, Z., Hoffman, L. A., Rosenzweig, M. Q., Saul, M. I., Pilewski, J. M., Gibson, K. F. & Kaminski, N. (2015) Palliative care and location of death in decedents with idiopathic pulmonary fibrosis. *Chest,* 147(2), 423-429.

Conflict of Interest: None to declare

2.20 Frequency of pulmonary complications among patients of pneumoconiosis experienced in tertiary care hospital

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Pneumoconiosis is a pathological reaction of lung tissue after exposure to inorganic substances, such as crystalline silica, asbestos and coal dust and this is very common in north of Pakistan because of coal mining, Asbestos in soil and marble factories. A wide spectrum of complications occurs in patients with pneumoconiosis including chronic obstructive pulmonary disease, pneumothorax, pleural diseases, progressive massive fibrosis and malignancy etc. This study was conducted to determine frequency of pulmonary complications among patients of pneumoconiosis. This was a cross sectional study which was conducted from 1st July 2019 to 31st December 2019. In this study total of 120 patients were observed. Patients of pneumoconiosis diagnosed on bases of occupational history, Chest X rays and HRCT. Other investigation like U/S chest, ABGs and biopsy etc. was done in selected patients to look for different complications.Mean age was 42 with SD ± 8, 96% were male. The main complications in our study was pneumothorax (22%) and COPD (12%). Pleural effusion (6%), progressive pulmonary fibrosis (4%) other complications (4%) like malignancy and chronic interstitial pneumonia etc. were also observed. Pneumothorax is common complication of pneumoconiosis with COPD being the second most common.

Conflict of Interest: None to declare

2.21 Clinical characteristics and their correlation to genotype and cyst burden in patients with Birt-Hogg-Dube Syndrome

Fiona Hickey,[1] Omaima Omar,[1] Evelyn Lynn,[1] Marissa O'Callaghan,[1] Orla O'Carroll,[1] Joseph Morrow,[1] David J. Murphy,[1] Aurelie Fabre,[1,2] Michael P. Keane,[1,2] Cormac McCarthy[1,2]

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Birt-Hogg-Dube syndrome (BHDS) is a rare autosomal dominant disease characterised by pulmonary cysts, pneumothorax, fibrofolliculomas and an increased risk of renal malignancy. It is caused by germline mutations in the folliculin (FLCN) gene. All patients attending the rare lung diseases clinic with a diagnosis of BHDS were included for analysis. Age, genetic mutation, clinical features, history of pneumothorax, PFTs and cyst score were analysed. Twenty-six patients were included. Median age was 52 (Range 23-88) and 58% female. There were 5 different genetic mutations identified. The most common of these was C.17_21delCTCTC. 3 patients had no identifiable known FLCN mutation. 35% had fibrofolliculomas, 8% had renal lesions. 30% had at least one prior pneumothorax. In those with the C.17_21delCTCTC mutation, 44% had a pneumothorax. Mean FEV1 was 87% (Range:44-119%), mean DLCO 80% (Range:56-112%) and the mean cyst score was 2% of total lung volume (range 0.1-5.4%). Cyst scores did not correlate with pulmonary function. Patients with history of pneumothorax had higher cyst burden scores (mean = 2.37% vs 0.9%, p = 0.08) but had no difference in lung function.

The presentation of BHDS is varied, even within families. Further research is required to identify those most at risk and ensure early identification of affected individuals.

Conflict of Interest: None to declare

Irish Thoracic Society Poster Review and Discussion

Friday 2nd December 2022

3. Lung Cancer

3.1 Improving the Patient Journey—A Rapid Access Lung Cancer Satellite Service

Gráinne Cogan, Ian Counihan
Our Lady of Lourdes Hospital Drogheda

The lung cancer diagnostic pathway is a stressful and complex journey for patients and their families. Therefore listening to patients is an integral part of improving the quality of our service delivery. The Rapid Access Lung Cancer satellite clinic was developed in 2018 in order to coordinate and improve access to lung cancer investigations and diagnosis for patients at a local level. In total over 2000 patients have availed of this service resulting in the diagnosis of 392 new lung cancers. A patient satisfaction survey was conducted in order to ascertain if patients were satisfied with the service offered, highlight areas which required further enhancement and identify any potential deficits in the service for future development.
100 questionnaires were posted to patients and family members attending the Rapid Access Clinic between 2018 and 2021. Data was collected by means of an adapted validated self-administered questionnaire. There was a response rate of 72%. Analysis demonstrated overall high levels of satisfaction with the care, information, support and efficiency of the service (90.3%). Areas for improvement were highlighted which included lack of space, privacy and long wait times at the clinic (11.1%) This information was utilised to drive service delivery.

Conflict of Interest: None to declare

3.2 Establishment of a respiratory led ambulatory indwelling pleural catheter service in a large tertiary centre

Finbarr Harnedy[1], Ross Morgan[1,2], Emmet O'Brien[1], Imran Sulaiman[1,2], Daniel Ryan[1]

[1]Beaumont Hospital, Dublin,[2] Royal College of Surgeons in Ireland, Dublin

Malignant pleural effusion (MPE) occurs in up to 15% of all cancers with significant symptom burden and high incidence of recurrence. Definitive

management of MPE is largely carried out via chemical pleurodesis or insertion of an indwelling pleural catheter (IPC). International best practice models have shifted to a predominantly outpatient and elective service model for MPE management using IPC. Hence, a Respiratory led IPC service was established in Beaumont Hospital in September 2021. To date, 15 IPCs have been completed by this new service. Most, 12 (80%), were performed while an inpatient. Two patients had a post procedure pneumothorax that required brief attachment to an underwater seal with subsequent resolution. There were no cases of post procedure infection, insertion failure, drain fracture or significant haemorrhage. 2 patients had their IPC removed due to effusion resolution and auto pleurodesis by 4 months.
Furthermore, international standard length of stay for MPE is 7 days, 3 cases were carried out through the ambulatory service with an estimated 21 bed days saved and a cost saving of up to €18,333. No ambulatory patients have reported complications to date. Establishment of an ambulatory IPC service is an effective and cost saving measure.

Conflict of Interest: None to declare

3.3 Malignant Pleural Effusions: An audit of current practice in an Irish tertiary teaching hospital

Finbarr Harnedy[1], Shane O'Brien[1], Seamus Leahane[1], John Patrick Jones[1], Imran Sulaiman[1, 2], Daniel Ryan[1]

[1] Beaumont Hospital, Dublin,[2] Royal College of Surgeons in Ireland, Dublin

Malignant pleural effusions (MPE) are a frequent complication of advanced malignancy associated with high morbidity, mortality, and healthcare costs. We retrospectively audited adherence to American Thoracic Society (ATS) guidelines for the management of MPE in a large tertiary hospital. To do this, we analysed physical charts, discharge summaries and radiological investigations of all patients with a diagnosis of MPE between 2020 and 2021 initially identified through HIPE data. Within this time period, there were 71 patients with a diagnosis of MPE and 67 (94%) were found to be symptomatic with breathlessness. Of these 67 patients, 60 (90%) had large volume thoracentesis. A definitive pleural intervention was performed on 19 (28%) patients; 11 (16%) patients underwent indwelling pleural catheter (IPC) insertion while 8 (12%) patients had talc pleurodesis performed. The average length of inpatient stay for all patients admitted with a malignant pleural effusion was 16 days with a range of 1 to 122 days. In this tertiary hospital the majority of patients with symptomatic a malignant pleural effusion underwent pleural intervention which is in line with ATS recommendations and highlights the need for pleural specialty care.

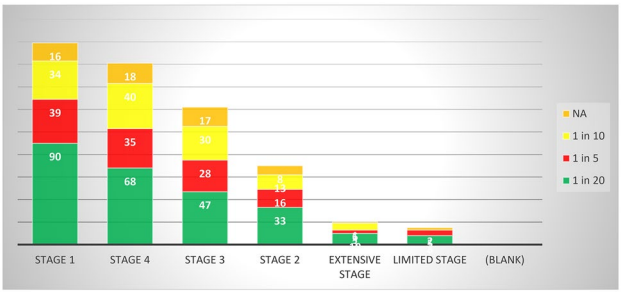
Conflict of Interest: None to declare

3.4 Retrospective data analysis on levels of Radon exposure in Lung cancer patients in Level 2, 3 and 4 Hospitals in the Republic of Ireland.

Jehangir Khan[1,2], Waheed Shah[1,2], Marissa O'Callaghan[1,2], David Healy[1], Marcus Butler[1,2] Aurelie Fabre, Cormac McCarthy[1, 2] Michael P Keane[1, 2,]

[1] Saint Vincent's University Hospital, Dublin,[2] University College Dublin

Lung cancer is the leading cause of cancer worldwide. Radon is associated with increased risk of lung cancer after tobacco exposure. EPA has published updated data on Radon exposure in Ireland in 2022. Anecdotally we notice different stage of lung cancer presentation depending on geographical location. We hypothesise that certain radon exposure may be associated with increased staging of lung cancer at presentation.
Methods: Retrospective analysis of lung cancer patients was performed. We tracked Eircodes and evaluated exposure to Radon based on their geographical location.
Results: Analysis of total of 567 patients were performed, n:256 fell in the green zone category of radon exposure, n:126 in the red zone of radon exposure and n:123 in yellow zone of radon exposure. Sub analysis based on staging of lung cancer showed that n:35 was in the red of radon exposure in stage 4 lung cancer, while n:90 was in the green zone of radon exposure within stage 1 lung cancer cohort.
Conclusion: Our data suggests that that Radon may be linked to increase stage of lung cancer. It needs further exploration. Fig. 1(3.4): Comparative analysis of Patients with Radon exposure in Level 2,3 and 4 Hospitals.



Conflict of Interest: None to declare

3.5 A Dedicated Solitary Pulmonary Nodule Service Reduces Inappropriate Surveillance CT

Maqbool Moeez, Sarah Farrell, Grainne Cogan, Aidan Quinn, Tidi Hassan

Our Lady of Lourdes Hospital, Drogheda

Our Lady of Lourdes Hospital has a dedicated solitary pulmonary nodule service since 2020 that includes a multidisciplinary (MDT) meeting with the radiology and respiratory team. We review the activities of this service and compared the number of surveillance CT performed before the service was established. A retrospective study comparing incidental CT reports of solitary nodules in 2018 versus 2021 was performed. Eighty-nine percent (n = 113) of nodules reported in 2021 were discussed at the MDT meeting with 28 percent (n = 32) discharged at first review based on the BTS 2015 guidelines. Seventy-one patients (88%) were followed up to completion for surveillance CT with 9 patients referred to the Rapid Access Clinic. Meanwhile, 106 solitary nodules were reported in 2018. Ninety-one (86%) of patients received surveillance CT although 16 cases did not require surveillance as per BTS guidelines. 42 (46%) surveillance CTs were performed outside the BTS guidelines including 6 weeks and 6 months' timeframe. Nineteen (20%) cases completed surveillance beyond the recommended time which led to an excess of 1.7 CTs for 2018 versus 2021.
Here we report that a dedicated solitary pulmonary nodule service reduces inappropriate surveillance CT which may overall reduce health cost as well as patient's anxiety.

References

Callister MEJ, Baldwin DR, Akram AR, Barnard S, Cane P, Draffan J, et al. British Thoracic Society guidelines for the investigation and management of pulmonary nodules: accredited by NICE. Thorax. 2015 Jun 16;70(Suppl 2):ii1–54

Conflict of Interest: None to declare

3.6 A retrospective review of lung cancer referrals and initial workup in Mercy University Hospital Cork pre/ during the Covid-19 pandemic and following initiation of patient redistribution

Emily O'Reilly[1], Laura Monaghan[1], Seán Landers[1], Art Kelleher[1], Robert Shannon[1], Prof Terry O'Connor[1], David Curran[1]

1. Mercy University Hospital, Cork

This retrospective review aimed to assess referral and initial workup of lung lesions in patients referred or presenting to the Mercy University Hospital Cork 2019-2022. The study period encompassed pre, during, and post Covid-19 lockdown era as well as pre and post introduction of medical admission specialty redistribution at the study site.
The Covid-19 pandemic continues to have a profound impact on healthcare in Ireland. The pandemic prompted some hospitals to change the pathway for acute medical admissions.
This review included all patients investigated for malignant lung lesions January 2019- June 2022 in Mercy University Hospital. Age, sex, mode of referral (emergency department/ other medical specialty/ inpatient/ outpatient/ other hospital), stage at diagnosis, and outcome from multidisciplinary team meeting were assessed. 349 patients met inclusion criteria, 152 female, 197 male. Median age was 70 years. There was a significant difference in mode of referral when comparing all four years, Chi-squared test ($p = 0.012$). Non respiratory team referral 2019 vs. 2022 52% vs. 31%. There was no significant difference in age or sex at presentation when comparing all four years, Kruskal-Wallis ($p = 0.46$), Chi-squared ($p = 0.20$) respectively. The introduction of medical admission specialty redistribution may reduce time to respiratory consultant assessment and therefore diagnostics and management decisions.

Conflict of Interest: None to declare

3.7 A Single Centre Retrospective Analysis of Stage of Presentation of Lung Cancer Pre and Post Covid-19 Pandemic

C Ottewill[1], F Mulvaney[1], F O'Connell[1], P Nadarajan[1]

1. St. James Hospital, Dublin

Introduction/Aims: This study investigated the effect of the Covid-19 pandemic on lung cancer staging at presentation.
Methods: This retrospective cohort study investigated new primary lung cancers staged at lung cancer MDT in a tertiary referral centre. We compared cancer staging in the 6-month period before the Covid-19 pandemic (Apr 2019- Sept 2019, Group 1) to a similar period after start of the pandemic (Sept 2020- Feb 2021, Group 2). Patient demographics, tumour stage and treatment referrals were analysed.
Results: Patients presented on average two years older at time of diagnosis in Group 2. 39% of patients in Group 2 being current smokers, compared to 29.6% in the pre-pandemic group. Median tumour size at diagnosis was larger in Group 2 (5.6 cm vs 4.1 cm), reflecting overall upgrading from T3 to T4. Those in Group 2 had higher stage nodal disease, with 36.5% of patients presenting with N3 disease, compared to 20.9% in Group 1. There was no observed statistically significant increase in rate of metastatic disease at presentation, with 30.7% in Group 1 presenting with metastatic disease, and 31.7% in Group 2.
Conclusion: This study suggests patients are presenting with more advanced lung cancer following the pandemic, with larger tumours, and higher burden of nodal disease. This is likely multifactorial and further study will be required to explore factors such as lung cancer screening and patient education that may prevent this trend towards later presenting disease.

Conflict of Interest: None to declare

3.8 Difference of postoperative pain between video-assisted and robotic-assisted approach in thoracic surgery

Ghaith Qsous, Amber Downes, Beata Carroll, Sinead Rowe, Santy Manoj, Michael Tolan, David G Healy

St.Vincent's University Hospital, Dublin

Corresponding author* : Ghaith Qsous

In the last decade there was significantly evolving in thoracic surgery with the spreading use the robotic surgery. We aim to evaluate the pain after at least 6 months from the surgery using the robotic and video-assisted approach.This is a retrospective study that included 92 patients who underwent different thoracic surgeries. Patients were divided into two groups; Video-assisted (VATS) (51 patients), and robotic-assisted (RATS) (41 patients). The EQ-5D-5L questionnaire was used to estimate the utility values of QOL. In the VATS group patients underwent more anatomical lung resection comparing to the RATS group with a p-value of 0.005. In the VATS group, 62.7% of patients had no pain at the time of the questionnaire compared to 51.2% in the RATS group but without a statistically significant. Also, 25.5% vs 39% of patients had mild pain in VATS and RATS respectively but without a statistically significant p-value.In conclusion, on the long-term after surgery, our results didn't show that RATS has better pain control compared with VATS. Though, robotics is known to have higher hospital costs. The continuance of a comparative study with VATS may be essential. And some efforts need to be taken into consideration to reduce postoperative pain and cost.

Conflict of Interest: None to declare

3.9 Diagnostic yield and complication rates from transbronchial biopsies of abnormal lung lesions in a tertiary referral centre for lung cancer

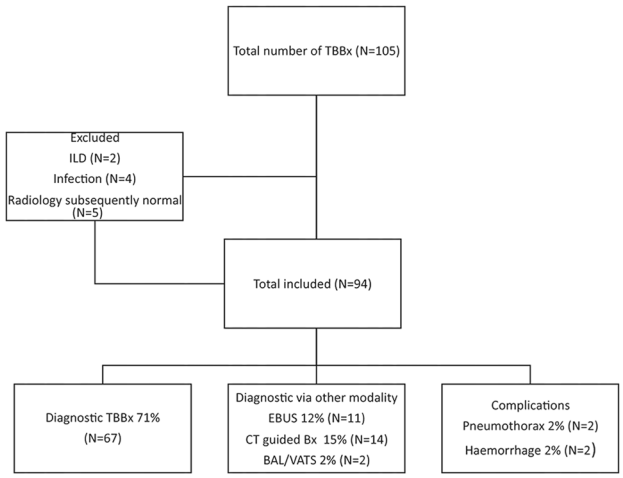
D Quigley, F O'Connell, P Nadarajan

St James' Hospital, Dublin

Transbronchial lung biopsy (TBBX) is a procedure performed during flexible bronchoscopy under fluoroscopic guidance. We primarily use this modality to evaluate suspicious peripheral lesions. Diagnostic yield of this procedure varies in the literature but is between 35-60%. Pneumothorax is the most common complication (0.5-5%) with significant pulmonary haemorrhage also an identified risk (0.6-1.5%). A total of 105 procedures were done over 9 month period November 2021-August 2022. Patient data was collected using the electronic patient record system (EPR). 105 patients were included in the analysis. 94 were evaluated for diagnostic efficacy. 11 patients were excluded (Table 1). MDT discussions/clinic letters/radiological investigations/bronchoscopy reports/histological reports and relevant admission notes where analysed in all subjects.
Our diagnostic accuracy from transbronchial biopsies is 71% (67/94). A further 12% of patients were diagnosed with endobronchial ultrasound (EBUS-TBNA) that was done concurrently. Our findings demonstrate that transbronchial biopsies can have a high diagnostic yield in addition to having low rates of complication. It prevents a delay in diagnosis while awaiting CT guided biopsies, which itself also carries a higher

risk of pneumothorax. We advocate for TBBX to be standard of care in tertiary lung cancer centres and that performing EBUS during same procedure when possible is safe and effective.

Table 1 (3.9)



Conflict of Interest: None to declare

3.10 Appropriateness of Rapid Access Lung Cancer (RALC) referrals

Shahram Shahsavari, Mohammed A. Alabandi, Musab Eltayeb, Orlaith Shinners, Owais Rahman, Aidan O'Brien

University Hospital Limerick

RALC clinic plays a pivotal role in early diagnosis and treatment of patients with cancer. There is an established guideline from National Cancer Control Programme (NCCP) for patient referrals by GPs and medical practitioners. It is important that patients referred are appropriate to ensure efficient use of resources. In this retrospective study we recruited referrals sent to RALC using consecutive sampling in Feb 2022 and compared it to NCCP guidelines. We assessed appropriateness of referrals as well as rate of proven outcomes.

Out of a total of 48 patients, 30 Patients (62.5%) were referred with lung mass / nodule, 5 patients (10.4%) with non-resolving infiltrates, 5 patients (10.4%) with haemoptysis and 8 patients (16.6%) with other abnormalities.21 patients (43.7%) were referred by hospital clinicians 11 of which were seen as inpatient consults and 27 patients (56.2%) were referred by their GPs. While 17 patients (35.4%) still required further follow up, only 4 patients (8.3%) were actually proven to have malignancy at the time of the initial presentation. 7 patients (14.5%) did not have appropriate imaging before referral and 14 referrals (29%) were deemed as inappropriate. This study concludes that further education regarding NCCP guidelines is required to reduce number of inappropriate referrals to RALC clinics.

Conflict of Interest: None to declare

3.11 THE POWER OF RESPIRATRY CYTOLOGY; A DIAGNOSTIC AND THERAPEUTIC PARADIGM SHIFT

Diarmuid O'Connor [1], David Gibbons [1, 2], Aurelie Fabre [1,2]

1.St. Vincent's University Hospital, Dublin, Republic of Ireland
2. University College Dublin, Dublin, Republic of Ireland

Lung cancer is the leading cause of cancer related death worldwide. 70% of cases are inoperable at diagnosis, therefore respiratory cytology specimens represent crucial sources of tissue. The use of cytology has expanded beyond the diagnostic sphere to also encompass a key role in therapeutic molecular studies. Our aim was to demonstrate the diagnostic and therapeutic value of respiratory cytology for patients with lung cancer.We analysed all respiratory cytology specimens received at out institution between 2020 and 2021. We recorded the number of malignant specimens, their concordance to available biopsies and whether they were used to perform therapeutic molecular studies.1432 respiratory cytology specimens were analysed. Of these, 15.6% (n = 223) were malignant. Of the 223 malignant specimens, 61% (n = 136) were non-small cell lung cancer (NSCLC), incorporating 102 patients. Of these patients, 37.3% (n = 38) has molecular studies successfully performed on cytology specimens with another 14.7% (n = 15) having PD-L1 studies alone performed. Of the 136 NSCLC specimens, 79.7% of cytology specimens with a corresponding biopsy successfully classified NSCLC into adenocarcinoma or squamous cell carcinoma.

Our study highlights the value of respiratory cytology as an effective diagnostic and therapeutic tool, showing value in both classifying NSCLC and in performing essential molecular studies.

3.12 2021 Audit of Endobronchial Ultrasound-guided Transbronchial Needle Aspirates in an Irish Lung cancer Tertiary Referral Centre

Daniele Di Capua, Aurelie Fabre

St Vincent's University Hospital, Dublin

Endobronchial ultrasound (EBUS) guided transbronchial needle aspiration is a minimally invasive technique used to investigate mediastinal and hilar lymphadenopathy. This retrospective audit of all EBUS guided samples collected between 1st January and 31st December 2021 assessed the diagnostic yield, adequacy, and malignancy subtypes detected by EBUS and use of rapid on-site evaluation (ROSE) in an Irish tertiary referral center.212 lymph nodes were sampled in 168 EBUS procedures, representing 20% increase from 2020 (140 EBUS). Mean patient age was 60.7 years and 41.4% (69/168) female. ROSE was performed in 89.9% (151/168) of cases, with a positive yield in 84.5% (142/151). Overall inadequacy rate was 6.5% (5% in 2020).EBUS malignancy rate was 37.5% (63/168) overall and 56% (61/109) in cases of suspected malignancy or staging, with pulmonary adenocarcinoma being the most common subtype (28.6%). Granulomas were observed in 24.4% (41/168) of EBUS procedures overall, and in 69.4% (25/36) of EBUS procedures performed for investigation of sarcoidosis.EBUS is effective for the diagnosis of both malignant and non-malignant disease with excellent adequacy rates and provides source material for molecular analysis. EBUS and malignancy rates increased, while ROSE rates slightly decreased in 2021, and overall inadequacy rate was slight higher.

Conflict of Interest: None to declare

3.13 Audit – A study of guideline adherence in pulmonary nodule surveillance

Ruaidhri J. Keane[1],Claire Bolton[1],Michael Emmet O'Brien[1]

[1]Beaumont Hospital, Dublin

Pulmonary nodules are a common imaging finding encountered by physicians. Incidental detection of pulmonary nodules has risen significantly with increased Computed Tomography scanning. The British Thoracic Society and Fleischner Society guidelines are used to guide longitudinal pulmonary nodule surveillance (PNS) in Ireland. There is considerable variability in physician adherence to these guidelines, and is typically less than 50% [1]. The aim of this single centre audit was to evaluate the adherence to guidelines in patients being followed up by the PNS service.Over a 24 month period, 162 patients were reviewed by the PNS service. 71 continued surveillance, 68 were discharged

with stability, 7 were referred to the rapid access lung cancer clinic, and 17 discontinued surveillance due to death (n = 5) or patient preference (n = 12). 47.5% (n = 77) had multiple pulmonary nodules. 145 patients were appropriate for analysis of guideline adherence. 60% underwent compliant surveillance. Delayed or early imaging, and prolonged period of surveillance were the most common reasons for failure of adherence.The adherence to PNS guidelines is greater in this centre than in other similar centres in published studies [1]. Barriers to guideline adherence include resource availability, patient compliance, SARS-CoV2 pandemic, and physician interpretation of guidelines.

References

1. McDonald, Jennifer S et al. "Addition of the Fleischner Society Guidelines to Chest CT Examination Interpretive Reports Improves Adherence to Recommended Follow-up Care for Incidental Pulmonary Nodules." Academic radiology vol. 24,3 (2017): 337–344. https://doi.org/10.1016/j.acra.2016.08.026

Conflict of Interest: None to declare

3.14 Lung Cancer in Women; A Growing Health Concern?

Art Kelleher, Laura Monaghan, Emily O'Reilly, Sean Landers, David R. Curran, Terence M. O'Connor

Mercy University Hospital, Cork

Lung cancer is a serious women's health issue and kills more women annually than breast, ovarian and uterine cancers combined. The demographic makeup of lung cancer has evolved dramatically. According to literature, diagnosis of Lung Cancer in women is increasing with women more likely to be diagnosed at a younger age and earlier stage of disease. An increased incidence of adenocarcinoma has also been described.

We retrospectively analysed data of 808 primary Lung Cancer diagnoses in the Mercy University Hospital, Cork over a twelve-year period (2010-21). Over that timeframe, there was no increase in either the outright number of diagnoses in women or in the percentage in women as a fraction of the total annual incidence. There was no evidence of presentation in women at a younger age than males with a m. We identified that the percentage of women presenting with stage 4 disease was higher than in males. However, we are beginning to appreciate an increase in adenocarcinoma diagnoses in women.

Broadly, the data we have accumulated suggests a remarkably different trend in demographics compared to described literature. Further data collection and analysis would aid in better comprehending these findings.

Conflict of Interest: None to declare

3.15 Two years on, how do we measure up? A re-audit of Rapid Access Lung Cancer Clinic Deferral Letter Process

O. Shinners, S. Shahsavari, S. Noor, J. Rasul, Z. Ali, R. Murphy, A. O'Brien

University Hospital Limerick

The National Cancer Control Programme recommends a 14 day window for review in Rapid Access Lung Clinic (RALC) from day of referral. University Hospital Limerick is the primary centre for RALC referrals in the Mid-West and thus receives large volumes. This results in a strain to meet this set standard. Many referrals do not need formal RALC review and can be deferred with advice for repeat imaging or for no action required following review of the referral. An initial audit of this deferral letter process was undertaken in 2020 and concluded that 1/3 of patients referred to RALC can be safely deferred back to their initial referrer, however 15% did not have the appropriate follow-up arranged as advised. Following this, our protocol was updated to include a follow-up telephone call. This study aims to evaluate RALC deferral letters from January-June 2021 and to compare outcomes to those reported in 2020. NIMIS Radiology System was utilised to evaluate if appropriate re-imaging was carried out as advised. 280 RALC referrals were received during the period of review, of which 15% (n = 43) met deferral criteria. Of these, 42% required no action and 58% had furthering imaging recommended. Of those requiring further imaging, 80% had this undertaken as appropriate with 15% re-referred due to persistent abnormalities. The percentage of patients who did not have follow-up as advised represented 12% of all deferred patients (n = 5). This study again highlights that a particular subset of patients do not need formal RALC review and can be safely triaged back to the initial referrer. The updated protocol has reduced the number of patients without appropriate follow-up.

Conflict of Interest: None to declare

3.16 Beyond COVID-19: An Evaluation of the Timepoints in Lung Cancer Diagnoses 2019 vs 2022

O. Shinners[1], K. Cinnamond[1], O. Rahman[1], S. Shahsavari[1], R. Murphy[1], E. Maltseva[1], A. O'Brien[1]

University Hospital Limerick [1]

Lung cancer proves a major healthcare challenge. The diagnosis, staging and treatment of lung cancer requires a multi-disciplinary approach and should be undertaken in a timely manner. The National Cancer Control Program (NCCP) advises a 14 day window for patients to be evaluated in the Rapid Access Lung Clinic (RALC) from initial referral. Guidance on time to diagnosis (TTD) is less clear. This varies within the literature from 28-60 days from initial referral. This study aims to evaluate and compare time to first RALC review and TTD of lung cancer patients in 2019 versus 2022. These dates have been specifically chosen to exclude the years impacted by the Covid-19 pandemic and to assess for any residual delays.

In 2019, 64 patients were diagnosed with a primary malignancy via RALC. Mean time to RALC was 15.2 days (median 13), with mean TTD 37.9 days (median 13). In comparison 65 primary malignancy diagnoses were made in 2022, mean time to RALC was 13.1 days (median 10), with mean TTD 50.6 days (median 15). While time to review in RALC improved from 2019 to 2022, TTD disimproved. Those with TTD > 60 days had a more complex path to diagnosis including repeat imaging, PET CT scans, MDM discussions as well as the requirement for CT guided biopsy. Further analysis was undertaken to identify any specific steps in the diagnostic process that led to longer TTD.

Conflict of Interest: None to declare

3.17 An SpR focused pictorial review to improve detection of primary lung malignancy on conventional radiography—lessons learned in a regional lung cancer centre

Grainne N. Allen; Patrick Cooper; Réiltín Hayden; Iain Irvine; Shane Davy; Zaid Tabba; Mark Rogan; Susan Foley; Michael Anthony Farrell

University Hospital Waterford

Lung cancer is the leading cause of cancer related deaths worldwide and earlier diagnosis of the disease improves prognosis. While X-ray will never replace CT in detection of lung cancer, conventional radiography, and the chest x-ray in particular, is often the primary imaging modality that detects or suggests a neoplasm. Here we present a pictorial review of lung masses on plain film, based on our experiences as a regional lung cancer centre.We will discuss the review and check

areas on chest x-ray and the use of inversion windowing to highlight areas such as posterior to the heart or diaphragm domes. We will show examples of lung masses picked up on non-dedicated studies, including thoracic spine and shoulder radiographs, and stress the importance of reviewing all areas on an x-ray, regardless of the clinical question. We will place particular emphasis on comparison with prior radiographs and on repeating poor quality x-rays. Our goal is to provide a review to improve detection rates of lung cancer on conventional radiographs, with a focus on teaching for both respiratory and radiology Specialist Registrars.

Conflict of Interest: None to declare

Irish Thoracic Society Poster Review and Discussion

Friday 2nd December 2022

4. Patient Care

4.1 A retrospective analysis of referrals and outcome measures of the Respiratory Integrated Care Hub, Chronic Disease Management Programme, Cork City

Murphy J[1], Casey D[1], O'Riordan U[1], Vairamani P[1], Tangney N[1], Gomez F[1,2]

[1]Chronic Disease Hub, Respiratory Integrated Care, SMOH, Cork, [2] Cork University Hospital

Respiratory disease, specifically COPD and Asthma account for the highest numbers of in-patient hospitalisations and bed days compared to other diseases within our Irish health system. Thus leading to the timely introduction of Respiratory hubs within the Integrated Care Programme for prevention and management of chronic disease (ICPCD). Our hub opened its doors to referrals and patients in June 2022. We performed a retrospective analysis of referrals received and triaged by RIC and outcomes including diagnosis and further tests required. Patients who fit the inclusion criteria were referred by their GP. These referrals are triaged by the respiratory team in the hub to the appropriate pathway for diagnostics and review. The patients were reviewed by a CNS and ± the consultant. If patients do not require a direct review by the consultant, their case is discussed at a weekly MDT and a report with diagnosis and management plan is sent to the GP. Follow-up with the RICT is often required. Data was collected through our referral database and patient outcomes.
A total of 40 patients were triaged and seen from mid-June to 31st July. 39 patients were seen in either spirometry only clinics (n = 15) or full assessment (consultant and spirometry) (n = 24). 1 patient was referred for PFTs only (waiting list). Of 15 patients seen for spirometry, n = 4 new diagnosis of COPD, n = 5 new diagnosis of Asthma, n = 2 new diagnosis of ACOS. 1 patient had a change in diagnosis and 3 patients needed further review with PFTs. The results of the full respiratory assessment clinics has not been included in this data as patients are awaiting blood results and further investigations.
Our expert care, diagnostics and knowledge means accurate diagnosis, disease staging and appropriate management, of respiratory patients living with a chronic disease in conjunction with their GPs.

Conflict of Interest: None to declare

4.2 Developing a toolkit for the multidisciplinary team on Inhalers on Carbon Footprint

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1. Mater Misericordiae University Hospital, Dublin, 2. University College Dublin, 3. Respiratory Integrated Care in Dublin North City and County, Ireland 4. Trinity College Dublin, 5. Blackrock Medical Centre, Dublin, 6. Suttoncross Surgery, Dublin

Pressurised metred dose inhalers (MDIs) contain a propellant (hydrofluroalkanes) which has a disproportionate global warming potential compared to dry powdered inhalers (DPIs) and soft mist inhalers (SMIs). In an online survey of respiratory multidisciplinary team members, 94% felt it was important to consider carbon footprint when choosing an inhaler. However, over half did not feel confident identifying patients who do require an MDI and those who could suitably be managed with a DPI or SMI. A multidisciplinary group performed a literature review which informed the development of a toolkit for clinicians on inhalers and carbon footprint. The toolkit includes information on the available inhalers carbon footprint and distance travelled equivalent as well as dosage, cost and correct inhaler technique. This toolkit is designed to be easily utilised in the clinical setting and to guide clinicians into choosing the right inhaler for the right patient with the lowest possible carbon footprint. Three documents, including a brief guide, a device choice, technique and carbon footprint table and an evidence based document were generated. The 'inhalers and carbon footprint' toolkit addresses a previously unmet need to provide clinicians with the necessary information to reduce the carbon footprint of inhalers while improving patient care.

(4.2)

Conflict of Interest: None to declare

4.3 Patients' satisfaction with care provided by a Respiratory Clinical Nurse Specialist in an out-patient setting

Martha Reilly[1], Elaine Hayes[1], Tidi Hassan[1]

[1]Our Lady of Lourdes Hospital, Drogheda

Benefits for nurse-led service provision by a Clinical Nurse Specialist (CNS) are well documented in international literature. The quality of the information and education given in a clinic setting by a CNS directly impact the Asthma patient, asthma control and their quality of life.
A patient satisfaction survey was conducted in order to ascertain patient satisfaction with the CNS led service and to highlight areas which required improvement thus allowing any potential deficits in the service to be identified for future development. 56 Questionnaires were posted to patients who attended appointments with the CNS during 2021. 24 completed questionnaires were returned, yielding a response rate of 42%.Analysis of the responses demonstrated overall high levels of satisfaction (95.8%) with the educational value and care provided. Areas of improvement were highlighted with 25% of respondents stating they would like to have discussed other issues and 41.7% stating they did not receive written literature on their condition. This information will be utilised to improve and standardise service delivery.Having under treated asthma can have a negative impact on asthmatic patient health

and quality of life. Feedback from the patient plays a fundamental role in improving the quality of service provision.

Conflict of Interest: None to declare

(4.4 Not for publication 4.4 New Guidance on Azithromycin Prophylaxis- A Starting Point)

4.5 Mid-West Respiratory Physiotherapy Optimisation Clinic – A Service Evaluation

Sarah Cunneen[1], Jarlath Healy[2], Aidan O'Brien[3], Máire Curran[1], Brian Fitzgibbon[1], Lauren Kennedy[1], Maura Cleary[1]

1 Physiotherapy, Integrated Care Programme for Chronic Disease, HSE CHO3, 2 Toomevara Health Centre, 3 University Hospital Limerick

A pilot community-based respiratory clinic has been established in the Mid-West with the aim of optimising respiratory management and enhancing patient care of those living with chronic respiratory diseases. It enables GP practices in North Tipperary to refer patients at the lowest level of complexity directly to respiratory services in line with the HSE Integrated Model of Care for the Prevention and Management of Chronic Disease. The clinic, ran by a Clinical Specialist Physiotherapist, provides one-to-one appointments to patients with chronic respiratory diseases with an opportunity for participation in community based Pulmonary Rehabilitation Classes if required. The face-to-face clinic runs in locations as close to the patients home as possible. Continuous data acquisition will take place with a snapshot clinical audit at 4 months (November 2022). The objectives of the audit are displayed in the table below.

(4.5)

Outcome Measures	Assess and record the respiratory physiotherapy treatments delivered Assess and monitor the appropriateness of GP referrals to the service Patient experience surveys GP experience surveys
Process Measures	Track uptake of the service (percentage of referred patients who attend) Monitor wait times for the service
Balancing Measures	Resources required for the service Onward referrals to other services

The outcome of the audit will evaluate the pilot clinic and in addition inform future respiratory service planning in the Mid-West.

Conflict of Interest: None to declare

4.6 Evaluation of community based pulmonary rehab programmes in Limerick: A 6-month analysis

Máire Curran[1], Brian Fitzgibbon[1], Lauren Kennedy[1], Sarah Cunneen[1], Liam O'Connell[1], Louise Crowley[1], Maura Cleary[1], Patricia O'Rourke[1], Aidan O'Brien[2]

[1]*Physiotherapy, Integrated Care Programme for Chronic Disease, HSE CHO3*

[2]*University Hospital Limerick, Limerick*

Pulmonary rehabilitation (PR) has established itself as a key management strategy in the treatment of people with chronic respiratory disease. Care should be focused in the community as much as clinically appropriate in line with the HSE Integrated Model of Care for the Prevention and Management of Chronic Disease. Historically, PR was only delivered in one acute site, at University Hospital Limerick (UHL). Due to COVID-19 and subsequent cancellation of outpatient services, particularly for group settings, as well as a vulnerable population, this resulted in a two year wait time for PR in Limerick.

PR in the community was established as part of the Respiratory Integrated Care service. In February 2022 there were 234 clients waiting for PR with a longest time of 122 weeks at UHL. There were 189 additional referrals between February and August 2022. Various PR venues have been risk assessed and utilised by the PR service such as GAA community halls and hotels ensuring that the venue was suitable, easily accessible to clients in view of choice of locality and had adequate parking.

(4.6)

	Initially	**Currently**
Wait time	122 weeks	15 weeks
Number of clients waiting	234	94
Parking	€4 per class	All venues sourced have free parking and car park is more accessible.
Location	UHL only	PR programmes have been completed in Limerick City, South Limerick and West Limerick. Locations closer to clients' home. Reduced travel expenses for clients.
Other considerations	As there is more physical space in community venues and increased staffing levels this enables more clients to be enrolled in each PR programme. However, there is a rental cost for each PR venue which should be considered.	

(4.6)

In conclusion, this new service has reduced PR waiting times and ensured a more accessible location to those living with a chronic lung condition in the community.

Conflict of Interest: None to declare

4.7 Cork University Hospital review of inhaler education initiative within the inpatient service

Vairamani P[1],Casey D[1], O'Sullivan G[1], Bowen B[1], Murphy J[1],Noonan C[1], O'Grady M[1], Arnott F[1], Kennedy M[1], Plant BJ[1], Gomez F[1], Henry M[1],Murphy DM[1]

[1] Cork University Hospital, Wilton, Cork

[2] Health Research Board, Clinical Research Facility, University College Cork, Cork

Asthma and COPD are common respiratory chronic diseases with substantial symptom burden on the healthcare system both nationally and

internationally (GINA, 2021 & GOLD, 2021). Despite, advancements in treatments and management guidelines there has been an increasing incidence on the prevalence of these conditions globally in the recent years. Inhaled drug delivery remains the cornerstone of treatment for both COPD and Asthma. However, 90% of these patients do not use their inhalers correctly and thereby experience frequent exacerbation of their symptoms some of which can be life threatening requiring hospitalization (Lavorini et al., 2008). We provided 30 education sessions in 2021 to over 150 healthcare professionals, on wards within CUH 190 assessments were completed on inpatients requiring inhaler education and disease management review. Each of the patient assessed, received face to face teaching with placebos for each appropriate device prescribed. More than 90% of these patients were reviewed for first time education on how to use their prescribed inhalers. It was found that 80% of patients had poor inhaler technique. Lack of education re their disease and inhaler adherence accounted for 60% of these patients reviewed.

If inhaler technique is reviewed on every possible patient contact this will help to improve the importance of inhaler adherence and be associated with reduced symptom burden. This will also help to reduce the burden on hospital admissions. Patients are more likely to use their inhalers effectively, when inhaler technique is demonstrated and educated to an appropriate level.

References:

https://ginasthma.org/wp-content/uploads/2021/05/Whats-new-in-GINA-2021_final_V2.pdf. ***(Accessed on 25th August 2022)***
https://goldcopd.org/wp-content/uploads/2020/11/GOLD-2021-POCKET-GUIDE-v1.0-16Nov20_WMV.pdf. ***(Accessed on 25th August 2022)***
Lavorini F., Magnan A., Dubus J.C., Voshaar T., Corbetta L., Broeders M., Dekhuijzen R., Sanchis J., Viejo J.L., Barnes P., Corrigan C., Levy M. & Crompton G.K. (2008). Effect of incorrect use of dry powder inhalers on management of patients with asthma and COPD. Respiratory Medicine. **102**(4):593-604. https://doi.org/10.1016/j.rmed.2007.11.003. Epub 2007 Dec 20. PMID: 18083019.

Conflict of Interest: None to declare

4.8 Time from referral to urgent bronchoscopy in Beaumont Hospital: an audit of practice Jan-March 2022

D Barry[1], PC Ridge[1], Da Ryan[1]

Beaumont Hospital, Dublin[1]

The British Thoracic Society recommend that all urgent bronchoscopies be completed within 7 days of referral. We retrospectively examined all bronchoscopy referrals over a three month period to examine compliance with this guideline. A total of 269 bronchoscopies were performed over the study period. While 101 were identified as urgent, only 96 were included in this study, due to incomplete data. Table 1 outlines the indications for urgent bronchoscopy. The median wait for an urgent bronchoscopy was 4 days and 68.75% (66/96) were performed within 7 days of referral. For the indication of malignancy the median time to bronchoscopy was 3 days and 76% were performed within seven days.In this audit we have shown that our wait times for urgent bronchoscopy, are generally within the recommended guidelines of 7 days. A designated referral system for all urgent bronchoscopies, to improve waiting times, is currently in progress.

Table 1 (4.8) Indictations for Urgent Bronchosopy Patient Numbers

Malignancy	63/96
Haemoptysis	18/96
Potential TB	7/96
Non resolving consolidation	5/96
Immunosuppressed with lung infiltrates	3/96

Conflict of Interest: None to declare

4.9 Respiratory Integrated Care (RIC): Evaluating the Patients Perspective

Niki Byrne, Ruth Kelly, Philippa Needham

Respiratory Integrated Care, Integrated Care Programme Chronic Disease, Galway City Ambulatory Hub

This study sought to evaluate the patient's experience of attending a community based, Nurse-led Respiratory Clinic, ensuring that the care provided is of a high standard and is effective in meeting patient's needs. RIC Nurse-led clinics were established in County Galway in 2016. The service was last evaluated from a patient perspective in 2018. A patient experience questionnaire (PEQ) was posted to patient's attending the clinic between January 2021 and August 2022. Responses were collated and analysed. Results showed a 61% response rate. 100% of respondents felt that attending the RIC Nurse-led clinic was worthwhile. Patients were asked about their confidence in understanding and self-managing their respiratory condition. Overall, there were improvements seen in these areas (60% & 57% respectively). The majority (73%) of attendees had a preference to attend in a community setting, rather than a hospital environment. The current RIC service is being absorbed into the Integrated Care Programme for Chronic Disease. This study looked at what aspects from patient feedback need to be incorporated when planning patient pathways to the Chronic Disease Hub Respiratory Team. This will ensure the new service is patient focused; leading to better outcomes through higher levels of patient engagement and patient satisfaction.

Conflict of Interest: None to declare

4.10 The HSE Tobacco Free Campus Policy: A survey of awareness and implementation

Stanley DW Miller[1], Edward Moloney[2], Emmet O'Brien[3], Hilary McLoughlin[4], Angela Radley[5], Lisa Glynn[6], Suzanne McCormack[7], Luke Clancy[8]. The Irish Thoracic Society Tobacco Control Advisory Group

[1] Mater Misericordiae University Hospital, UCD School of Medicine, and CHO9, Dublin; [2] Tallaght University Hospital, Dublin; [3] Beaumont Hospital, Dublin; [4] Portiuncula University Hospital, Ballinasloe; [5] Tipperary University Hospital, Clonmel; [6] University of Galway; [7] Irish Thoracic Society; [8] TobaccoFree Research Institute Ireland, TUD

The ITS Tobacco Control Advisory Group in collaboration with the HSE Tobacco Free Ireland Programme (TFIP) aims to improve implementation of the HSE Tobacco Free Campus Policy (2012).

An online questionnaire (26 questions) was circulated to the ITS membership (453 members) via an email link. All responses were anonymous. The response rate was 20.3% (92) with all membership categories represented. Institutions included Acute Hospitals, Ambulatory Care Hubs and Primary Care Centres. 92.22% of respondents were aware of the policy. 72.22% stated that the policy had been implemented in their institution. 74.44% did not know who was responsible for policing the policy. Only 39.56% institutions had a clearly highlighted smoking boundary. 91.01% respondents had not been trained to communicate the policy in a non-confrontational way. 68.13% would not feel safe approaching a smoker to communicate the policy. 88.89% regularly observe patients and 62.22% regularly see staff members smoking on site. 63.33% need to walk through smoke/vapour to access an entrance door to their institution. These results provide a better understanding of the awareness of the policy with 'real world' feedback from ITS members. We plan to share the findings with the HSE TFIP aiming to make our healthcare campuses truly smoke-free.

References

1. HSE Tobacco Free Campus Policy. HSE. 2012.

Conflict of Interest: None to declare

4.11 Smoking Cessation Advice Documentation in a Respiratory Outpatient Department

D. Halim[1], J. Khan[1], M. Higgins[1], C. Dempsey[1], N. White[1], D. O'Callaghan[1]

1-Mater Misericordiae University Hospital

Smoking cessation advice is a crucial component of maintaining respiratory health.. However, this comparatively simple and cost-effective intervention is frequently overlooked. We evaluated the adherence rate to the recommendations made in the National Stop Smoking Clinical Guideline (2022) at our centre.Consecutive charts of patient who attended different Respiratory Clinics were reviewed. The primary outcome was change in percentage documentation of smoking status and smoking cessation advice before and after intervention to improve adherence rates.

One hundred patients were included (mean age 62, range 20-87). 53% were male and COPD was the leading respiratory diagnosis. Smoking status was documented in 67% at most recent clinic appointment (12 smokers, 34 ex-smokers, and 21 never smokers). Documentation was more likely in new appointment but similar between Face-to-Face and Virtual Clinics (Table 1). Of 36 patients that had no smoking status documented, 16 had smoking status previously documented within the past 3 years or since referral. All 12 current smokers were advised on smoking cessation. Intervention was carried out in the form of stamp in the patient's charts as a guide and reminder. Re-audit showed modest improvement in the documentation while smoking cessation advice was given to 100%.

Smoking cessation advice is consistently provided to current smokers in the clinics. However, more efforts are needed to achieve 100% target for documentation of status.

Table 1 (4.11) Comparison between documentation and type of clinics

Documentation	Yes (n = 67)	No (n = 33)	P-value
Clinic	50	21	0.25
Face-to-Face	17	12	
Virtual			
Appointment	18	3	0.04
New	49	30	
Return			

Conflict of Interest: None to declare

4.12 Expanding Pulmonary Function Testing (PFT) outside the Hospital walls and into the community: Our first month's findings

[1]Orla Wynne, [1]Jeff Murphy, [1]Julius Gramba, [1]Craig McDonnell, [1]Deirdre Fitzgerald, [1]Eddie Moloney

[1]Tallaght University Hospital (TUH) & HSE, CHO 7 -Hub3 Russell Building

Tallaght Pulmonary Function Community testing facility opened in the Russell Centre in July 2022, staffed with Senior Respiratory Physiologists rotating from Tallaght University Hospital. In the first month of opening, 79 patients (50 female) attended for testing, of these 79 patients, 29 were current smokers, 26 ex-smokers and 24 never-smokers. Age ranged between 20 and 83 years.

All patients had spirometry, the majority (76 patients) also had Diffusion Capacity (DLCO) testing, 3 patients were unable to perform. In total, 27.8% of patients had an abnormal FEV1, and 46% percent of patients had an abnormal DLCO. 19.7% of patients had both an abnormal FEV1 and DLCO. 26% of patients had normal spirometry but abnormal DLCO. 33 patients had reversibility testing. Of which, 48% met the criteria for reversible airflow obstruction after 400mcg of Salbutamol was administered.

From this data, particularly that 26% of patients had normal Spirometry but abnormal DLCO, we highlight that it is important to provide more comprehensive pulmonary function testing in the community setting, other than just spirometry, in order to make a more accurate diagnosis. Over a quarter of patients would have been given a normal result based on spirometry testing alone.

Conflict of Interest: None to declare

4.13 Long Term Oxygen Therapy prescribing practice and adherence

Emma McArdle[1], Margaret Gleeson[1], Laura Piggott[1], Minesh Kooblall[1], Eddie Moloney[1], Stephen Lane[1]

Tallaght University Hospital, Dublin[1#]

Long term oxygen therapy (LTOT) has been shown to improve survival in patients with chronic hypoxaemia who use it for > 15 h a day. We report an audit carried out to assess the Long Term Oxygen Therapy (LTOT) prescribing practice and adherence in our department. All 48 patients recruited attended the Oxygen Clinic in Tallaght University Hospital. Data including demographics, diagnosis, oxygen prescription and compliance were collected. LTOT was prescribed as per Irish Thoracic Society guidelines. 54% of patients were male. 58% had an underlying diagnosis of COPD while the other 42% had Interstitial Lung Disease (ILD). All patients had Ambulatory oxygen therapy (AOT) prescribed with 52% on LTOT additionally. Of the LTOT group only 56% were compliant with treatment, however this is in keeping with other similar studies. Despite advances in oxygen delivery devices making both domiciliary and ambulatory LTOT more practical and more convenient for patients adherence remains suboptimal. Dedicated pre-assessment, training and continued follow up may help improve compliance.

Conflict of Interest: None to declare

4.14 An Audit on the Compliance of CXR follow up – Beaumont Hospital

Jack Allen[1], Sile Toland[1], Peter Branagan[1]

1. Beaumont Hospital

British Thoracic Society (BTS) Guidelines state that all patients, regardless of admission status to hospital, with a community acquired pneumonia (CAP) should have a follow up chest x-ray (CXR) within 6 weeks, particularly those at a higher risk of underlying malignancy [> 50 years old or a smoker]. [1]We describe a retrospective audit of Beaumont Hospital's compliance with BTS guidelines in relation to follow up CXR imaging for patients diagnosed with a radiographically significant community acquired pneumonia. Through HIPE data, we reviewed the records of 50 random patients with a documented diagnosis of "Pneumonia" on their discharge letter from the period of January to March 2022. We confirmed this with their imaging reports. 42% were female, 58% male. Median age of 60.5. 78% were deemed to have a high risk of underlying malignancy. 64% had repeat imaging. Of those who had repeat imaging, 59% had repeat imaging within 6 weeks, 18% in 6-12 weeks and, 23% in greater than 12 weeks. 38% fulfilled the BTS guidelines. With this degree of compliance, detecting other underlying lung pathologies may be delayed. Our plan is to re-audit in 6 months time after completing educational teaching with the NCHD cohort.

References

1. British Thoracic Society Guidance on Respiratory Follow Up of Patients with a Clinico-Radiological Diagnosis of COVID-19 Pneumonia [Internet]. British Thoracic Society; 2020.

Conflict of Interest: None to declare

4.15 An Audit of Oxygen Prescriptions in Medical Patients in a Model 3 Hospital

Patrick Doyle[1], Claire Quigley[1] & Elaine Hayes[1]

[1]*Our Lady of Lourdes Hospital, Drogheda*

Medical oxygen is one of the most commonly used drugs in acute care settings. Inadequate prescribing is common, as shown in a UK national audit where only 57.5% of patients had a valid prescription.[1] This audit aims to evaluate if oxygen was prescribed as per Irish Thoracic Society (ITS) guidelines in medical inpatients.[2] A snapshot audit of oxygen prescription in 196 medical inpatients was undertaken on the 3rd July 2022. Adherence with ITS Oxygen prescription guidelines should include documentation of SpO2, flow rate, target SpO2, delivery system and duration/review date.
Out of 196 patients, 43 (21.94%) were on oxygen therapy however none had an oxygen prescription that was compliant with ITS guidelines. 5 (2.55%) charts included a target saturation. 4 (2.04%) charts had a flow rate prescribed and 4 (2.04%) charts had a delivery system specified. The medication chart used in our centre lacks a review date in the oxygen prescription section, therefore all charts failed to meet this aspect of prescribing standards.
Our results highlight a significant absence of correct oxygen prescribing across all medical inpatients. A multifaceted intervention encompassing prescriber education, nursing checks on medication rounds and medication chart redesign is planned to improve compliance with ITS guidelines.

1. O'Driscoll, R. British Thoracic Society Emergency Oxygen Audit Report National Audit Period: 15 August – 1 November 2015. United Kingdom. 2016.
2. Irish Thoracic Society. Irish Guidelines on the Administration of Oxygen Therapy in the Acute Clinical Setting in Adults 2017. Ireland. 2017.

Conflict of Interest: None to declare

4.16 From Zero to Three Hundred—The Power of Interdisciplinary Collaboration

Rosaleen Reilly[1] & Agnes Barry[2]

Meath Integrated Respiratory Service, Navan, Co Meath

The Meath Integrated Respiratory Service (MIRS) established in March 2021 aims to provide the right care in the right place at the right time. Patients previously travelled afar to access this care.
With Slaintecare funding an interdisciplinary team was formed (Respiratory RANP (RANP), Clinical Specialist Respiratory Physiotherapist and clerical officer). Clinical governance is provided by two Respiratory Consultants in Our Lady's Hospital, Navan (OLHN).Care is based primarily in the home setting, encompassing disease education, self- management, therapy optimisation, exacerbation support and pulmonary rehabilitation. Our RANP clinic (commenced September 2021) receives referrals triaged from OLHN Respiratory OPD waiting list. 22 patients attended for initial assessment, diagnosis, treatment and education. 195 patients enrolled in the Pulmonary Outreach (PO) programme facilitating hospital discharge and exacerbation support. This resulted in 323 home visits and 174 episodes of support. 23 patients enrolled into Pulmonary Rehabilitation (PR), delivered in virtually and Face to Face formats. Pre assessment confirms disease and optimises therapy. Within 12 months, MIRS has embedded an integrated service in Co Meath. 300 patients have accessed one or more elements of our service. Collaboration between members of MIRS, primary and secondary care teams has resulted in positive patient outcomes.

Conflict of Interest: None to declare

4.17 Has Covid made us "contactless"?

An Appraisal of the "Making Every Contact Count" Model of Intervention in Hospital Inpatients for Smoking Cessation

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St. Luke's General Hospital Carlow/Kilkenny

The HSE framework "Making Every Contact Count" emphasises the role of behaviour change interventions for chronic disease prevention. Evidence shows that ongoing, episodic advice from healthcare workers is often effective in aiding smoking cessation. Pooled data from 17 trials on brief advice showed significant increase in rates of quitting. An audit was carried out to assess how often advice or information was given to patients regarding smoking cessation while an inpatient in SLGH, in accordance with HSE guidelines.Information gathered will be used to improve smoking cessation bundles in SLGH in conjunction with the health promotion officer.

Conflict of Interest: None to declare

Irish Thoracic Society Poster Review and Discussion

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5. TB, Pleural and Sleep Disorders

5.1 Audit of the Prevalence and Management of Positional Obstructive Sleep Apnoea in Beaumont Hospital

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RCSI, Dublin[2]

Positional Obstructive Sleep Apnoea (P-OSA), is defined as a 50% reduction in AHI when non-supine, and has been reported in 50-60% of OSA cases. Positional therapy can sometimes be an alternative to positive airways pressure (PAP), in those with mild OSA or intolerant of PAP. We sought to evaluate the prevalence and treatment of P-OSA in the Beaumont Hospital Sleep Service.
We reviewed of all sleep studies completed from 2019- 2022, looking for the mention of 'positional' in the reports. In addition we reviewed all the notes to identify the different treatments.
500 studies were carried out, and 23.4% (117) of those had P-OSA. Of the P-OSA cases identified the mean ± SD AHI was 12 ± 9; Supine 21.1%, 35.5%, 43.5% had mild, moderate, severe disease respectively. Non-Supine 21%, 2.5%, 0.8% had mild, moderate severe disease respectively. 56 (47.8%) patients were commenced on PAP, 5 (4.2%) referred for MAD, 27 (23%) were advised on positional therapy, 26(22%) are awaiting follow-up. 6 had repeat studies in position, which was successful in normalizing AHI for 4 (66%) patients.Positional OSA is common. Identification of P-OSA may provide alternative treatment modologies for patients, although a repeat sleep study is important to ensure efficacy.

Conflict of Interest: None to declare

5.2 Cardiovascular Risk Factors in Patients with Obstructive Sleep Apnea

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Obstructive Sleep Apnea (OSA) is a common condition which can result in significant adverse effects with hypertension, myocardial infarction (MI) and stroke all potential complications[1.] This observational study analysed the relationship between cardiovascular risk factors and OSA and the occurrence of related events within this cohort of patients.A convenience sample of 31 patients with a recent diagnosis of OSA were assessed for risk factor profile and OSA severity. Data was collected using chart review and hospital IT system.29 of the 31 (93.5%) patients included had one or more risk factor for cardiovascular disease including obesity, hypertension, hypercholesterolemia, smoking, family history of cardiac disease and Diabetes Mellitus (Fig. 1). 45% had at least 3 risk factors. None of the patient's reviewed had a documented history of MI and only one patient had a prior stroke. OSA severity did not appear to have a direct relationship with risk factor prevalence with the mean number of risk factors highest in those with mild OSA (2.52) and mean of 1.66 and 2 in the moderate and severe categories respectively.

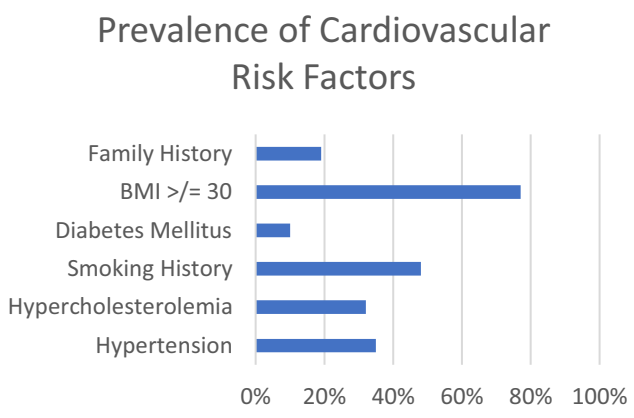

Fig. 1 (5.2) Prevalence of Cardiovascular Risk Factors in patients with Obstructive Sleep Apnea

Diagnosing OSA is important due to its associations with cardiac disease and stroke. Although this study was small in size and most patients included had not yet been affected by MI or stroke, it depicted a high prevalence of risk factors which is important for monitoring and optimising to prevent future complications.

References

1. Slowik JM, Sankari A, Collen JF. Obstructive Sleep Apnea. [Updated 2022 Jun 28]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK459252/#

Conflict of Interest: None to declare

5.3 Prediction of Obstructive Sleep Apnea Resolution Post Bariatric Surgery

Caoimhe Coghlan, Liam Doherty, Colm O'Boyle, Derbrenn O'Connor Bon Secours Hospital, Cork

Obesity is the biggest risk factor for developing Obstructive Sleep Apnea [OSA]. Approximately 80% of bariatric surgery patients have confirmed OSA. When Body Mass Index [BMI] is reduced in these patients, a corresponding reduction in OSA is expected. Despite significant weight loss post-surgery, however, 30% of patients have unresolved OSA. It remains unclear which factors successfully predict resolution of OSA following bariatric surgery.A quantitative, retrospective analysis of 115 patients who underwent bariatric surgery and completed both pre-operative and post-operative sleep studies in the Bon Secours Hospital Cork between 2008 and 2019 was undertaken. Candidate variables included: age, sex, pre-operative Apnea Hypopnea Index [AHI] pre-operative BMI, change in BMI, pre-operative Supine AHI, change in Supine AHI, pre-operative Epworth Score, pre-operative Oxygen Desaturation Index [ODI], change in ODI, neck circumference at baseline, and type of surgery.The initial median AHI was 42.6 (25.0–62.0) events per hour. After surgery, there was a significant change in median AHI at 11.5 (5.4–19.2) events per hour ($p < 0.001$). Baseline AHI was the only statistically significant predictive factor of post-operative OSA. The pre-operative parameters of high baseline AHI, and high pre-operative Supine AHI were significant predictors of persistent moderate to severe OSA.

Conflict of Interest: None to declare

5.4 What do the Patients Think?

The Results of a Patient Satisfaction Survey of the Sleep Service in Mallow General Hospital

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Mallow General Hospital, Co. Cork

In November 2021, Catherine Hanlon, Respiratory CNS completed an audit of the MGH Sleep service using a patient satisfaction sleep questionnaire. This was sent to 100 patients (70 male and 30 female)The inclusion criteria for the study being patients currently on CPAP who attended the sleep service within the last 5 years. The questionnaire contained ten questions varying from time on waiting list, information received in clinic to quality of service received from the CPAP supplier. Seventy-five replies were received over a 3 week cut off period. Each response was analysed. This study has provided valuable feedback as to how the service is performing and how it can be developed in the future.One of the key takeaways from the responses was that patients

clearly favoured telemedicine CNS follow up when established on CPAP therapy. This sleep questionnaire will be used as a valuable tool to analyse the service going forward.We are now using this questionnaire in our newly established Weekly compliance clinic when patients are seen at an initial 3 months and then again at 12 months on CPAP therapy.

Conflict of Interest: None to declare

5.5 Audit of Obesity Hypoventilation Syndrome Prevalence and Management in the Beaumont Sleep Service

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[1] Beaumont Hospital. Royal College of Surgeons Ireland

Obesity Hypoventilation syndrome (OHS) is a combination of obesity, causing sleep disordered breathing, and daytime hypercapnia. In 2018 the prevalence of OHS in Ireland was 17.2%, however, if current obesity trends continue this Fig. is expected to rise. OHS is has strong links to higher rates of mortality and chronic diseases therefore, the American Thoracic Society (ATS) devised evidence based guidelines to address gaps in the diagnosis and management of OHS. The aim of this audit is to establish the prevalence of OHS in patients seen in Beaumont Hospital and compare their management to ATS guidelines. The diagnosis of patients seen in the sleep clinic, at Beaumont Hospital, between 2021-2022 was reviewed. Current treatments, ventilation settings, follow up and if applicable, their weight, PaCO2 and serum bicarbonate were documented. Of the 1464 patients reviewed, 426 patients were identified as having a sleep pathology. Three-hundred and ninety-four had OSA, 10 had OHS and 22 had OSA/OHS. Within the OHS and OHS/OSA group 41% were on CPAP therapy and 50% were on Bi-Level Ventilation. The OSA group are managed in sleep clinic and the OHS and OHS/OSA patients are managed in a ventilation clinic. The management of the OHS and OHS/OSA patients at this clinic was compared to the ATS guidelines.
Clinicians should have a high index of suspicion when assessing obese patients in the acute or out-patient setting. Ventilation clinics can aid in ensuring the most up to date guidelines are followed and patients are on the adequate treatment and settings for their condition.

Conflict of Interest: None to declare

5.6 DIAGNOSIS OF OBSTRUCTIVE SLEEP APNOEA USING HOME SLEEP TESTING COMPARED TO POLYSOMNOGRAPHY: A SERVICE EVALUATION

Sarah Waicus[1], Edward Moloney[123], Paul Byrne[2], Jeff Murphy[3], Orla Wynne[3]

[1]Trinity College Dublin; [2]Peamount Healthcare, Dublin, [3]Tallaght University Hospital, Dublin

The COVID-19 pandemic has limited access to overnight hospital stay polysomnography (PSG) testing for patients with obstructive sleep apnoea (OSA). Home sleep apnoea testing (HSAT) and virtual-sleep services have been implemented as a response to provide diagnostic testing during the pandemic. The purpose of this study was to compare patient demographics, experiences and treatment adherence among those who underwent PSG or HSAT. A service evaluation of patient data (n = 100) was collected from two sites for those who underwent HSAT at Tallaght University hospital or PSG at Peamount Healthcare. Telephone consultations commenced after each patient underwent either PSG or HSAT to assess patient attitudes, treatment adherence, and sleepiness using likert scales. For demographic data, t-tests were used to compare continuous patient data and chi-squared tests for categorical data. There was no significant difference between age, BMI, sleep duration, sleepiness, apnoea-hypopnoea index scores, and patient preference between those who underwent PSG compared to HSAT ($p > 0.05$). There was a significant increase in witnessed apnoeas and supine position sleeping in those who underwent PSG testing ($p < 0.05$). The use of HSAT and virtual services is feasible and may result in greater patient accessibility to sleep apnoea testing for a timely diagnosis and better management.

Conflict of Interest: None to declare

5.7 A Retrospective Analysis on Increased Prevalence of Central Sleep Apnoea in Post Covid—19 Subjects

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Naas General Hospital

Aim: Prior to Covid -19 (C-19) when analysis of polysomnography studies is performed the number diagnosed with Central Sleep Apnoea has historically been very low. Since Covid-19 arrived in Ireland – early 2020, it was noted that an increasing number of patients have been diagnosed with Central Sleep Apnoea. The aim of this study was to analyse a set of polysomnography readings from 2019 (pre Covid-19) and a set of studies where patients had reported confirmed post Covid-19 infection, to ascertain any difference in Central Sleep Apnoea prevalence.
Method: A set of readings from 100 sequential patients attending for polysomnography studies during 2019 were compared to an equal sequential set of reported confirmed Covid-19 readings. An Apnoea/Hypopnea Index, (AHI) of > 5 was deemed as positive for Sleep Apnoea with a greater number of Central Apnoea's deemed as Central Sleep Apnoea.
Results: Table 1 shows a comparison of analysed polysomnography data from 100 non C-19 subjects' verses 100 post C-19 infected subjects, presented as total percentage change.

Table 1 (5.7) – Polysomnography Analysis Results of C-19 Negative v Post C-19 Subjects

Pre/Post Infection (C-19)	Negative	Obstructive	Mixed	Central
Pre C-19 (2019)	6	88	3	3
Post C-19 Infection	4	67	3	26
Total % Change	↓ 33%	↓ 23%	0%	↑ 766%

Conclusion: These results show a marked increase in the prevalence of Central Sleep Apnoea in C-19 positive subjects, an increase of 766%.

Conflict of Interest: None to declare

5.8 Covid 18. Obstructive sleep apnoea as a manifestation of Long Covid Syndrome

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Our Lady of Lourdes Hospital, Drogheda

With 6500 reported deaths as a result of SARS-CoV-2 infection in Ireland, the exact number of survivors affected with persistent symptoms remain unknown. In Our Lady of Lourdes Hospital Drogheda, we run a post-Covid respiratory clinic to follow patients with persistent respiratory symptoms. Over 350 patients have been reviewed and common symptoms include fatigue. An Epworth Sleepiness Score and STOP-BANG questionnaire were performed as part of the assessment. Twenty-seven patients were referred for a home sleep apnoea testing (HSAT) with a mean body mass index was 32 (± 7) kg/m^2 and STOP-BANG of 5 (± 2). All patients had an abnormal HSAT (apnoea-hypopnoea index (AHI) > 5) with a mean AHI 36.8 (± 19). Eleven

patients (27%) were categorised as severe range (AHI > 30). Ninety percent (n = 25) of patients were commenced CPAP and 82% (n = 21) felt symptomatically improved. Due to the scarcity in literature on Long Covid, we illustrate that obstructive sleep apnoea is a potential manifestation of Long Covid syndrome and intervention is effective as already established.

Conflict of Interest: None to declare

5.9 A study on awareness of pneumothorax management and chest drain apparatus care among NCHDs

Junaid Rasul Awan, Kaitlyn Cinnamond, Owais Rahman, Orlaith Shinners, Aidan O'Brien

University Hospital Limerick

Pneumothoraces are commonly encountered in clinical practice. Incorrect insertion and care of chest drains can lead to serious complications. The study aimed to assess awareness of management of pneumothorax in emergency and non-emergency settings and chest drain apparatus care among NCHDs.50 NCHDs,including 17 Interns, 16 SHOs and 17 Registrars, routinely partaking in acute medical emergencies, were invited to complete a basic respiratory related questionnaire including optimum thoracocentesis needle placement, safety triangle landmarking, and basic chest drain management. 61.2% of NCHDs had some form of exposure to clinical respiratory medicine; however, no statistically significant correlation was found between previous clinical respiratory exposure and correctly answering basic questions on needle decompression (p = 0.506) and safety triangle identification (p = 0.21). 56% incorrectly illustrated needle decompression landmarks, with registrars being least likely to answer correctly (29.4%). 58% participants were unable to recognise triangle of safety borders. 92% interns had little/no confidence in their chest drain knowledge. 54% NCHDs were unable to identify appropriate management of chest drain water seal lid. These findings illustrate the importance of dedicated respiratory teaching sessions for NCHDS including practical/simulation workshops to maximise patient care; and the benefit of these can be studied by auditing participants post teaching.

Conflict of Interest: None to declare

5.10 Transitioning from Radiology led to Respiratory-led Pleural Service

Sarah Farrell[1], Mohammed Yaseen[1], Elaine Curran[1], and Elaine Hayes[1]
[1] Our Lady of Lourdes Hospital, Drogheda

Internationally the incidence of pleural disease is increasing. Pleural disease is accepted as a sub-specialty within respiratory medicine, with the recognition that subspecialty development advances standards of care.A retrospective analysis of ultrasound-guided pleural procedures was undertaken in OLOLH between January 2020 and August 2022 to determine the impact of transitioning from a predominantly Radiology led to a Respiratory led pleural service. There were 226 pleural procedures completed during this 30 month period in OLOLH. Only 14% (32) were performed by radiology vs 86% (194) by the respiratory service. The respiratory team diagnosed malignancy in 28% of cases, with a further 4% highly suspicious, thus allowing coordinated follow-up. An ambulatory model of care is an important component of the pleural service with 8 indwelling pleural catheters inserted for the management of chronic pleural effusions and 11% (21) of pleural interventions completed as a day procedure.The change to a predominantly respiratory led pleural service, has been progressed by the appointment of a dedicated pleural advanced nurse practitioner. Standardized pathways, patient information leaflets and consent forms have been developed as part of efforts to improve patient safety and experience. Expansion of the pleural team will allow further improvements in ambulatory provision.

Conflict of Interest: None to declare

5.11 Are Chest X-Rays Being Reviewed At An Appropriate Time Following Chest Drain Removal?- A Single Irish Centre Audit And Literature Review

Farah Kazi[1], Wael Shabo[1], Mohamad Salama[1], Haresh Perthiani[1], Sherif El Masry[1], Eleanor Carton[1]

[1]*Our Lady of Lourdes Hospital*

Insertion of chest drains is a commonly performed procedure for pneumothorax, haemothorax, pleural effusion and empyema. Daily chest x-rays (CXR) to confirm position, interval change and decide on removal are advised. Post-removal chest x-rays should be performed and reviewed in a timely manner to ensure early detection of complications or recurrence. Current care bundles cover documentation for insertion and management of drain but do not specifically include removal. Our aims are to assess time interval between a chest x-ray post chest drain removal being filmed and being reviewed at our institution and assess quality of documentation of chest drain care.This is a retrospective study of chest drains, between March 2020 and December 2021.

Category	Result
Total No. (n)	91
Duration of drain	4.2 days (1–24)
Average time for CXRs to happen	208 min (1–1314)
Average time to review CXRs	108 min (1–1077)
Not reviewed > 2 weeks	4

Table 1 (5.11) Showing results obtained

20 randomly selected charts – documentation reviewed. Chest x-rays are essential in assessing resolution of underlying condition. post-removal x-rays must be reviewed by a clinician in a timely manner to detect complications early. We recommend utilization of the chest drain form which includes post removal management as part of chest drain care bundle.

Conflict of interest: None to declare

5.12 Outcome and clinical characteristics in pleural empyema patients in an inner city hospital: a retrospective study

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1 *Mercy University Hospital, Cork*

A retrospective analysis of patients diagnosed with empyema evaluated patient demographics, co-morbidities, prognostic factors (predisposing diseases, early pleural drainage, intrapleural fibrinolysis, thoracic surgical treatment, nosocomial status) and outcome.Data from the medical records of patients with a diagnosis over a 12 month period were evaluated retrospectively. Empyema diagnosis was established by *(a)* positive pleural culture or *(b)* grossly purulent pleural fluid with low pleural pH.
13 patients were identified (n = 7 males, mean age 60, mean length of stay 26.8 days). Median time to drain was 1 day (range 1-5); 5 patients required more than one drain. 10 patients received an intrapleural fibrinolytic and Dornase alpha regimen for 72 h; no intrapleural haemorrhages occurred. Streptococcus species was isolated in fluid cultures of 5 patients. Mycobacterium tuberculosis was isolated in 2 patients. The majority of the patients had clinical and radiological resolution.

4 patients proceeded to transfer for VATS decortication in the local Cardiothoracics centre (2 to rule out malignancy, 2 for trapped lung). 2 patients were admitted to ICU. 2 patients died during their admission.Pleural empyema is associated with considerable morbidity and mortality. These patients have complex clinical courses and prolonged lengths of stay. Early identification and pleural drainage are vital to patient care.

Conflict of Interest: None to declare

5.13 Length of stay of patients with an indwelling chest drain

Marie Talty,Daniel J Ryan, Dorothy Ryan

Beaumont Hospital, Dublin

Insertion of a chest drain is a common procedure for respiratory inpatients, as well as a respiratory consult service. In our institution, lack of comfort and experience with chest drains on outlier wards had anecdotally led to issues with drain management.Through retrospective review of National Quality Assurance & Improvement System data, patients from 2019 & 2020 were grouped both by their ward location and primary team as well as indication for drain insertion. Seventy-three patients were included (mean age 57 and 55 male). The indication for drain insertion in 30 patients was pneumothorax, with remaining 44 pleural effusion. Seventeen patients had a secondary diagnosis of malignancy. 40 patients were managed on a core respiratory ward, with 10/33 patients on outlier wards being under the care of the respiratory team. Overall LOS was 12.1 days, 8.2 days in the respiratory ward group and 18.3 in the outlier group. Pleural effusion patients had a longer mean LOS of 15.1 days.Overall, patients requiring pleural intervention on non-specialist respiratory wards had a significantly longer length of stay in hospital, highlighting the need for cohorting and specialist nursing support for the safe and cost effective management of this complex patient group.

Conflict of Interest: None to declare

5.14 BIPAP Indications, compliance and usage – a retrospective audit in Beaumont Hospital

Jack Allen[1], Sile Toland[1], Peter Branagan[1]

Beaumont Hospital, Co. Dublin

The use of non-invasive ventilation (NIV) in an appropriate manner in acute respiratory failure is used to improve outcomes. BTS guidelines recommend that patients who meet criteria for acute NIV should start NIV within 60 min.We describe a retrospective audit of the indications, and adherence of BIPAP initiation in patients managed on the Respiratory Wards of Beaumont Hospital, during a 4-week calendar period from July – August 2022. Hospital guidelines recommend that those commenced on NIV, a prescription be completed along with the most recent ABG results recorded. It is recommended that for any adjustments to settings be recorded and updated in the BIPAP prescription.10 patients were chosen at random from the cohort commenced on BIPAP, in a 70% to 30% ratio of female to males. The median age was 63.5 years. 60% of those commenced had a previous diagnosis of underlying COPD, with 50% of that population group having been established on home NIV. 50% of those commenced on NIV were for infective exacerbations of COPD. Other outcomes analysed showed poor compliance with time to NIV commencement, response to NIV using arterial blood gases, and compliance with local hospital BIPAP documentation. Our plan is to expand our cohort of patients, with further audits in 6 months post education with the NCHD cohort.

Conflict of Interest: None to declare

5.15 Improving Non Invasive Ventilation Out of Hours

Junaidy Mohd Ishak[1], Elaine Curran[1], and Elaine Hayes[1]

[1]Our lady Of Lourdes Hospital, Drogheda

The purpose of this study was to evaluate current NIV prescribing and documentation practice within our hospital'.The establishment of a specialist respiratory unit has enabled the broader use of ventilatory support in the form of non-invasive ventilation (NIV), as a treatment modality for both Type 1 and Type 2 respiratory failure outside of the ICU/HDU setting. Often NIV is started out of hours and outside the respiratory unit. A retrospective chart review of 30 patients who had been commenced on NIV and subsequently transferred to Respiratory unit was undertaken.The study found the rationale for NIV therapy is often inaccurate resulting in patients being placed on NIV inappropriately, with therapy altered on presentation to the Respiratory unit. Findings also revealed that the initial prescription, subsequent changes, goals of therapy, inclusive of the escalation plan are often not clearly recorded. The findings highlight the potential for patients to receive ineffective ventilation leading to therapy failure or treatment escalation. Therefore, in order to provide safe, effective quality care, current NIV prescribing protocols and associated documentation will be renewed in accordance with best available evidence and practice standards.

Conflict of Interest: None to declare

5.16 Fallout from the War- Treating Multidrug Resistant TB among refugees in Ireland

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1. St James Hospital, Dublin, 2.Trinity College Dublin

This year, we report a sharp increase in cases of multidrug resistant TB (MDRTB). A number of these cases have been reported in Ukrainian refugees.The incidence of TB in Ukraine is currently 67.6 per 100,000. Ukraine has the fourth-highest TB incidence in the WHO European Region and the fifth-highest number of confirmed cases of extensively drug-resistant TB in the world. 29% percent of cases of TB in Ukraine are MDR or XDRTB, 8,000 cases per annum(1).The UN report that 6.3 million people have fled Ukraine since the start of the invasion(2), thus about 4,300 patients who have TB are among those refugees. 26% of Ukrainian patients with TB are HIV co-infected(1).We present 4 cases of MDRTB in Ukrainian refugees who have been treated at the National TB Centre, St James's Hospital. Specifically, we present the diagnostic and treatment challenges in patients who are refugees and live in congregate settings. We note that working with Ukrainian doctors in the team has facilitated patient management and communication with TB centres in Ukraine. We discuss the challenges in screening of war refugees for TB, so that they may be diagnosed and treated earlier.

References

1. Operational considerations for the prevention and control of infectious diseases—Russia's aggression towards Ukraine.:18.
2. Situation Ukraine Refugee Situation [Internet]. [cited 2022 Aug 13]. Available from: https://data.unhcr.org/en/situations/ukraine

Conflict of Interest: None to declare

5.17 An Analysis of The Cost of New Treatments for Multi-Drug Resistant Tuberculosis

Niamh O'Flaherty[1], Ciara Ottewill[1], Emma McNally[1], Lorraine Dolan[1], Aoife O'Reilly[1], Anne-Marie McLaughlin[1]

[1]*St James's Hospital, Dublin*

The prevalence of Multi-Drug Resistant (MDR) TB in Ireland is increasing, with seven cases diagnosed to date in 2022. Its treatment has significant financial implications, often requiring inpatient isolation and prolonged treatment courses.This was a retrospective cohort study, analysing all patients who were treated for MDR TB in the National Tuberculosis Centre over a 15 year period. Medications prescribed to this cohort were reviewed with an aim to analyse the relative cost of newer TB regimens. A total of 42 patients were diagnosed with MDR TB in our centre between 2007 and 2022.

During this time there were several major shifts in its treatment from the use of intravenous aminoglycosides to the advent of Bedaquiline and all oral regimens, followed more recently by the six month BPaLM regimen. The costs of each Group A and B drugs with predicted cost for BPaLM vs WHO vs IV regimens are listed below. While the newer medications used are expensive, their price is offset by advantages including significantly shorter treatment duration and removal of costs associated with intravenous medications including hospital bed days, nursing care and OPAT services. This study investigates the cost-analysis of the newer regimens compared to previous regimens.

Medication	Cost (euro)
Bedaquiline	7,926 per month
Linezolid	692 per month
Pretomanid	278 per month
Moxifloxacin	68 per month
Cycloserine	574 per month
Clofazamine	192 per month
BPaLM Regimen (estimate)	68,090 (6 months total)
WHO Regimen Containing 3×Group A and 2×Group B drugs (Estimate)	174,109 (18 months total)
Older regimens including IV aminoglycosides (Multiple medication options with courses up to 24 months)	Varied from 42,965 up to 97,433 (total cost)

Table 1 (5.17) Drug costs

Conflict of Interest: None to declare

5.18 Empyema thoracis in the Saolta University Health Care Group: has the Covid-19 pandemic led to earlier detection?

Gráinne Keehan[1], Jack Whooley[1], Alan Soo[1]

Galway University Hospital

Pleural empyema remains a significant healthcare burden associated with substantial morbidity and mortality. Early recognition and triage down appropriate pathways is central to patient outcomes in this complex disease process. Despite optimal medical therapy however, some patients may fail to improve and require surgical intervention.

The aim of this study was to review whether the distribution and determinants of pleural empyema requiring decortication have changed since the onset of the Covid 19 pandemic.

This single-centre retrospective observational study was conducted between June 2016 and June 2022. Patients that met the inclusion criteria (n = 46) where stratified into those that underwent decortication for empyema between June 2016-June 2019, and those that underwent decortication between July 2019-June 2022.

A reduction in the number of patients presenting with pleural empyema requiring decortication around or after the onset of Covid-19 was noted, compared to the previous 3-year period (*n = 16 vs. n = 30*). Mean-time from initial diagnosis to referral to a cardiothoracic centre was also reduced *(16.31 vs. 21.68 days).* In addition to this, a greater proportion of patients in the July 2019-June 2022 were eligible for a VATS decortication *(18.75% vs. 3.33%)* This study suggests that empyema is being detected earlier since the onset of Covid-19.

Conflict of Interest:None to declare

Irish Thoracic Society Poster Review and Discussion

Friday 2nd December 2022

6 Cystic Fibrosis

6.1 Retrospective review of the prevalence and change in organisms grown sputum culture in the cohort of CF patients on CFTR modulator Kaftrio

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Beaumont Hospital, Dublin[1]

IRCSI, Dublin[2]

Lower respiratory tract infections are a challenge in the management of CF patients due to the colonisation of multiple resistant pathogen. Current evidence suggests in already established lung disease that the CFTR modulators are unable to eradicate organisms however may have an effect on the younger less severe population.

Our aim was to establish the prevalence of different organisms in the sputum cultures of CF patients in Beaumont Hospital and also to review the change in organisms after patients have commenced on Kaftrio.We reviewed microbiology results for all CF patients established on Kaftrio in Beaumont hospital before and after commencing the CFTR modulator. Data was collated on an excel spreadsheet.75 patients were prescribed Kaftrio, 58 patients were included in the study,67% were men. 19 organisms were identified,main organisms are outlined in the Table 1 below. In total there was an overall reduction in organisms grown including a reduction of 46.8% in Ps. Aeruginosa, 83% reduction in H.Influenzae, 51% of S.Aureus. 17.2% cultured no organisms post treatment.

We have shown a significant reduction in pathogen burden in Cf patients which may lead to less frequent respiratory tract infections however larger studies are needed to validate this data.

Table 1 (6.1)

Organism	%Before (n)	%After (n)
Pseudomonas aeruginosa	81% (47)	41%(25)
Candida	93% (54)	60.3% (35)
Stenotrophomonas Maltophilia	44.8% (26)	6.8% (4)
H. Influenzae	51% (30)	8.6% (5)
Staph Aureus	84% (49)	41. 3% (24)
MRSA	13.7% (8)	12% (7)
Aspergillus	51% (30)	8.6%(5)

Conflict of Interest: None to declare

6.2 Steps Ahead: Optimising physical activity in adults with cystic fibrosis: A pilot randomised trial using wearable technology, goal setting and text message feedback

Máire Curran[1] Audrey C. Tierney[1,,7], Louise Collins[1], Lauren Kennedy[1], Ciara McDonnell[1], Andrew J. Urascheck[1], Ali Sheikhi[1], Cathal Walsh[1], Brenda Button[5,6], Brian Casserly[1], Roisin Cahalan[1]

[1]University of Limerick, [5]The Alfred, Melbourne,[6]Monash University, Melbourne,[7]La Trobe University, Melbourne

Regular participation in physical activity (PA) is encouraged for people with Cystic Fibrosis (CF). This study aimed to assess the effectiveness of an intervention using wearable technology, goal setting and text message feedback on PA and health outcomes in people with CF. This was a pilot randomised trial conducted at University Hospital Limerick. Participants were randomly assigned to the intervention (INT) or active comparator (AC). The 12-week intervention consisted of wearable technology (Fitbit Charge 2) which was remotely monitored, and participants set step count goals. Participants were sent a one-way text message once a week over 12 weeks to positively reinforce and encourage PA participation. The AC group received the wearable technology alone. Follow up was assessed at 24 weeks. Outcomes assessed were PA, aerobic capacity, lung function, sleep, quality of life and wellbeing.

Table 1 (6.2) Overall week-to-week step count percentage change for the intervention and active comparator groups

	Intervention	Active Comparator	p value*
Week to week % change: Weeks 1–12	+27.8%	-1%	p=0.023*
Week to week % change: Weeks 13–24	-2.2%	+6.5%	p=0.559
Week to week % change: Weeks 1–24	+25.6%	+5.5%	p=0.007*

VO2 peak (ml/kg/min) significantly increased for the INT group only at 12 weeks (24.4 ± 7.65 to 26.13 ± 7.79, p=0.003) but not at 24 weeks (24.45 ± 7.05, p=0.776). There was no significant effect on lung function, sleep, well-being, or quality of life for either group.
A personalised PA intervention using wearable technology, goal setting and text message feedback increased PA and aerobic capacity in people with CF.

Conflict of Interest: None to declare

6.3 Increased usage, new indications and the emergence of single use flexible bronchoscopes in Adult Cystic Fibrosis. A review of practice at Cork University Hospital 2012-2022

Kevin F Deasy[1,2], Hisham Ibrahim[1,2], Mairead McCarthy[1], James Dorgan[1], Claire Fleming[1], Ciara Howlett[1], Yvonne McCarthy[1], Sarah Twohig[1] Paul O'Regan[4], Laura Kirwan[4], Marcus P Kennedy[1,2] Michael T Henry[1,2], Desmond M Murphy[1,2], Barry J Plant[1,2]

1. Cork University Hospital, 2. University College Cork,4. Cystic Fibrosis Registry of Ireland, Dublin

Traditionally bronchoscopy has been used in paediatric patients-with-cystic-fibrosis (PWCF) for microbiological assessment, however in adult PWCFs this has not been necessary.
We performed a retrospective review of medical records between 2012-2022 of all adult PWCFs attending the service (n=223) to identify those attending for bronchoscopy. Demographics, baseline metrics, indication and outcome were recorded.
69 bronchoscopies were performed, representing 56 unique patients, including 9 (16%) post-lung-transplant. At time of procedure, mean FEV1 (% predicted) increased from 60% (2012-2014) to 71% (2021-2022) and age from 30.3 to 35.8 years. There was an increase in bronchoscopies with a mean of 6 per-annum (2012-2019), compared with 13 in 2021, and 7 year-to-date 2022. Fig. 1 highlights the changing indications. Since 2019, bronchoscopy as a primary tool to assess airway culture has emerged, with all bronchoscopes changing to single-use-flexible-bronchoscopes (SUFB) since 2021. 78.9% (n=15/19) of SUFB patients were culture positive compared with 83.7 (n=41/49) of reusable bronchoscopes. 1 post-lung-transplant patient required admission due to an exacerbation within 4-weeks of bronchoscopy. Increased usage and changing indications for bronchoscopy is probably explained by a reduction in sputum production as a consequence of increasing CFTR modulation. The emergence of SUFBs allows analysis which avoids cross-contamination and sample contamination.

(6.3)

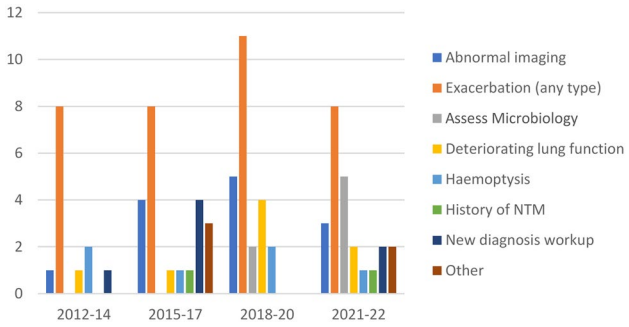

Fig. 1 (6.3) Indications for bronchoscopy in adult PWCFs 2012-2022

Conflict of Interest:None to declare

6.4 The Use of Combination Therapy Drug KAFTRIO in the Treatment of Cystic Fibrosis, and How Pulmonary Function Test Results Can Significantly Change Post Therapy: The Role of the Physiologist

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Cystic fibrosis (CF) is a multi-organ progressive genetic disease. Approximately 70-80% of CF mutations are Class II, linked to a specific deletion of three base pairs of DNA at position 508 of the gene, known as F508del. KAFTRIO, a combination drug, is utilized in the treatment of these patients. It increases CFTR protein quantity and function at the cell surface and restores cellular transport of sodium and water, reducing mucosal production.
Pulmonary Function Tests are the cornerstone in the clinical management of CF determining the severity of lung disease, capturing clinical course, evaluating therapeutic efficacy, and monitoring disease progression. Forced expiratory volume in 1 s (FEV_1) being the established marker of CF**.** Respiratory physiologists play a pivotal role in the care and management plan of a patient by ensuring validity, reliability, and repeatability of PFT's. An emerging pattern of significant improvement was noted in PFT results of returning patients who had been prescribed KAFTRIO. A specific case study is presented in Table 1 showing a marked increase in PFTs.

Table 1 (6.4) – Pulmonary Function Test results, Weight and BMI pre- and post-KAFTRIO

Date	*FVC*	*FEV1*	*PEF*	*Weight*	*BMI*
29/10/2020 (Pre Kaftrio)	*53% 2.66L*	*32% 1.66L*	*53*	*55 kg*	*18.2*
26/01/2022 (Post Kaftrio)	*74% 3.65L*	*56% 2.37L*	*90*	*77 kg*	*25.4*

Conflict of interest: none to declare

6.5 Significant real-world improvement in clinical, radiological and systemic inflammatory outcomes post CFTR modulation with elexacaftor/tezacaftor/ivacaftor in cystic fibrosis patients homozygous for the Phe508del mutation

Hisham Ibrahim[1], Kevin Deasy[1], Alexander T O'Mahony[1], Mairead McCarthy[1], James Dorgan[1], Claire Fleming[1], Ciara Howlett[1], Yvonne McCarthy[1], Sarah Twohig[1], Paul O'Regan[6], Laura Kirwan[6], Michael M Maher[1], Owen J O'Connor[1], Barry J Plant[1]

7. University Hospital, Cork, 6. Cystic Fibrosis Registry of Ireland

In clinical trial treatment with elexacaftor/tezacaftor/ivacaftor (ETI) in CF patients homozygous for Phe508del mutation was associated with significant improvement in FEV1, sweat chloride, weight and quality-of-life (CFQR-R).We assessed these outcomes in a real-world setting post ETI therapy in our clinic. In addition to clinical trial data, changes in ultra-low-dose CT imaging, peripheral-blood inflammatory-cytokines and patient-reported outcomes (PROMs) were measured.
The first 49 CF patients homozygous for Phe508del mutation attending our standard clinic commenced on ETI were assessed at baseline (time zero) and prospectively at three and 6 months. Table-1 summarizes the outcomes with significant improvements in FEV1, weight, BMI, and sweat chloride post-ETI treatment($P < 0.0001$). Validated patient-reported outcome measures also improved significantly for chronic rhinosinusitis/SNOTT($P = 0.0064$), respiratory quality-of-life CFQR-R($P < 0.0001$), and fatigue score($P = 0.0049$). Ultra-low-dose CT imaging scores demonstrated reductions in peri-bronchial thickening, mucus plugging($P < 0.0001$), collapse/consolidation($P = 0.0425$), and improvements in total Bhalla score ($P < 0.0001$). Significant changes in the systemic inflammatory status of our cohort was seen with a reduction in interleukin (IL)-6 and IL-8($P < 0.0001$), along with increasing IL-10($P = 0.0004$).Based on clinical trial parameters, ETI responders, in addition demonstrate significant improvements in CT imaging, circulating cytokines and PROMs which may be of further use to evaluate treatment response in an era of evolving CFTR modulation.

Table 2 (6.5) Changes in Clinical parameters, patients-reported outcomes measures, radiological and systemic inflammatory parameters at baseline and 6 months post initiation of Elexacaftor/Tezacaftor/Ivacaftor (ETI) therapy

	Baseline			6 months post ETI therapy			Delta (Δ)
Variable	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	**p-value**
FEV1%pred	49	65.5	18.6	43	75.5	19.9	*< 0.0001*
FEVC %pred	48	83.9	15.8	43	92.1	15.0	*< 0.0001*
Weight (Kg)	49	67.4	12.4	43	71.7	12.9	*< 0.0001*
BMI	48	23.2	2.89	42	24.5	3.54	*0.000147*
CFQR-R	47	70.7	17	37	89	12.8	*< 0.0001*
Sweat Cl (mmol/L)	47	79.7	15.7	41	40.4	16.3	*< 0.0001*
Fatigue	48	41.5	9.21	36	44.9	8.73	*0.004925*
SNOTT	47	7.79	6.79	37	4.7	5.63	*0.006413*
IL8 (pg/ml)	49	8.03	6.65	40	4.04	2.60	*< 0.0001*
IL6 (pg/ml)	49	1.48	1.17	40	0.814	0.421	*< 0.0001*
IL10 (pg/ml)	49	0.910	1.48	29	4.68	16.1	*0.000451*
Total Bhala Score	22	16.1	4.06	22	13.8	4.11	*< 0.0001*

Conflict of Interest: None to declare

6.6 Effect of Elexacaftor-Tezaftor-Ivacaftor on a West of Ireland cohort of patients with Cystic Fibrosis (CF) and comparison of "smart" monitoring of patients compared to traditional lab and clinic based measurements

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CF is a rare autosomal recessive multisystem disorder secondary to cystic fibrosis transmembrane protein (CFTR) gene dysfunction. ETI has been shown to improve a range of outcomes in CF patients internationally. We performed a prospective, non-randomized, non-controlled study to assess if ETI had similar effect in our real life West of Ireland cohort over a 9 month period. Data was collected in the traditional method but also remotely using a novel monitoring mobile phone app in conjunction with smart hand-held spirometers and weighing scales. We aimed to assess the accuracy of this form of remote monitoring compared to traditional laboratory monitoring.18 patients commencing ETI therapy were recruited to the study. Characteristics are outlined in Table 1. Pre commencing ETI the mean predicted FEV1 in our cohort was 59.6% (±18.8). This increased to 73.7% (±23.2) (p= <0.0001) with therapy. ETI therapy also resulted in significant improvements in body mass index, sputum volume and in quality of life and symptom scores (Table 1). Total combined days spent in hospital among the cohort fell from 434 days the year prior to starting ETI treatment to 39 days the following year. Our study confirmed the hand-held spirometer correlated strongly with those measured in the pulmonary function lab.

Conflict of Interest: None to declare

Table 1 (6.6) Demographics and clinical characteristics pre-and-post treatment

Characteristics	Start of study	End of Study
Male sex: no. (%)	14 (78%)	
Age		
Mean: year (SD)	28.7 (±8)	
Genotype		
Homozygous Phe508del- no. (%)	15 (83%)	
Heterozygote Phe508del- no (%)	3 (17%)	
Clinical characteristics		
Height- cm (SD)	170.6 (±6.4)	
Weight- Kg (SD)	67.8 ± 12.3)	72.8 (±11.8)
Body Mass Index- Kg/m^2 (SD)	23.3 (±3.9)	25.1 (±3.9)
Percent Predicted FEV1- % (SD)	59.6% (±18.8	73.7% (±23.2)
Sweat Chloride- mmol/L (IQR)	84 (66–101)	46 (32–58)
Sputum volume: ml/day (IQR)	28.8 (12–37.5)	1 (0–10)
CFRSD- no. (IQR	34 (23–41)	14 (0–23)
CFQ-R- no. (IQR)	78 (66–83)	94(92.3–100)

6.7 An audit into the optimization of bone health in the paediatric CF population

Róisín Taplin[1], Muireann Ní Chróinín[2]

Cork University Hospital

This audit looks as how the treatment provided in CUH compares to the European guidelines as well as the prevalence of osteoporosis and osteopenia. Cystic fibrosis (CF) is one of the most common life-limiting autosomal recessive disorders, with Ireland having a high incidence of CF. (1)

This study is a cross-sectional prospective chart-review. The European CF bone mineralisation guidelines were used as a benchmark. Participants included 98 children with CF between 6 months—16 years. The lowest compliance was with optimal BMI (69.4% BMI > 50th centile) and vitamin K supplements (91%). There was full compliance in monitored calcium intake and exercise regime. No patients required bisphosphonates or long-term steroid use. No patients reported a history of fragility fractures. The average vitamin K was 3.5 ng/ml. The average vitamin D was 77 nmol/L. The average DEXA score was 1.3 and the average age at the first DEXA scan was 10 years 3 months. The prevalence of osteopenia was 2% and no incidence of osteoporosis.
This shows that the guideline's recommendations have been implemented in CUH leading to better bone density outcomes for these patients, and a better understanding of screening practices and allocation of resources.

References

1. HSE national clinical programme; Cystic fibrosis 2015 Cystic Fibrosis—HSE.ie accessed 12/06/2022

Conflict of Interest: None to declare

6.8 The CFTR modulator combination elexacaftor/tezacaftor/ivacaftor restores CFTR protein expression in circulating neutrophils of patients with cystic fibrosis

Azeez Yusuf[1], Michelle Casey[1,2], Debananda Gogoi[1], Claudie Gabillard-Lefort[1], Cedric Gunaratnam[2], Noel G. McElvaney[1,2] & Emer P. Reeves[1]

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[2] *Beaumont Hospital, Dublin, Ireland*

Cystic Fibrosis (CF) is caused by mutations in the CF transmembrane conductance regulator (CFTR) gene and is characterized by sustained inflammation. Studies have demonstrated that neutrophils account for ~ 70% of the total cell count in CF bronchial lavage fluid. Neutrophil dysfunction in people with CF (PWCF) is due to lack of CFTR function and chronic inflammation, causing altered cell chemotaxis, oxidant production, degranulation and apoptosis. CFTR modulator therapy (elexacaftor/tezacaftor/ivacaftor (ETI)), improves FEV1 in PWCF. The aim of this study was to explore the impact of ETI on neutrophil CFTR protein expression. PWCF eligible for ETI-therapy (n = 16, mean FEV = 81%) were recruited, non-paired samples collected pre- (n = 9) and 12 months post-ETI treatment (n = 7). Neutrophil whole cell lysates were analysed for CFTR and NHERF1 expression, as NHERF1 mediates CFTR translocation to plasma membranes. Cytosolic [Ca^{2+}] and calpain activity were assessed fluorometrically. Markers of neutrophil adhesion (CD16b) and degranulation (CD66b) were assessed by flow cytometry.Compared to healthy control neutrophils, CFTR expression in CF neutrophils was significantly decreased (p = 0.04). Significantly increased cytosolic activity levels of the Ca^{2+}-dependent cysteine protease calpain were detected in circulating CF neutrophils ($p < 0.0001$), which lead to significantly decreased NHERF1 expression (p = 0.005). ETI significantly decreased cytosolic Ca^{2+} levels ($p < 0.0001$) and calpain activity (p = 0004), with a corresponding increase in NHERF1 expression (p = 0.001). Of importance, ETI increased neutrophil CFTR protein expression compared to the pre-therapy group (p = 0.0029), and reduced the percentage of $CD16b^{+}/CD66b^{+}$ cells (p = 0.018).
Our results conclude that ETI significantly increases CFTR expression in circulating blood neutrophils of PWCF and decreases markers of neutrophil activation. This is of particular interest as not all patients are currently eligible for ETI or other CFTR modulator therapy.

Conflict of Interest:None to declare

6.9 Investigating peptidyl-arginine deiminases as novel antimicrobial agents against bacterial pathogens of patients with cystic fibrosis

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RCSI University of Medicine and Health Sciences, Beaumont Hospital, Dublin

Persistent microbial colonisation of the airways is common in patients with cystic fibrosis, causing chronic inflammation and pronounced lung function decline. Successful eradication of pathogens by antibiotic therapy is rare, owing to the characteristics and resistance of certain microorganisms. Peptidyl-arginine deiminases (PADs) mediate calcium dependent, irreversible conversion of peptidyl arginine residues to citrulline. In the current study, our aim was to explore the potential of PADs to kill the Gram negative bacterium most common in CF, *Pseudomonas aeruginosa*.
Neutrophils were isolated from healthy control subjects. Following N_2 cavitation and subcellular fractionation by sucrose gradient ultracentrifugation, PAD2 and PAD4 were localised in neutrophil fractions by western blot analysis. For PAD2, PAD4 or bactericidal permeability-increasing protein (BPI; a positive control with potent activity against Gram-negative bacteria) killing assays, *P. aeruginosa* (PA01) was exposed to increasing concentrations of antimicrobial protein and colony-forming units were enumerated.Ex vivo, PAD2 and PAD4 were localised to neutrophil primary granules. Localised to this cellular compartment supports their participate in microbial killing. In vitro, PAD2 and PAD4 used in combination, dose-dependently killed up to $74 \pm 19\%$ of *P. aeruginosa* after 1 h incubation ($p < 0.001$). Moreover, post 1 h exposure to 20 nM enzyme, PAD4 killed significantly more bacteria compared to PAD2 ($p = 0.024$) or BPI ($p = 0.035$). Results demonstrate PAD2 and PAD4 participate in microbial killing. Overall, this study supports the rational design of novel PAD-based antimicrobial therapeutics.
This study was supported by Pfizer Healthcare Ireland (Educational Grant, 2021).

Conflict of Interest: None to declare

6.10 Decreased anti-neutrophil cytoplasmic autoantibodies (ANCA) against bactericidal/permeability-increasing (BPI) post CFTR modulator therapy

Debananda Gogoi [1], Michelle Casey [1,2], Azeez Yusuf [1], Claudie Gabillard-Lefort [1], Cedric Gunaratnam [2], Noel G. McElvaney [1,2] & Emer P. Reeves[1]

[1] Royal College of Surgeons in Ireland, Dublin, Ireland
[2] Beaumont Hospital, Dublin, Ireland

Pseudomonas aeruginosa (P. aeruginosa) is the dominant lung bacteria in patients with cystic fibrosis (PWCF), chronically infecting up to 75% of the adult CF population. Published reports have shown that BPI-ANCA correlate better with lung function impairment and longtime prognosis than anti-*P. aeruginosa* serology, and has similar ability to identify patients with chronic *P. aeruginosa*. Therapeutic interventions specifically targeting defective CFTR protein have improved the outlook for PWCF. Of importance however, there is a gap in our knowledge, and whether the titre of BPI-ANCA declines post CFTR modulator therapy is unknown. Accordingly, the aim of this study was to assess the impact of modulator therapy, elexacaftor/tezacaftor/ivacaftor (ETI), on titres of BPI-ANCA.Plasma samples were collected from patients receiving ETI, post 6 (n = 18) or 12 months (n = 12) treatment, and healthy controls (n = 3). Anti BPI-IgG autoantibodies were measured by ELISA. Results demonstrate that plasma levels of anti BPI-IgG autoantibodies post ETI therapy were significantly reduced at 6 months (p = 0.0001) and 12 months ($p < 0.0001$), as compared to pre-modulator therapy samples. The association between *P. aeruginosa*

colonization and anti-BPI antibodies is complex, and our findings are the first to demonstrate reduced BPI-IgG autoantibodies post CFTR modulator therapy. Further work is underway to determine whether anti-BPI-IgA and anti-pseudomonas serology similarly decrease post CFTR modulator therapy.

Funding: Pfizer Healthcare Ireland, Educational Grant, 2022.

Conflict of Interest: None to declare

6.11 Closed Loop Audit – Cystic Fibrosis Related Diabetes

Ruaidhri Keane[1], Ruth Hannon[1], Noel G. McElvaney[1], Cedric Gunaratnam[1]

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Cystic fibrosis-related diabetes (CFRD) is an extrapulmonary complication of cystic fibrosis (CF). It is associated with increased morbidity and mortality. The American Diabetes Association (ADA) published guidelines for the management of CFRD in 2010.The aim of this single centre closed loop audit was to re-evaluate the adherence to ADA guidelines following an audit in 2016.
120 patients with CF were reviewed over a 5 year period, 2017 to 2022. 25.8% had CFRD, 93% had a confirmed diagnosis, 84% were on insulin therapy, 35% were reviewed quarterly, 42% had a HbA1c < 7%, compared to 32.4%, 49%, 74%, < 5%, and 43% respectively in 2016. This population had a median FEV1 of 71%, BMI of 22.6, and exacerbation rate of 0, compared to 56%, 21.8, and 2.6 respectively. 16% of the non-CFRD population had an annual OGTT compared to 46% previously. Adherence to ADA guidelines is greater in almost every parameter. The clinical improvement in the CFRD population in terms of FEV1, BMI, and exacerbation rate is likely influenced by guideline adherence and the introduction of triple combination therapy. SARS-CoV2 pandemic and the Health Service Executive ransomware attack are unique to this re-audit and likely account for the reduction in CFRD screening.

Table 1 (6.11) Clinical characteristics

	CFRD n = 35 [2016]	CFRD n = 31 [2022]	Non-CFRD n = 73 [2016]	Non-CFRD n = 89 [2022]
Age (median, range)	26 (19 – 47)	35 (19 – 55)	27 (17 – 54)	30 (17 – 72)
Male (n, %)	19 (54%)	19 (61%)	43 (58%)	43 (48%)
Pancreatic insufficiency (n,%)	33 (94%)	30 (97%)	57 (78%)	71 (80%)
Osteoporosis (n, %)	10 (28%)	7 (23%)	18 (24%)	12 (13%)
Indwelling Venous Access Device (n, %)	24 (68%)	17 (55%)	51 (69%)	37 (42%)
Pseudomonas Colonisation (n, %)	23 (65%)	22 (71%)	47 (64%)	44 (49%)
FEV1% (median, range)	56.5 (22 – 100)	71 (26 – 113)	61 (15 – 122)	84 (22 – 130)
BMI kg/m^2 (median, range)	21.7 (16.7 – 30.5)	22.6 (18 – 30.2)	21.7 (16.3 – 40.1)	24 (17.7 – 47.4)
Exacerbation rate (median, range)	2.6 (0 – 13)	0 (0 – 4)	1.8 (0 – 10)	1 (0 – 10)

Conflict of Interest: None to declare

6.12 A Tool for the Assessment of Adherence to International Guidelines in the Routine Monitoring of Paediatric Patients with Cystic Fibrosis

Gráinne O'Mahoney[1] and Muireann Ní Chróinín [1]

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Cystic Fibrosis (CF) requires extensive routine monitoring, further complicated in paediatric populations by differing age-related requirements. The purpose of this study was to assimilate necessary investigations and clinical assessments into a single score. A scoring tool was devised following review of National Institute for Health and Care Excellence, European Cystic Fibrosis Society and Cystic Fibrosis Foundation guidelines. (Table 1) Comparison between the years 2019 and 2020, in the context of Covid-19 restrictions, was used to assess the ability of the scoring tool to reflect changes in clinical practice. A retrospective chart review was conducted of paediatric patients with CF attending Cork University Hospital from 2019-2020. Analysis was conducted in SPSS v28 using Chi Square and Mann Whitney U Tests. The proportion of patients with a score of 100% was 20.21% in 2019 and 2.27% in 2020, a decrease of 89%. ($p < 0.005$) The median score was 71.43% (IQR 54.17%-87.5%) in 2019 and 42.86% (IQR 25.0%-56.75%) in 2020, a decrease of 40%. ($p < 0.005$)
This tool illustrates an ability to concisely summarise overall monitoring and quantify the impact of alterations in service provision. Future use would allow for comparison between centres and assessment of quality improvement initiatives.

Table 1 (6.12) – Scoring Tool

Score = (Total Conducted / Total Applicable) * 100		
	Conducted + 1 if:	**Applicable + 1 if:**
Sputum Cultures	Four or more sputum cultures	All patients
CXR	CXR within the past 12 months	All patients
Growth Parameters	Four or more weight measurements and four or more height measurements	All patients
Fat-Soluble Vitamins	Completed measurement of Vitamin A, D, E and K	All patients
Liver Bloods	Completed measurement of AST, ALT and GGT	All patients

Score = (Total Conducted / Total Applicable) * 100		
	Conducted + 1 if:	**Applicable + 1 if:**
Miscellaneous Bloods	Completed measurement of WCC, Aspergillus serology and Serum IgE	All patients
Faecal Elastase	Faecal elastase measured	No diagnosis of pancreatic insufficiency
Spirometry	Four or more FEV1 measurements and four or more FVC measurements	Aged 6 or above
Diabetes Screening	OGTT conducted	Aged 11 or above and no diagnosis of diabetes

Conflict of Interest: None to declare

6.13 An Audit of screening of aetiological tests in adults with diagnosis of non-CF bronchiectasis

MK Rana, S Lane

Peamount healthcare Dublin

Bronchiectasis is a disorder characterised by abnormal dilation of bronchi and a clinical syndrome of breathlessness, cough, sputum production and recurrent respiratory tract infections.HRCT thorax is the most appropriate diagnostic test when bronchiectasis is suspected. The critical first step following diagnosis of bronchiectasis is to determine the underlying cause. The European respiratory society guidelines recommend minimum bundle of aetiological tests with a new diagnosis of bronchiectasis that includes, differential blood count, serum immunoglobulins(total IgG,IgA and IgM), test for allergic bronchopulmonary aspergillosis(total IgE,specific IgE and IgG to aspergillus) and test for non-tuberculous mycobacteria (NTM) by sending sputum for AFB.Other tests are guided by history,clinical presentation and physical exam.The aim of our audit to see if the patients who had confirmed diagnosis of bronchiectasis had screening with minimal bundle of aetiological tests according to ERS bronchiectasis guidelines.A total of ten patients with known diagnosis of bronchiectasis were admitted in Peamount respiratory unit for pulmonary rehab in may 2022.All patients had confirmed diagnosis of bronchiectasis on Ct thorax. We retrospectively reviewed in our lab data if these patients had screening with minimal bundle of aetiological tests.The results showed that all 10 patients had test for differential blood count, serum immunoglobulins and sputum for culture and sensitivity. Out of 10 only 6 patients had test for allergic bronchopulmonary aspergillosis and 7 patients had sputum test for NTM.This audit showed that there was a lack in screening test for aspergillosis and non-tuberculous mycobacteria.We recommend that all patients with new diagnosis of bronchiectasis should be screened with minimal bundle of aetiological tests according to ERS guidelines and other tests should be performed based on the clinical presentation. These tests can considerably alter the clinical management of bronchiectasis.

Reference

European Respiratory Journal 2017 50: 1700629; https://doi.org/10.1183/13993003.00629-2017

Conflict of Interest: None to declare

6.14 Nebulized bone marrow derived extracellular vesicles ameliorate bacterial induced pneumonia in vivo

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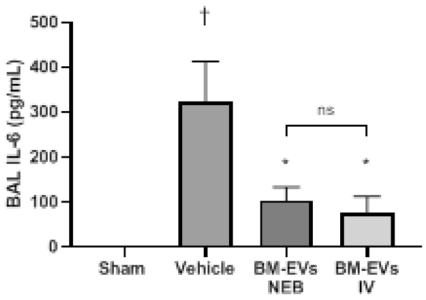
Razionale: Acute respiratory distress syndrome (ARDS) is an inflammatory disease with high mortality and a lack of specific therapy. Mesenchymal stromal cell (MSC) therapy is emerging as a potential therapeutic in a wide range of conditions, including pneumonia. We wished to utilise bone marrow extracellular vesicles (BM-EVs) in a rodent pneumonia model to explore clinically relevant administration using direct lung nebulization.Methods: BM-EVs were delivered intravenously or nebulized into the lungs using a vibrating mesh nebulizer to rats who had undergone bacterial lung installation, with administration delayed by 1 h. 48 h later, animals were assessed for lung physiological, inflammatory and infection parameters.Results: Nebulized BM-EVs delivered 1 h after bacterial installation increased arterial partial pressure of oxygen and reduced lung bacterial load. Proinflammatory cytokines such as IL-1β and IL-6 were ameliorated in bronchoalveolar lavage (BAL).Conclusion: BM-EVs therapy is a promising ARDS therapeutics, and their direct nebulization offers a novel delivery route.Fig. BM-EVs nebulized after bacterial pneumonia induction reduced BAL IL-6 concentrations compared with vehicle and was not statistically different from the IV group. († $p < 0.05$ wrt Sham; * $p < 0.05$ wrt Vehicle. NS no significant difference between delivery route. (Sham N=4. Vehicle, BM-EVs NEB, BM-EVs IT: N = 8)

(6.14)



Conflict of Interest: None to declare

Irish Thoracic Society Poster Review and Discussion

Friday 2nd December 2022

7. COPD

7.1 A case series investigating a rare phenotype FZ Alpha-1 antitrypsin deficiency in Ireland

Lameese Alhaddah, Daniel Fraughen, Ronan Heeney, Tomás P. Carroll, Mark Murphy, Cedric, Gunaratnam, Gerry McElvaney

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Alpha-1 antitrypsin deficiency (AATD) presents as a genetic disorder arising from a mutation in the SERPINA1 gene found on the long arm of chromosome 14 at 14q3- 32.1. The most common form of severe

AATD is the Z homozygous form. The most common manifestation of severe AATD (ZZ) is emphysema which can occur even in the absence of a smoking history but which is markedly exacerbated by cigarette smoking, cirrhosis, and panniculitis. There are over 200 SERPINA1 mutations in existence. Roughly 5000 people have been diagnosed with moderate AATD (MZ & SZ) and 450 people with severe AATD. Interestingly, there have been 13 patients found with the rare FZ genotype identified through the National Targeted Detection Programme for AATD. The F mutation (Arg223Cys) causes a qualitative deficiency and is not associated with serum AAT deficiency, making it difficult to diagnose. This case series characterises patients with FZ genotype by reporting AAT levels, pulmonary function tests, lung imaging and liver testing. We also discuss clinical progression of these patients and compare them to the more common deficiencies.

Conflict of Interest: None to declare

7.2 A multi-site audit of alpha one deficiency testing in Ireland

Lameese Alhaddah, Ronan Heeney, Tomás P. Carroll, Cedric, Gunaratnam, Gerry McElvaney

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Alpha-1 antitrypsin deficiency (AATD) is a well known genetic condition caused by SERPINA1 gene leading to an array of clinical conditions including chronic obstructive pulmonary disease (COPD) and liver disease. In Ireland, there has been roughly 22,000 individuals screened for AATD since 2004 following ATS/ERS guidelines as part of the HSE funded national targeted detection programme. Commonly quantification of alpha-1 antitrypsin levels (AAT) is done by turbidimetry, and AAT phenotyping to confirm AATD is performed with isoelectric focusing. It is recommended by HSE National Laboratory Handbook guidelines to perform AAT phenotyping to investigate AATD when AAT levels are lower than < 1.0 g/L. We performed a retrospective multi-site audit of AAT levels performed in Beaumont Hospital in the last 5 years to evaluate phenotype requesting patterns and diagnosis rates in our respiratory service. Results show that targeted AAT testing in respiratory cohorts allied to rapid phenotyping of low AAT levels are effective in tackling the continuing under-diagnosis of AATD.

Conflict of Interest: None to declare

7.3 Establishing diurnal variation of alpha-1 antitrypsin and acute phase proteins in healthy individuals and alpha-1 antitrypsin patients

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Alpha-1 antitrypsin deficiency (AATD) is a genetic disorder arising from a mutation in the SERPINA1 gene. The most common severe AATD is the Z homozygous form. Manifestation of this deficiency can lead to emphysema, cirrhosis and panniculitis. Alpha-1 Antitrypsin (AAT) is a serine proteinase inhibitor and acute phase protein with significant immunomodulatory effects on cytokines and chemokines. The circadian rhythm is a 24 h cycle of daily oscillations in physiology which is governed by the suprachiasmatic nucleus (SCN) in the brain. However, all cells in the body possess a molecular timer. This has a profound impact on all aspects of physiology and disease. We aim to describe the diurnal variation of AAT in healthy individuals and AATD patients to establish baseline Fig.s to further understand its role in disease, as this has not been done previously.We investigated the diurnal variation of acute phase proteins by measuring C-Reactive Protein (CRP), iL-6 and AAT levels in healthy individuals at three different time points over one day. We also performed the same methodology of testing with stable AATD patients to establish a comparative results to further characterise AAT levels in deficient patients.

Conflict of Interest: None to declare

7.4 The development and implementation of a MDT-focussed clinic for COPD

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COPD is a heterogenous disease. We introduced a systematic assessment outpatient clinic(CARA) for COPD patients with high symptom burden and healthcare use. Patients undergo multidisciplinary review with relevant laboratory, radiology and oxygen assessments, Fig. 1. The clinical characteristics and necessary CARA clinic interventions of the first 34 patients are described.The mean age was 69(7.8) years, 56% female, and BMI 28.5 (9.4)kg/m2. All were smokers(38.2% current). The mean FEV1 was 47.5(19.6)%. One-third were prescribed oxygen therapy (LTOT and/or ambulatory) and 27% home NIV. Eosinophil count was ≥ 300cells/m^3 in 57.6%. Mean hospitalisation rate pre-CARA was 1.85(1.81)/per year. Co-morbidity was prevalent -asthma(26.5%), cardiovascular disease(53%), bronchiectasis(17.7%), GORD(8.8%), OSA(8.8%), pulmonary hypertension(11.8%), rhinosinusitis(23.5%) and polypharmacy(97%). Maintenance inhaled corticosteroids(ICS) were prescribed for 78% pre-CARA and 81% post. Half of those prescribed high dose ICS(31%) had ICS dose reduction at the clinic; 40% required a change of inhaler device. Four patients commenced oxygen therapy and two home NIV. One third required airway clearance education and 72% pulmonary rehabilitation referral. Additional diagnoses made at CARA included impaired immune response(n = 4), pseudomonas colonisation(n = 2), patent foramen ovale(n = 1), and diabetes mellitus(n = 1).
A multidisciplinary outpatient COPD clinic facilitates a personalised approach to the assessment and treatment of patients with this complex condition.

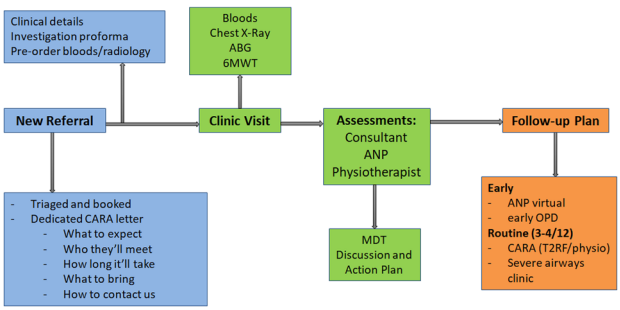

Fig. 1(7.4) COPD At-Risk Assessment (CARA) Clinic Outline

Conflict of Interest: None to declare

7.5 To evaluate prescribing practices of corticosteroids in patients admitted to hospital with acute exacerbations of chronic obstructive pulmonary disease (COPD)

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It has been shown that short courses of corticosteroids (5 days) in the treatment of acute exacerbations of COPD (AECOPD) are associated with improved treatment outcomes and increased time to re-exacerbation rate, when compared with conventional longer tapering regimes[1,2]. We have anecdotal evidence that patients admitted to hospital with AECOPD frequently receive more than 5 days of steroid therapy.
We retrospectively analysed all patients admitted to our centre over a two month period in 2022. We used HIPE coding system to identify all patients with AECOPD listed as the primary diagnosis. We used electronic and paper records to collect data.
Median age of patients admitted (n = 38) was 63.5 yrs, with a female majority (n = 21). Thirty four percent of patients received steroid therapy for more than 5 days, of which 63% were male. The presence of pulmonary infiltrate, requirement of supplemental oxygen or non-invasive ventilation were not associated with increased likelihood of longer steroid courses. Patients not under the care of a respiratory team were more likely to receive longer regimens of steroid therapy (57% vs 33%). This audit highlights that patients may be inappropriately receiving longer courses of steroid. Further evaluation of influencing factors is important to avoid adverse effects.

References

1. Leuppi JD, Schuetz P, Bingisser R, et al. Short-term vs Conventional Glucocorticoid Therapy in Acute Exacerbations of Chronic Obstructive Pulmonary Disease: The REDUCE Randomized Clinical Trial. *JAMA*.2013;309(21):2223–2231.
2. Sivapalan P, Lapperre TS, Janner J, Laub RR, Moberg M, Bech CS, Eklöf J, Holm FS, Armbruster K, Sivapalan P, Mosbech C, Ali AKM, Seersholm N, Wilcke JT, Brøndum E, Sonne TP, Rønholt F, Andreassen HF, Ulrik CS, Vestbo J, Jensen JS. Eosinophil-guided corticosteroid therapy in patients admitted to hospital with COPD exacerbation (CORTICO-COP): a multicentre, randomised, controlled, open-label, non-inferiority trial. Lancet Respir Med. 2019 Aug;7(8):699–709. https://doi.org/10.1016/S2213-2600(19)30176-6. Epub 2019 May 20. PMID: 31,122,894.

https://doi.org/10.1001/jama.2013.5023

Conflict of Interest: None to declare

7.6 Patient Perspectives on COPD Self-management: COVID-19, Remote Tools and the Need for a Multifaceted Approach towards Patient Care

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[1]*Alpha-1 UK Support Group,* [2]*COPD Support Ireland*

As patients living with chronic obstructive pulmonary disease (COPD) during the COVID-19 pandemic, we experienced fear, isolation and limited or no access to regular healthcare.
On 2 June 2022, we spent 3 h on Zoom discussing our day-to-day experiences of living with COPD and brainstorming areas for change that could improve patient care. We discussed COPD self-management, communication between patients and healthcare professionals, and online support.One thing we all agreed on was that patients need more information about COPD and self-management strategies, particularly at diagnosis. This would help us to adopt the behaviours needed to manage our condition effectively and feel more empowered. Additionally, support groups and online tools have been essential for our management of both the physical and psychological aspects of our condition, allowing us to connect with each other and share our experiences.Overall, we would like to see an improvement in education and online resources that enable patients to self-manage COPD effectively and confidently. Additionally, we hope that public health bodies, pharmaceutical companies and telemedicine providers will work collaboratively to develop optimal knowledge-sharing platforms. Furthermore, we encourage healthcare professionals to conduct annual reviews to ensure the continued suitability of our medications.

Disclosures

Medical writing support for this abstract was funded by Boehringer Ingelheim. The patient authors were not reimbursed for their participation in the focus group and all thoughts expressed are their own. All authors fulfil the ICMJE criteria for authorship.

Conflict of Interest: None to declare

(7.7 Not for Publication Valaciclovir for Epstein-Barr virus suppression in moderate-to-severe COPD (EViSCO): an 8-week, randomised, double-blind, placebo-controlled trial)

7.8 Evaluation of AAT phenotyping in patients with low alpha-1 antitrypsin levels

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2. Alpha-1 Foundation Ireland, Beaumont Hospital

Alpha-1 antitrypsin deficiency (AATD) is a hereditary condition that leads to low levels of an important antiprotease. The main function of Alpha-1 antitrypsin (AAT) is to protect the lungs, with deficiency leading to risk for lung, liver and skin disease. According to the HSE National Laboratory Handbook (1), phenotyping is recommended if AAT levels are low (< 1.0 g/L) (1). It is also recommended that C-reactive protein (CRP) is performed in conjunction, as AAT is an acute phase reactant.
We performed a retrospective review of samples sent for AAT testing from Our Lady of Lourdes Hospital to determine compliance with testing guidelines.
We reviewed 83 AAT test results with AAT levels < 1.0 g/L, sent from our laboratory. Excluding duplicates, only 18 (25%) out of 72 individuals were phenotyped. 13/18 (72%) had clinically significant AAT deficiency. CRP was performed in only 37% of samples.
Patients who have been identified with low levels of AAT and who have not had phenotyping will be recalled for testing. A new protocol for AAT testing has been proposed with Beaumont Hospital and the RCSI Alpha-1 Foundation Ireland laboratories to ensure phenotyping of patients with AAT levels less than 1 g/L. This will lead to a more rapid diagnosis of suspected AATD cases and earlier intervention.

References

1. National Laboratory Handbook HSE, Ireland. www.hse.ie/eng/about/who/cspd/ncps/pathology/resources/lab-testing-for-alpha-1-antitrypsn-antibodies.pdf

Conflict of Interest: None to declare

7.9 Not for Publication An Evolving "Admission Avoidance" Service Sees a Shift Towards Increased Patient Case Management Activity and a Potential Decline in Patients Requiring Home Visits

7.10 COPD Discharge Proforma Audit

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University Hospital Galway

Background: Chronic obstructive pulmonary disease (COPD) is characterized by progressive airway obstruction, worsening exercise tolerance, and is associated with significant morbidity and mortality. It is the third most common cause of respiratory death in Ireland(1). A new discharge proforma introduced to University Hospital Galway aims to standardize management and follow-up for patients admitted with exacerbations of COPD.

	Usual management (N = 27)	Post Performa (n = 28)	P value
Smoking status (%):	9 (33.3)	15 (53.6)	0.09
Current	13 (48.1)	13 (46.4)	
Ex-smoker	4 (14.8)	0 (0)	
Non-smoker	1 (3.7)	0 (0)	
Unknown			
Inhaler technique review (%)	6 (22.2)	28 (100.0)	< 0.01
Target oxygen level in notes (%)	17 (63.0)	26 (92.9)	0.1
Chest physio review during admission	24 (88.9)	24 (85.7)	1.0
Smoking cessation advice (%)	7 (77.8)	15 (100.0)	0.13
Referral to smoking cessation officer (%)	3 (33.3)	4 (26.7)	0.36
COPD support pack provided (%)	2 (7.4)	28 (100.0)	< 0.01
COPD self management plan (%)	2 (7.4)	27 (96.4)	< 0.01
Pulmonary rehab referral made (%):	3 (11.1)	16 (57.1)	< 0.01
Yes	18 (66.7)	1 (3.6)	
No	6 (22.2)	7 (25.0)	
Not suitable	0 (0)	4 (14.3)	
Refused			
Completed pulmonary rehab (%):	0 (0)	6 (21.4)	< 0.01
COPD outreach referral (%)	8 (29.6)	27 (96.4)	< 0.01
Follow up (%):	19 (70.4)	27 (96.4)	0.03
Respiratory	55 (18.5)	1 (3.6)	
GP	3 (11.1)	0 (0)	
None			

Table 1 Difference in management before and after the introduction of a COPD discharge proforma

Objectives: To assess the use of the new COPD Discharge Proforma and compliance with the recommendations of the Irish NCEC National Clinical Guidelines on Management of COPD (2020).
Method: A retrospective audit of 55 patients admitted to University Hospital Galway with a diagnosis of "exacerbation of COPD" was performed. 27 patients attended the hospital in 2021 prior to the creation of the COPD discharge proforma, and 28 patients after its initial implementation in 2022. Data was collected from the clinical notes, discharge letters, and investigations available on their electronic patient record.
Results: The adherence to COPD management guidelines in the patient groups with and without the COPD Discharge Proforma is compared in Table 1.
Discussion: Areas for improvement of adherence to COPD management guidelines identified include referrals to smoking cessation officers, COPD support and management plan provision, and pulmonary rehabilitation referrals. Many of these areas needing improvement demonstrated significant improvement following the introduction of the COPD Discharge Proforma.

References

1. N. Brennan, T.M. O'Connor. INHALE Report. 2004. https://doi.org/10.1183/09031936.04.00025604

https://doi.org/10.1183/09031936.04.00025604
Conflicts of Interest

No conflicts of interest to declare

7.11 Applying a Lean Approach to the Physiotherapy Management of Exacerbations of COPD in Medical Wards of a Model Four Hospital 1/2.

Angela Ryan[1], Caoimhe Barry Walsh[1], Amy Cullinane[1], Megan O'Mahony[1], Aoife Leahy[1], Dr Aidan O'Brien[1]

1University Hospital Limerick

Lean healthcare involves minimising waste and increasing value in implementing service improvements. A Lean approach was used to improve the quality of physiotherapy input for patients admitted to hospital with exacerbations of Chronic Obstructive Pulmonary Disease (COPD). This involved piloting an Enhanced Recovery Model for COPD over a 6-week period.
Lean tools were used including the seven wastes, five whys and swimlanes. The root cause was identified as variation in assessment. Training and documentation resources were developed for error-proofing and to align assessment and management with national and international clinical guidelines. Outcomes were measured in a 6-week period prior to the service changes and again for the duration of the 6-week pilot of the Enhanced Recovery Model for COPD.Improved quality and efficiency were evident following implementation, with associated cost savings to the organisation. Decreases in the average length of stay (23.17%), frequency of re-admissions within 90 days (10.14%), a slight decrease in the average number of physiotherapy contacts (1.55%) and an increase in the average duration of physiotherapy contact time (11.62%) were observed. Compliance improved with national guidelines. Lean tools proved useful in root cause identification and providing a structured approach to implementing standardisation, resulting in service quality improvements.

Conflict of Interest: None to declare

7.12 Applying a Lean Approach to the Physiotherapy Management of Exacerbations of COPD in Medical Wards of a Model Four Hospital 2/2

Angela Ryan[1], Caoimhe Barry Walsh[1], Amy Cullinane[1], Megan O'Mahony[1], Aoife Leahy[1], Dr Aidan O'Brien[1]

University Hospital Limerick[1]

To address variation in physiotherapy input for patients admitted to hospital with exacerbations of Chronic Obstructive Pulmonary Disease (COPD), an Enhanced Recovery Model for COPD was piloted over a 6-week period. Resources were developed to support physiotherapists including education and documentation to align with the GOLD

Guideline for the Management of COPD (2021).Patients from UHL medical wards referred to Physiotherapy for management of COPD were assessed and managed using the novel resources. Metrics gathered from a six-week period prior to development of the resources (T1) and compared with a six-week period of the Enhanced Recovery Model (T2) included the quality of the physiotherapy assessment (COPD Assessment Tool [CAT] score, modified Medical Research Council Dyspnoea Sub-Scale [mMRC] and the GOLD ABCD assessment tool) and quality of physiotherapy management (including appropriate referrals to Smoking Cessation and Pulmonary Rehabilitation).

Results: 14 patients were included in the pre-implementation phase (T1); 17 in the post-implementation period (T2). Documentation of all key metrics improved: CAT score from 28.57% (T1) to 92% (T2); mMRC: 0% (T1) to 92% (T2); GOLD ABCD: 0% (T1) to 77% (T2); referral to smoking cessation increased from 0% (T1) to 83% (T2); referral to pulmonary rehabilitation increased from 17% (T1) to 44% (T2).

Conclusion: The quality of physiotherapy assessment and management increased considerably following introduction of relevant education and documentation.

Conflict of Interest: None to declare

7.13 Clinical Characteristics of Patients Admitted to CUH in 2019 with COPD Exacerbation

Noreen Tangney[1,2], Punitha Vairamani[1,2], Deborah Casey[1,2], Una O'Riordan[1,2], Jill Murphy[1,2]

[1]Cork University Hospital [2]Integrated Care Respiratory Hub, Cork

Chronic Obstructive Pulmonary Disease (COPD) is the third leading cause of death worldwide. Ireland has the highest mortality rate from any respiratory cause in Europe (134/100,000), and the third highest in COPD-specific mortality (58.15/100.000). The Irish National Audit of Hospital Mortality 2019 shows that COPD is the only leading cause of death with an increasing mortality rate.We reviewed the clinical characteristics of patients admitted to Cork University Hospital with COPD exacerbations in 2019. Patients transferred to other hospitals, discharged the same day, or incorrectly coded were excluded. 491 patients were coded by the HIPE department as COPD exacerbations and 317 met the inclusion criteria. 31 patients (9.7%) had a spirometry-confirmed COPD diagnosis documented. The mean FEV1 of this group was 61.6%. Of the total 317 patients 35 (11.0%) were on LTOT, 45 (14.2%) required non-invasive ventilation, 132 (41.6%) were admitted under the Respiratory Service, and 135 (42.6%) have died within three years. Among this cohort of patients, the rate of spirometric diagnosis was low (9.7%) and mortality was high. This lack of spirometry could ultimately lead to an overdiagnosis of COPD and contribute to poor health indices of the disease in Ireland.

Gender	Male	Female	Total	T-test
Total number (%)	151 (47.6)	166 (52.4)	317	-
Mean age, years ± standard deviation	73.2 ± 9.8	71.1 ± 9.8	72.1 ± 9.8	0.05
Mean length of stay, days ± standard deviation	9.0 ± 9.0	9.7 ± 9.7	9.4 ± 9.6	0.59
Spirometry (%)	29 (47.5)	32 (52.5)	61	-
Post-Bronchodilator Spirometry (%)	16 (41.0)	23 (59)	39	-
Obstruction post bronchodilation (%)	13 (41.9)	18 (58.1)	31	-
Mean FEV1, % ± standard deviation	61.4 ± 24.6	61.7 ± 24.7	61.6 ± 24.7	0.54
Long term oxygen therapy (%)	14 (40)	21 (60)	35	-
Non-invasive ventilation (%)	17 (37.8)	28 (62.2)	45	-
3 year mortality (%)	69 (51.1)	66 (48.9)	135	-
Patients under Respiratory service			132	

Table 1 (7.13) Characteristics of patients admitted to CUH with COPD exacerbation

Conflict of Interest: None to declare

7.14 Make mine a DECAF

A program to increase awareness and understanding of the role of DECAF Scoring in St. Luke's General Hospital Carlow/Kilkenny

Muahmmad Saad Zaheer[1], Edward Kelly[2], Fionnbarr McDermott Long[3], Tayyabba Mahmood[4], Brian Canavan, Kenneth Bolger

St. Luke General Hospital Carlow/Kilkenny

DECAF score is a validated scoring tool that allows healthcare workers to estimate the mortality risk of patients admitted with an exacerbation of COPD. Road blocks to its use in acute settings are i) under-awareness of its value and specificity and ii) the presence of robust pathways to aid management of patients scoring as low risk, moderate risk and high risk. Our aim was to evaluate awareness of the DECAF score among the healthcare workers (HCW) in the acute hospital setting. An online questionnaire was generated to assess familiarity and understanding of DECAF, and was circulated to all HCW involved in inpatient care of COPD exacerbations.Preliminary data suggests that comprehension about DECAF is fair, and it is not routinely calculated or implemented as it is poorly understood and does not affect change in patient management. Calculation of the score is reported as difficult with over half of responders reporting this. Irrespective of score outcomes, confidence is lacking in referral to palliative care.

We aim to offer tutorials to all personnel involved in acute COPD care to increase understanding of the utility of DECAF and introduce pathways to better manage patients based on the score.

Conflict of Interest: None to declare

7.15 A systematic assessment clinic for severe COPD is feasible and a positive experience for patients

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The COPD At-Risk Assessment(CARA) clinic was established in 2021 for COPD patients with advanced disease, high healthcare use and symptom burden. All undergo systematic evaluation with Medical, ANP, and Physiotherapy review. Laboratory, radiology and oxygen assessments are performed. The clinic aims to provide patient-centred, individualised assessment and management of COPD. We sought to establish patient satisfaction of this new clinic and identify areas for improvement.An adapted HSE patient experience survey was sent to 22 clinic attendees and returned anonymously. Survey questions examined patient satisfaction (3 questions), and knowledge of their condition (7 questions) with "Yes/No"

responses. Overall clinic experience was examined using a 5-point Likert scale from very poor to excellent. A free text comments box was provided.Fifteen(68%) completed surveys were returned. All patients (100%) reported satisfaction with the treatment, time and privacy provided to them. Reassuringly, 80% felt knowledge of their condition, its management and treatment was improved. Overall, the experience of the clinic was excellent(53%) or very good(47%).A multidisciplinary systematic assessment clinic for COPD is feasible to run and is beneficial and acceptable to patients. To improve this service we are focussing on developing strategies to ensure the educational needs of all patients are met.

Conflict of Interest:None to declare

7.16 Identification and characterisation of SERPINA1 Null mutations Causing Severe Alpha-1 Antitrypsin Deficiency

Ronan C. Heeney (1, 4), Geraldine Kelly (1), Daniel Fraughen (4), Orla Cahalane (2), Ilaria Ferrarotti (3), Noel G. McElvaney (4), Cedric Gunaratnam (4) and Tomás P. Carroll (1, 4)
(1) Alpha-1 Foundation Ireland, Beaumont Hospital, Dublin 9. (2) Beaumont Hospital, (3) University of Pavia, Italy. (4) RCSI Education & Research Centre, Beaumont Hospital

Alpha-1 antitrypsin deficiency (AATD) is a genetic disorder which can lead to lung, liver, and skin disease. In Ireland, the most common pathological mutation is Z, found in 1 in 25 Irish people. Rare null or nonsense (SERPINA1) mutations are associated with a complete absence of AAT.

> 23,000 individuals have been screened following ATS & ERS guidelines in a national targeted detection programme. Serum Alpha-1 antitrypsin (AAT) quantification is by turbidimetry. AAT phenotyping is by isoelectric focusing with allele-specific genotyping, when required. Rare and novel mutations are identified by SERPINA1 gene sequencing.

Isoelectric focusing revealed an apparent normal (M) phenotype pattern in 10 individuals with lower than expected AAT levels. Seven individuals had apparent SS or ZZ phenotypes but unusually low serum AAT. One individual had no detectable AAT on phenotyping.

SERPINA1 gene sequencing confirmed the presence of 10 M/Nulls, 2 S/Nulls, 4 Z/Nulls, and 1 Null/Null cases. Six different null mutations have been described among the 17 confirmed cases $Q0_{bolton}$, $Q0_{dublin}$, $Q0_{porto}$, $Q0_{cork}$, $Q0_{amersfoort}$, and $Q0_{lisbon}$

Null mutations are underreported due to unique diagnostic challenges. A multi-faceted approach including phenotyping, allele-specific genotyping, SERPINA1 sequencing, and the ability to interpret dissonant results is required to achieve an accurate AATD diagnosis.

Conflict of Interest: None to declare

7.17 Ten years on: A report on the Chronic Obstruction Pulmonary Disease (COPD) Outreach service in Tallaght University Hospital (TUH)

Judith Maxwell, Ciara Scallan, Elaine Joyce, Rachel Egan, Prof. Eddie Moloney, Louise Cullen, Clare Baily-Scanlan, Sarah Cunneen, Maeve NiChleirigh, Alice O'Dwyer, Sherin Varghese

Tallaght University Hospital

The COPD Outreach (COPDOR) model of care was developed as part of the national COPD Quality in Clinical Care Program 2011 to reduce hospital length of stay (LOS) for patients admitted with an acute exacerbation of COPD. TUH launched its COPDOR service in July 2012 when the average LOS for COPD exacerbations was above the national average at 10.2 days. In the first 6 months 153 patients were reviewed and 47 (31%) patients were accepted to the program. Thirty-eight (80.85%) of these patient's LOS was less than 3 days, with the average LOS reducing from 10.2 to 5.3 days for all patients accepted to the program, and 9.3 days for all patients admitted with a COPD exacerbation in TUH. Over the last 10 years the TUH COPDOR service has reviewed 6,238 patients admitted with an exacerbation of COPD and 1,529 (24.5%) were accepted to the COPDOR program. In 2021, 921 patients were reviewed for inclusion with 181 patients (20%) accepted to the program. Eighty patients had a LOS less than 3 days (44%). The average LOS for patients accepted to the program was 4.4 days with the average LOS for all COPD exacerbations in TUH being 9.2 days.

Conflict of Interest: None to declare

(7.18 Not for Publication) Enhancing the Care of Chronic Obstructive Pulmonary Disease

7.19 New Non-Invasive Ventilation Protocol for Acute Hypercapnic Respiratory Failure in COPD

Derek Nash$_1$, Ciara Gough$_1$, Ciara Dolan$_1$, Helen Mulryan$_1$, Donna Langan$_1$, Shuaib Goga$_1$, Souliman Eldomi$_1$, Tom McEnery$_1$, Fatima Gargoum$_1$
University Hospital Galway

Acute hypercapnic respiratory failure (AHRF) in patients with chronic obstructive pulmonary disease (COPD) carries a high mortality. Non-invasive ventilation in conjunction with standard medical treatment has be shown to significantly reduce this mortality. One in five patients presenting to hospital with an acute exacerbation of COPD will develop AHRF. A quality improvement project was undertaken to create a protocol for patients receiving non-invasive ventilation for AHRF presenting to the hospital. The protocol was developed in conjunction with the respiratory, emergency and critical care departments using best available evidence. A pilot protocol was initially trialed before the final protocol was implemented. The aim was to create a user-friendly document to improve outcomes as measured by the British Thoracic Society Audit toolkit. Audit data from pre-final protocol (2019 to 2021 n = 30) to post protocol implementation (n = 7) demonstrated a relative improvement in outcomes of target oxygen saturations, early post NIV arterial blood gas measurement and overall success of NIV of 80%, 43% and 20% respectively. These are encouraging early results and the focus will be on continued audit and training of hospital clinical staff in use of the protocol.

Conflict of Interest: None to declare

7.20 Patient Knowledge of COPD Exacerbation Symptoms and Management

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Chronic obstructive pulmonary disease (COPD) exacerbations are associated with morbidity and mortality. Symptoms are non-specific, resulting in a wide variety of patient reported complaints[1]. Poor awareness of the symptoms of exacerbation can lead to a delayed presentation to health care professionals (HCP), therefore delaying recovery[2].

My aim was to assess patient knowledge regarding the symptoms of COPD exacerbation from a cohort of COPD Outreach patients. 20 patients were randomly selected. After obtaining informed consent, patients were surveyed in person, using an open-ended questionnaire. Increased fatigue (29%) and difficulty with daily activities (25%) were reported during exacerbations. Anxiety and agitation (18%) were triggers for shortness of breath. Exhaustion and back pain were frequently reported. Most patients (68%) contacted their GP for assistance, with (32%) of patients attending an emergency department (ED). Only (20%) of patients contacted COPD Outreach. Only (30%) of patients contacted a HCP on the day they noticed a change in their symptoms,

with (50%) of patients waiting a few days before making contact.Early recognition of the range of symptoms associated with COPD exacerbation could lead to more prompt exacerbation management, improved utilization of the COPD Outreach service, thus reducing the need for GP referral and ED admission.

1. Global Initiative for Chronic Obstructive Lung Disease. 2017. Pocket Guide to COPD diagnosis, management, and prevention. A guide for healthcare professionals 2017 report.
2. S Costi, D Brooks, RS Goldstein. Perspectives that influence action plans for chronic obstructive pulmonary disease. Canadian Respiratory Journal 2006;13 (7): 362–368.

S Costi, D Brooks, RS Goldstein. Perspectives that influence action plans for chronic obstructive pulmonary disease. Canadian Respiratory Journal 2006;13 (7): 362–368.

Conflict of Interest: None to declare

7.21 A Novel Self-referral Pathway for Exacerbating COPD Patients to Prevent Attendance at the Emergency Department (ED) – A Pilot Study with COPD (Chronic Obstructive Pulmonary Disease) Outreach in Tallaght University Hospital (TUH) in Conjunction with the National Ambulance Service (NAS)

Ciara Scallan[1], Elaine Joyce[1], Judith Maxwell[1], Prof Eddie Moloney[2], Dr Minesh Kooblall[2], Dr Rosie Kelly[2], Bridget Clarke[3], Ann Mc Dermott[3], Mark Foley[3], Catriona Kinch[3], Sean Brady[3], Paul Gallen[3], Martin O' Reilly[4], John Guilfoyle[4], Brendan Mc Nicholas[4], Kristin Mc Kenzie Vaas[5]

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COPD Outreach in TUH and the NAS started a novel symbiotic self-referral service in June 2022 to help prevent exacerbating COPD patients presenting to ED. If they become symptomatic, patients contact COPD Outreach during office hours, or the NAS out of hours, and if suitable, they are seen and treated at home.To date, 14 patients have contacted the service. Nine (65%) were suitable for COPD Outreach and visited at home. One patient (7%) was seen by the NAS. The other 4 patients (28%) were referred to their General Practitioner (GP) for non-COPD related symptoms. The 9 suitable patients were advised to commence the rescue prescription previously given. This prevented them having to attend their GP or ED.On their last presentation to ED, these 10 patients waited on average of 15.5 h (range from 3.5 to 30 h) to be seen. This new pathway allowed these patients to be treated in the comfort of their own home.This service is only in its infancy but already 10 patients have been treated at home and avoided presenting to ED. This project will continue over the next year with the hope that further ED attendances for COPD patients can be prevented.

Irish Thoracic Society Poster Review and Discussion

Friday 2nd December 2022

8. COVID-19

8.1 Intrinsic coagulation in early Covid-19; A central role for the Contact-Kinin System

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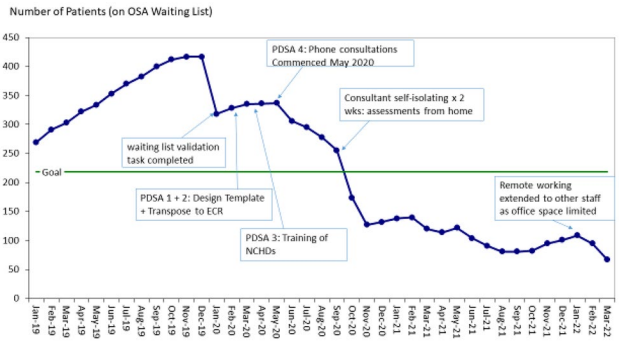
Mater Hospital, Belfast Health and Social Care Trust [1] and Queen's University Belfast [2]

Covid-19 causes venous thromboembolism in 17% of hospitalised cases. It also causes ground glass opacities and increased IL-6.Our hypothesis is that the contact-kinin system is canonical in the initiation of Covid-19 inflammation; Factor XII is activated to FXIIa, simultaneously triggering the intrinsic coagulation pathway and the kallikrein-kinin-system (KKS), whereby pre-kallikrein is converted to kallikrein, cleaving high molecular weight kininogen. The released bradykinin causes increased IL-6 and oedema. Ground glass radiological changes suggestive of oedema are seen in early Covid-19. We wished to determine the coagulation response in Covid-19. Blood results from 98 hospitalised patients were recorded by day of symptoms. The intrinsic pathway activation, measured by mean APTT, peaked at day 7 and returned to normal by day 10. Simultaneously, mean platelets dropped until day 6 before rising.
The increased APTT and decreased platelets demonstrates a consumptive coagulopathy. This suggests activation of the contact-kinin system which occurs in parallel with radiological GGO seen in early Covid-19. The KKS releases bradykinin which causes oedema and increased IL-6. A study is underway to inhibit bradykinin in early hypoxic Covid-19 patients.



(8.1)

Funding: National Institute Health Research/ R&D office & Belfast Health & Social Care.
Trust

Conflict of Interest: None to declare

(8.2 Not for Publication A physiotherapy prospective observational study of post-intensive care COVID-19 patients in Tallaght University Hospital)

8.3 Post-Covid Assessment in a Specialist MDT Clinic: A Retrospective Review of Covid-19 Patients requiring High Dependency Oxygen Requirements or ventilation during Hospital Admission

Erica Bajar[1], Orla Price[1], Maria Leitermann[1], Deirdre Garvin[1], Claudia Oliveira[1], Jeananne Garavan[2] and Cyril Rooney[1]

[1]Mayo University Hospital,[2] Community Healthcare West, Mayo

Severe Covid 19 infection and its associated complications can lead to wide ranging persistent problems after the acute infection has resolved. Post–covid clinics require a multi-disciplinary assessment and intervention to minimise the long term effect of acute severe Covid infection. We describe our experiences using a multi-disciplinary post-Covid clinic where medical, functional, and psychological sequelae of patients requiring high dependency respiratory support due to COVID-19 from March 2020-June 2021 in MUH were assessed. Eligible patients attended a review clinic consisting of medical, physiotherapy, nursing, occupational therapy, and psychology assessments.Thirty-eight patients consented to review. Most demonstrated full resolution of radiological findings and normal lung function tests. Most common persistent symptoms were breathlessness (n = 19), fatigue (n = 23), pain (n = 15),

and cognition/memory deficits (n = 17). High BMI > 30 identified in 23 patients. Screening for anxiety (n = 14), depression (n = 9), and PTSD (n = 9) identified need for a psychology review.
Outcome: Referral to Respiratory clinic (n = 20); 14 patients were discharged to GP. Predominant physiotherapy requirements were for physical conditioning and breathing pattern disorders. Sleep and diet/lifestyle education were the predominant nursing interventions. Fatigue, functional issues, and cognition was the prevalent issue addressed by occupational therapy. Clinical psychology provided psycho-education to all patients attending with 50% referred to community mental health services.

Conflict of Interest: None to declare

8.4 Prevalence of Fatigue and Sleepiness in a Post-Covid Clinic

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[1]*Royal College of Surgeons in Ireland, Dublin.*[2]*Beaumont Hospital, Dublin*

Since the emergence of the COVID19 pandemic, there has been the secondary recognition of a 'Post-COVID' or 'Long COVID' syndrome. Fatigue is one of the most common symptoms post Covid, but the incidence of sleepiness has not been evaluated. Furthermore, a clear link has emerged between severe COVID19 disease and co-morbid Obstructive Sleep Apnea (OSA). Therefore, it is possible that undiagnosed OSA may contribute to fatigue and sleepiness in a post-COVID population. In a Post-COVID clinic we assessed the incidence of fatigue and sleepiness via the Chalder Fatigue Scale (CFS), Epworth Sleepiness Scale (ESS), Pittsburgh Sleep Quality Index (PSQI) and Berlin Score. Patients with excessive daytime sleepiness were then referred for a Limited Sleep Study via the WatchPAT device.One hundred and nine patients completed at least one questionnaire, with 74 (68%) completing all four. The majority of patients were male (52%) and the mean age ± SD was 57 years ± 14 years. In evaluating the questionnaire data, Median (IQR) score was 18 (13-24) for CFS, 7 (3-12) for ESS and 10 (6-13) for PSQI. Of these patients, 40% had an elevated ESS consistent with excessive daytime sleepiness while 84% had an elevated PSQI consistent with significant sleep disturbance. Additionally, by the Berlin Score 27% of patients were deemed high risk for Obstructive Sleep Apnoea. To date 25 WatchPAT studies have been performed. Of these, 20 (80%) had some evidence of OSA; 8 (40%) mild, 3 (15%) moderate and 9 (45%) had severe. Excessive daytime sleepiness and fatigue are both common symptoms among patients after SARS-CoV-2 infection and may be indicative of undiagnosed Obstructive Sleep Apnoea.

Conflict of Interest: None to declare

8.5 Are invasively ventilated COVID-19 ICU patients more likely to develop a pneumothorax or pneumomediastinum? A retrospective cohort study

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1.St Vincent's University Hospitals

Severe respiratory syndrome coronavirus 2, and the resultant coronavirus disease 2019, increased the number of patients requiring invasive ventilation in intensive care units (ICU) internationally. In our institution, the requirement for chest drains in ventilated ICU patients appeared to increase during the COVID-19 pandemic. Our study aimed to identify if patients requiring invasive ventilation in ICU were more likely to sustain a pneumothorax and/or pneumomediastinum if they were positive for COVID-19.A retrospective cohort study was completed, reviewing all invasively ventilated patients in ICU between 1st March 2020 and 28th February 2021. Four patient groups were created based on two criteria: presence or absence of COVID-19 and pneumothorax/pneumomediastinum. 344 patients met inclusion criteria for the study. 5 patients were COVID-19 positive with an identified neumothorax/pneumomediastinum. 12 patients were COVID-19 negative with an identified pneumothorax/pneumomediastinum. The risk was 11.4% in patients in the COVID-19 positive group and 5.9% in patients in the COVID-19 negative group, with a significance of 0.035. COVID-19 positive patients have a risk 2.84 times higher of developing a pneumothorax/pneumomediastinum.In our patient cohort, being COVID-19 positive presents a significant increased risk of developing a pneumothorax and/or pneumomediastinum while invasively ventilated, compared to their COVID-19 negative counterparts.

Conflict of Interest: None to declare

8.6 Consultant respiratory pharmacist input to COVID-19 Respiratory Support Unit—An Evaluation

Cairine Gormley[1], *Martin Kelly[1], Brendan Moore[1],Rose Sharkey[1], Maureen Spargo[2], Glenda Fleming[2]*
1. Altnagelvin Hospital, Western Health and Social Care Trust (WHSCT), Derry, *2. Medicines Optimisation Innovation Centre, Antrim*

Medicines optimisation in patients admitted to the COVID-19 Respiratory Support Unit during the COVID-19 pandemic presented new problems for healthcare staff.
The objectives were to

1. To quantify medication-related interventions made by the consultant pharmacist (CP)
2. To determine potential clinical significance and estimate potential cost-savings

Medicines reconciliation and optimisation occurred on admission [1]. Patients were reviewed daily. Interventions, recorded over 10 weeks, were graded for clinical significance using Eadon Criteria [2] —a score of 4 or greater represents improvement in quality of care. A selection were independently reviewed by consultant respiratory physician (MK). University of Sheffield School of Health and Related Research (ScHARR) model [3] was used to estimate potential cost savings associated with the interventions (Table 1) [1].

Table 1 (8.6) Eadon Criteria [2], Grade and Number of Interventions [1].

Eadon Criteria (Grade)	Number of Interventions	ScHARR Lower Limit (£)	ScHARR Upper Limit (£)
Significant: improvement in standard of care (Grade 4)	826	53,690	123,900
Very significant: prevents major organ failure or adverse reaction of similar importance (Grade 5)	53	42,930	65,296
Potentially life-saving (Grade 6)	2	2,464	3,520

This service demonstrated an improvement in the standard of care. Applying ScHARR model yielded potential annual health economy savings between £495 k and £960 k.
1. Gormley, C.; Spargo, M.; Fleming, G.; Moore, B.; Scott, M.; Sharkey, R.; Friel, A. Medicines Optimisation for Respiratory Patients: The Establishment of a New Consultant Respiratory Pharmacist Role

in Northern Ireland. Pharmacy 2021, 9, 177. https://doi.org/10.3390/pharmacy9040177
2. Eadon H. Assessing the quality of ward pharmacists' interventions. International Journal of Pharmacy Practice 1992;1:145–47. https://doi.org/10.1111/j.2042-7174.1992.tb00556.x
3. Karnon J. et al. Modelling the expected net benefits of interventions to reduce the burden of medication errors. Journal of Health Services Research & Policy 2008; 13(2):85–91.

Conflict of Interest: None to declare

8.7 Angiotensin-Converting Enzyme (ACE) And Clinical Outcomes In Long COVID Patients

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[1] Trinity College Dublin,[2] Tallaght University Hospital, Dublin

While evidence of the association between coronavirus disease 2019 (COVID-19) and the renin-angiotensin system (RAS) is established, the role of serum angiotensin-converting enzyme (s-ACE) remains to be elucidated in long COVID. In this retrospective study, we examined the relationship between s-ACE and clinical outcomes on standardised measures in a sample of long COVID patients (n = 75). The medical records of 75 patients who attended a long COVID clinic (at least 12 weeks post infection) during a ten-month period in 2021 were included. Demographic and clinical variables, as well as performance on measures such as the 6-min walk test (6MWT), pulmonary function tests, the Fatigue Severity Scale (FSS), the Hospital Anxiety and Depression Scale (HADS), St George's Respiratory Questionnaire for COPD (SGRQ-C), the International Physical Activity Questionnaire-Short Form (IPAQ) and the Sniffin Sticks Test-12 Items (SST-12), were recorded. Elevated s-ACE levels were positively correlated with body mass index (BMI; $r_s = 0.279$) and maximal inspiratory (MIP; $r_s = 0.255$) and expiratory (MEP; $r_s = 0.275$) pressures. A negative association was found between s-ACE and time since COVID-19 diagnosis ($r_s = -0.258$). 21.3% of the sample population had elevated s-ACE (> 65 U/L). Pairwise comparisons between patients with elevated and normal ACE levels revealed higher BMI, and shorter diagnosis to assessment interval, in the high ACE group ($p < .05$). There was no relationship between s-ACE and any of the standardised scales used. This study is the first to report on s-ACE as a biomarker in long COVID. Further elucidation of this relationship is required and may be additive in informing resource allocation and response to the ever-growing challenge of long COVID.

Conflict of Interest: None to declare

8.8 Follow up of patients discharged from a Respiratory High Dependency Unit after Covid 19 infection

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Altnagelvin Area Hospital Respiratory Unit, Londonderry

The first Respiratory High Dependency Unit(HDU) was started in this District General Hospital in September 2020 in response to the Covid pandemic. All patients requiring high Flow Nasal Oxygen(HFNO) and or CPAP but not immediate invasive ventilation were admitted to this unit. The long term outcome of all patients who survived to discharge was monitored.Patients were followed up post discharge, initially by community respiratory nursing team. Consultant review was at two months and thereafter depending on need. A number of variables were recorded including: number of outpatient attendances, additional investigations performed, duration of oxygen use, requirement for psychology input, need for referral to the Long Covid service and final outcome.A total of 298 patients survived to discharge from the resp HDU, 111 females(F), mean age 51.8 and 186 males (M), mean age 57.8. Average length of stay was 10.5 days F and 12.5 days M. Oxygen was required in 43%(48) F and 50% M(94) on discharge home. The majority of patients were able to come off oxygen after 2 to 4 months. Lung function was done on 25.5%. Three patients have post Covid fibrosis. Eleven patients attended psychology. Fifteen patients (5%) have been referred to Long Covid service.The short to medium term follow up of patients discharged from this Covid Resp HDU showed that the majority of patients recovered well as long as review was timely and patients felt supported on discharge.

Conflict of Interest: None to declare

8.9 Pulmonary Function Tests in COVID-19 Recovered Patients Attending a Pulmonary Rehabilitation Programme

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[1]St Vincent's University Hospital, Dublin, [2]St Michael's Hospital, Dun Laoghaire

Pulmonary Rehabilitation (PR) is a well-recognised intervention in chronic respiratory disease. Its role following COVID-19 infection is under investigation. A retrospective review of pre and post pulmonary function tests (PFT's) performed in forty patients participating in an eight week PR programme, was completed. All PFTs were carried out according to the ATS/ERS 2005 guidelines.
52% of participants were male with a mean age of 52 ± 13.2 years and BMI 33 ± 8.3 kg/m^2. Twenty five patients reported resolution of dyspnoea after the PR programme. Mean FVC, FEV1, DLCO and MEP values pre and post PR were normal, with a significant improvement in the FVC post-PR. Mean MIP was mildly reduced pre-PR with a significant improvement post-PR but it did not normalise.

Table 1 (8.9) PFT Results

Pulmonary Function Tests	Pre-PR	Post-PR	P value
FVC %predicted	100.5 ± 27.2	105.3 ± 18.7	**0.006**
FEV1%predicted	97.6 ± 20.8	100.5 ± 17.7	0.084
DLCO %predicted	83.8 ± 17.0	85.5 ± 14.7	0.397
MEP cmH_20	100.9 ± 42.6	102.4 ± 39.1	0.527
MIP cmH_20	70.4 ± 32.8	75.9 ± 31.2	**0.014**

Reduced inspiratory muscle strength is associated with dyspnoea given the post-PR improvement in this value it may be useful for patients undergoing PR post-COVID-19 infection.

Conflict of Interest: None to declare

8.10 Outcomes of patients reviewed in a Post-Covid Respiratory Clinic

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Our Lady of Lourdes Hospital, Drogheda

Covid-19 infection can result in persisting and debilitating symptoms impacting on a persons' quality of life. Here we present data from patients attending a dedicated Post-Covid Respiratory clinic.Over 350 patients have attended the Post-Covid Respiratory Clinic, with 9% having required ICU admission, 61.5% required non-ICU hospital admission and 29.5% were referred from community. Of the total patients reviewed, 43.4% were reviewed and discharged through virtual triage clinic with 56.6% requiring face to face clinic review. Of the patients attending face to face review, 67% completed a 6MWT, with 9% of these showing episodes of significant desaturation. In contrast, a high number (> 52%) of patients attending the clinic report persisting

or worsening shortness of breath since their acute infection. In addition > 50% of patients attending the clinic reported severe fatigue or brain fog, with 63% reporting they had not returned to their premorbid level of functioning.
Covid-19 symptoms may persist beyond the acute infection stage. There does not appear to be a correlation between initial severity of disease and the development of persisting symptoms. Our data shows the multisystem nature of symptoms and the need for multidisciplinary input in the follow up of patients with persisting symptoms of Covid-19.

Conflict of Interest:None to declare

8.11 Pulmonary embolism rates during different variants of SARS Cov2 an Irish tertiary hospital experience"

Joshua Olaniyi [1,2], Mary Rose Kelly [1], Ahmad Basirat [2], Carol Buckley [1], Padraig Donovan [1], Aoife O'Connor [2], Kashif Rana [1], Robert Trueick 1, Minesh Kooblall, Edward Moloney[1], Stephen Lane [1], Seamas Donnelly [1,2], Patrick Mitchell [1,2]

1Tallaght University Hospital,2 Trinity College Dublin

Introduction: Variants of SARS CoV2 has been well reported. Reports suggest, compared to non-SARS CoV2 critically ill patients, a positive SARS CoV2 diagnosis confers an increased risk of pulmonary emboli (PE). Little exists on whether variations in SARS CoV2 confers a change in rates of PE. **Aim:** Perform a retrospective cohort inpatient review at an Irish tertiary hospital with SARS CoV2 and the rates of PEs during different peak variant timelines.
Method: Two data points identified, January 2021- June 2021 (Point A), predominantly Alpha and Beta, and December 2021-January 2022 (Point B), Delta and Omicron in Ireland. Inpatients >18 years with a positive nasopharyngeal swab for SARS CoV2 were included.
Results: 640 patients were identified, 510 in Point A and 130 in Point B with 34 confirmed PEs, (5.3%). 308 were of clinical concern, with a positivity rate of 11%. In Point A, 258 were of clinical concern for PE, and 26 were positive, (9%). In Point B, 50 were of clinical concern for PE and 8 were positive, (16%). Greater rates of positive cases in Point B, Delta and Omicron predominant, were seen, a predominantly more severe or infectious variant respectively.
Conclusion: Little discussion exists on if variations in severity and or infectivity of SARS CoV2 confers an increased risk of PEs. Our data suggest, there may be an increased rate of PEs depending on the variant type of SARS CoV2.

Conflict of Interest: None to declare

8.12 Lung Function and Airway Impedance in Patients Attending Post-COVID Clinic

SF Raza[1], A Yunes[1], I Delagua[1], M Rahaman[1], E Judge[1], J Faul[1], L Cormican[1],A McGowan 1, D Ampazis[1], A Subramaniam[1,3]

1. Connolly Hospital Blanchardstown, Dublin, 3. Respiratory Integrated Care, Dublin North City & County

Forced oscillometry is used to evaluate the Respiratory system resistance (Rrs) and reactance (Xrs). It is typically used to assess patients with asthma and more recently in post-COVID patients. Our aim was to evaluate the advantage of using oscillometry in post-COVID patients attending our centre.We conducted a cross-sectional study evaluating lung function test in two group of post-COVID patients; Hospitalised patients (10 received ICU care, severe disease) versus Non-hospitalised (15, mild disease).Twenty five patients were studied, 7% patient in the mild group and 60% in the severe group had impaired lung function; restrictive pattern was more common. Alterations observed in the mild group include 20% patients with partial reversibility, 13% high resistance (Rrs) and 7% high reactance (Xrs) whilst 60% were normal. The severe group had high Xrs in 40% of cases. Oscillometry detected more abnormal cases than spirometry, 33%, mostly in the mild group. There was also a positive association between restriction and high reactance, particularly in the severe group (40%) suggesting tissue stiffness.Thus, oscillometry may be a more sensitive test than spirometry in detecting impaired lung function, particularly fibrosis in the post-COVID patients. However larger studies are necessary to better understand the utility of oscillometry in this cohort.

Conflict of Interest: None to declare

8.13 Compliance with COVID-19 protocols

Kieran Skehan, Emma Dolan, Lisa Murphy, Elaine Hayes
Our Lady Of Lourdes Hospital, Drogheda

Our Lady of Lourdes Hospital created local guidelines for management of COVID-19 patients on admission. Our audit assessed compliance with these protocols.The protocol included risk stratifying patients along with recommended investigations and drug prescriptions. Guidelines also encompassed nutritional strategies developed by OLOLH's dieticians.
A prospective review was undertaken over a 2 week period of patients presenting with COVID-19 pneumonia. Investigations reviewed included chest x-ray, arterial blood gas (ABG), C-reactive protein (CRP), procalcitonin and d-dimer. Treatments evaluated comprised of oxygen administration, anticoagulation, steroid use and nutritional supplementation.
Our initial Audit found poor compliance with the protocol. Subsequent interventions involved organized teaching sessions, development of a PDF protocol for phones and an acronym for COVID-19 prescribing was developed and displayed in the Emergency Department.Our interventions led to significant improvements in correct prescribing related to COVID-19, with correct nutritional supplement, steroid and anticoagulation prescribing increasing 58%, 29% and 25% respectively. Rates of ABG and d-dimer also increased by 54.4% and 28% respectively.

Conflict of Interest: None to declare

8.14 Six Minute Walk Test vs Sit To Stand Test in assessment of the post COVID-19 Patient

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Connolly Hospital Blanchardstown

The 6-min walk test (6MWT) is one of the most commonly used tests to assess exercise capacity in chronic respiratory conditions, however, it is a relatively time-consuming test. Previous studies have shown that Sit To Stand Test (STST) can be used as an alternative for 6MWT in patients with COPD, it is a simpler method and is just as effective to determine functional status, as well as being less time consuming and producing less hemodynamical stress compared to 6MWT.Given the large number of patient that required assessment in the post COVID setting, we wanted to assess whether STST could be used as an alternative to 6MWT in the assessment of post COVID-19 patients. We conducted a retrospective study of 80 patients, 40 of whom underwent a 6MWT and 40 a STST, they were matched according to age, gender and clinical course of their COVID-19 infection. The results in terms of dysponea, BORG score and heart rate post 6MWT and STST were similar between the two cohorts. As like as 6MWT, STST can determine functional status post COVID-19, whilst been less time consuming. STST should be considered as an alternative for 6MWT in assessment of patients post COVID-19.apnoea is a potential manifestation of Long Covid syndrome and intervention is effective as already established.

Conflict of Interest: None to declare

8.15 Dysfunctional Breathing Phenotype in Post COVID Patients

A Yunes[1], SF Raza[1], I Delagua[1], A Valenzona[1], M Rahaman[1], E Judge[1], J Faul[1], L Cormican[1], D Ampazis[1], A Subramaniam[1,3]

1. Connolly Hospital Blanchardstown, 3. Respiratory Integrated Care, Dublin North City & County

There is increasing awareness of dysfunctional breathing (DB) causing debilitating symptoms with negative impact on functional status and quality of life. Post COVID patients often present with persistent dyspnoea after acute illness and identifying DB in this cohort can help tailor management. We aimed to describe the DB phenotype in patients attending the post COVID clinic in our centre.A retrospective review was conducted on patients attending the service over 5 months. All patients were screened for DB using Nijmegen questionnaire (NQ) and results were correlated with age, gender, BMI and smoking status.124 patients attended the service in this period, of which 25 patients (20%) had a positive NQ score, confirming DB. Mean age was 55 ± 13 years, and 68% were female. Majority had an elevated BMI; 20% were overweight and 64% were obese; mean BMI was 33 ± 10 kg/m^2. Fifty-two percent were either current or ex-smokers.In conclusion, DB is not uncommon in post COVID patients. It is more likely to be observed in female, younger patients and those with elevated BMI. Smoking status showed no relation with DB. Larger studies on DB phenotypes in post COVID patients would enable better recognition and timely treatment.

Conflict of Interest: None to declare

(8.16.Not for Publication Analysis of T-cell subsets and their mitochondrial status response to SARS-CoV2 spike peptide activation in COVID-19 patient PBMC samples)

8.17 Follow-Up of Survivors of Critical Illness Related to Covid-19 Infection; A Pilot study

Cara Weldrick [1], SN Mary Flavin [2], Seosaimh Ni Riain [3]

University Hospital Limerick

Recent improvements in ICU care has seen a significant increase in the number of patients surviving critical illness. However patients face a wide variety of challenges after discharge. Our study aimed to establish whether patients who had been admitted to an ICU with Covid- 19 pneumonia had persisting deficits 1 year after admission. We conducted a qualitative pilot study of patients that were admitted to the ICU from March 2020 to March 2021 with Covid- 19 infection. A structured interview approach was used to collect outcomes assessing physical, functional and psychological domains. 80% of patients reported that they had not returned to their pre-morbid activity level. 93.3% of patients reported at least one physical impairment. Only 45% of patients had returned to full time employment. A total of 80% of patients reported psychiatric impairment and 40% of patients had an abnormal Hospital Anxiety and Depression scale. The results of our study illustrate the presence of significant physical, psychological and cognitive symptoms experienced by ICU survivors up to 1 year post discharge. The data from our study data is a strong argument on the need for a comprehensive follow-up service post ICU admission to address the complex sequelae of critical illness.

Conflict of Interest: None to declare

Irish Thoracic Society Poster Review and Discussion
Friday 2nd December 2022
General Respiratory

9.1 Evaluating Liver Disease in Alpha-1 Antitrypsin Deficiency (AATD)

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Royal College of Surgeons Ireland

Alpha-1 Antitrypsin Deficiency (AATD) is the commonest genetic cause of COPD, while also increasing susceptibility to liver disease. This study aimed to examine the extent of liver disease in AATD patients in Ireland.This cross-sectional study included 169 patients from the Irish National AATD registry. "PiZZ", "PiSZ" and "PiMZ" genotypes were assessed using FibroScan; a transient elastography (TE) instrument for non-invasive evaluation of liver steatosis and fibrosis. TE's Controlled Attenuation Parameter (CAP [dB/m]) and Liver Stiffness Measurement (LSM [kPa]) assesses steatosis and fibrosis, respectively.32% of "PiZZ" patients showed LSM values ≥ 7.1 kPa (stage 2 fibrosis) with an overall mean of 8.41 kPa. In "PiSZ" and 'PiMZ" patients, 24% LSM values were ≥ 7.1 kPa with a mean of 6.76 kPa and 6.68 kPa, respectively. All cohorts showed significant levels of steatosis with 71% of "PiMZ' and 60% of "PiSZ" patients yielding a CAP value ≥ 238 dB/m (stage 2 steatosis).
Liver steatosis and fibrosis is under-recognised in AATD. TE is a quick, quantitative, non-invasive imaging modality that is more sensitive than ultrasound in identifying steatosis and fibrosis and could be more readily used to facilitate the work-up of AATD patients and identify those with asymptomatic advancing liver disease.

Table 1 (9.1) Characteristics of "PiZZ", "PiSZ" and "PiMZ" Phenotypes

	ZZ	SZ	MZ	All Phenotypes
Demographics				
n =	74	25	70	169
Male	34	10	34	78
Female	40	15	36	91
Age (Mean)	52.88 (17.14)	57.90 (11.58)	53.17 (15.19)	53.74 (15.64)
Height (cm) (mean ± SD)	169.83 (9.05)	163.14 (9.03)	168.43 (9.55)	168.29 (9.43)
Weight (kg) (mean ± SD)	80.19 (20.7)	74.37 (13.87)	79.10 (16.57	78.87 (18.64)
BMI (kg/m^2) (mean ± SD)	27.76 (6.8)	28.09 (5.46)	27.92 (5.63)	27.86 (6.25)
FibroScan Finding				
CAP (dB/m)	253.78 (72.91)	258.84 (53.06)	276.96 (60.7)	264.13 (65.92)
n = S0 (< 238)	33	10	20	63
n = S1 (238–260	6	4	3	13
n = S2 (260–290)	7	3	15	25

	ZZ	SZ	MZ	All Phenotypes
n = S3 (> 290)	28	8	32	68
LSM (kPa)	8.41 (8.55)	6.76 (4.83)	6.68 (4.56)	7.45 (6.66)
n = F0-1 (< 7)	50	19	53	122
n = F2 (7–11)	14	4	10	28
n = F3 (11–19)	4	1	5	10
n = F4 (> 19)	6	1	2	9

Conflict of Interest: None to declare

9.2 Calibrated automated thrombography demonstrates a hypocoagulable profile in subjects with pulmonary arterial hypertension

Sarah Cullivan[1,2], Brian McCullagh[1],Barry Kevane,[2,1], Patricia Maguire[2], Fionnuala Ni Áinle[2,1] and Sean Gaine[1]

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There is considerable interest in the role of platelets and blood coagulation in the pathobiology of pulmonary arterial hypertension (PAH). The aim of this study is to characterise thrombin generation in PAH using calibrated automated thrombography (CAT). Institutional ethical approval was granted. Thrombin generation using CAT was performed using a Fluoroskan Ascent® Plate Reader and Thrombinoscope™ software.In the period between July 2020 and July 2022, 20 individuals with PAH and 20 healthy volunteers were recruited to this study. Platelet counts were significantly lower in individuals with PAH relative to healthy controls (p = 0.0053). Mean platelet volume was significantly higher in PAH subjects at 10.8 fL versus 8.2 fL (p = 0.0001) respectively. CAT parameters also differed between groups, as individuals with PAH had significantly lower endogenous thrombin potential, peak thrombin generation and thrombin generation velocity index in both platelet-rich and platelet-poor plasma, suggesting a hypocoagulable profile (Table 1).This data demonstrated a hypocoagulable profile in subjects with PAH. This may represent an 'exhaustion effect' of coagulation factors due to sustained and prolonged activation of the procoagulant pathways in the pulmonary circulation. The clinical implications of these results are immensely relevant and support the shift away from empiric anticoagulation in this population.

Table 1 (9.2) Calibrated automated thrombography in pulmonary arterial hypertension

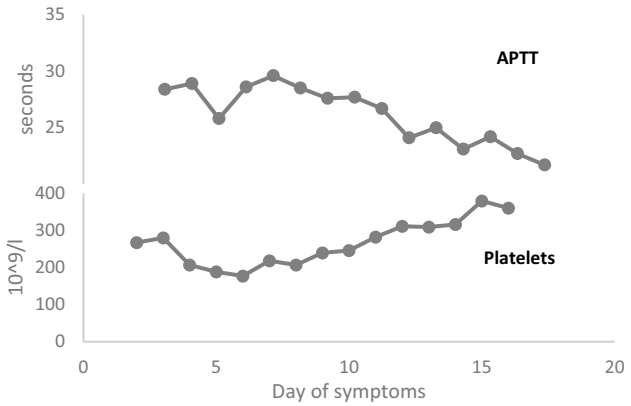

Table 1 Provides an overview of laboratory parameters and thrombin generation characteristics in platelet-rich plasma and platelet-poor plasma in subjects with pulmonary arterial hypertension (PAH) and healthy controls. Values are expressed as mean ± standard deviation unless otherwise specified. *Median (Interquartile range). *Abbreviations: APPT: Activated partial thromboplastin time; VI: Velocity index.*

References

1. Vrigkou, E., et al., *Coagulation Profiles of Pulmonary Arterial Hypertension Patients, Assessed by Non-Conventional Hemostatic Tests and Markers of Platelet Activation and Endothelial Dysfunction.* Diagnostics (Basel), 2020. 10(10)
2. Melnichnikova, O., et al., *The dynamics of thrombin formation in patients with pulmonary arterial hypertension.* Thrombosis Research, 2021. 208: p. 230-232.

Conflict of Interest:None to declare

9.3 Inhibition of C3d signalling downregulates NLRP3 inflammasome activation and IL-1β production in monocytes of individuals with alpha-1 antitrypsin deficiency

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Alpha-1 antitrypsin (AAT) deficiency (AATD) is characterised by sustained inflammation. Elevated levels of the complement activation product C3d were previously detected in plasma and airway samples, and correlated with airway obstruction. The aim of this study was to investigate C3d as a trigger of monocyte activation that drives inflammation in AATD.Blood was collected from patients with AATD (n = 9, mean FEV1: 45.16% ± 22.88) or healthy control donors (HC) (n = 16). Purified monocytes were challenged with C3d and key markers of monocyte activation, including phosphorylated p85, AKT, as well as caspase-1 and NLRP3 required for IL-1β activation, were measured by qPCR, ELISA or western blot analyses. In AATD, increased monocyte membrane expression levels of C3d (P = 0.006) and cognate receptor CR3 (P = 0.003), triggers IL-1β secretion (P < 0.001). Mechanistically, C3d, but not C5, increased IL-1β expression and secretion through the PI3/AKT/NF-κβ pathway, activating the NLRP3 inflammasome (P < 0.001). In corroboration, AATD monocytes demonstrated increased cytosolic calcium levels (P < 0.001) and caspase-1 activity (P < 0.0001), effecting increased plasma IL-1β levels (P < 0.001). In vitro, exogenous, glycosylated AAT, binds C3d (P = 0.0008) and modulates inflammasome activation (P = 0.001).These results demonstrate that the C3d:CR3-inflammasome axis may represent a key target in regulating the inflammatory response in AATD monocytes, and is significantly downregulated by exogenous AAT. This is of particular interest as intravenous AAT to treat AATD-related lung disease, remains unavailable for people with AATD. This project was funded by the US Alpha-1 Foundation (Grant # 615848) and HRB/HRCI Ireland (Grant # HRB /MRCG-2018-04).

Conflict of Interest: None to declare

9.4 Use of High Flow Nasal Oxygen in Beaumont Hospital and Development of A Local Guideline

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Beaumont Hospital, Dublin

High flow nasal oxygen (HFNO) as a non-invasive respiratory support is increasingly used in the management of acute hypoxaemic respiratory failure (AHRF)[1]. International society guidelines with specific recommendations on settings, titration and weaning protocols are

lacking. We undertook an audit to assess the use of HFNO in Beaumont Hospital and developed a local guideline, Fig. 1.
We reviewed the medical records of inpatients on general wards using HFNO over the course of one week. Patient demographics, indication, presence of written prescription and level of monitoring with arterial blood gas/vital signs were recorded. A local guideline to improve the use of HFNO in our hospital was developed based on current literature. The medical records of 13 patients, 54% female, were reviewed. The mean age was 68 years. The most common indications for HFNO were AHRF (54%), airway clearance (31%) and type 2 respiratory failure (15%). 31% of patients had a documented ABG prior to commencing HFNO, and 46% ABG post-HFNO initiation. Only 15% of patients had a written HFNO prescription.
We found several areas for improvement in the prescribing, documentation and use of HFNO. We will re-audit the use of HFNO following introduction of our guideline to assess its impact.

References

1. Oczkowski S, Ergan Büm, Bos L, et al. ERS Clinical Practice Guidelines: high-flow nasal cannula in acute respiratory failure. Eur Respir J. 2022; 59(4).

	PAH subjects (n=20)	Healthy Volunteers (n=20)	P-value
Laboratory parameters, mean (SD)			
Haemoglobin (g/dL)	15.0 ± 1.6	13.9 ± 1.2	**0.0186**
Platelet count (x10⁹/L)	210.9 ± 64.6	265.2 ± 49.9	**0.0053**
Mean Platelet volume (fL)	10.8 ± 1.0	8.2 ± 1.5	**0.0001**
Prothrombin time (s)	12.1 ± 1.5	---	---
APTT (s)	31.8 ± 5.3	---	---
Fibrinogen(mg/dl)	3.0 ± 0.7	---	---
D Dimer(mg/L), median (IQR)	0.7 (1.5)*	---	---
Calibrated automated thrombography			
Platelet-rich plasma			
Lag time (min)	7.0 ± 2.8	7.1 ± 1.8	0.8938
*Endogenous thrombin potential (nm*mins)*	1325.3 ± 341.3	2008.4 ± 796.6	**0.0011**
Peak thrombin (nm)	90.9 ± 24.8	166.7 ± 72.2	**0.0001**
Thrombin generation VI (nm per mins)	10.8 ± 5.1	23.2 ± 16.7	**0.0030**
Platelet-poor plasma			
Lag time (min)	3.7 ± 3.4	4.4 ± 2.4	0.4566
*Endogenous thrombin potential (nm*mins)*	1336.3 ± 374.9	1720.1 ± 535.6	**0.0124**
Peak thrombin (nm)	195.2 ± 53.4	261.5 ± 92.1	**0.0083**
Thrombin generation VI (nm per mins)	51.9 ± 19.5	83.5 ± 52.6	**0.0161**

Conflict of Interest: None to declare

9.5 Physiotherapy-led Lung Ultrasound in a Cardiothoracic Unit: A Service Evaluation

Aisling Hennessy

Blackrock Clinic, Dublin

The use of lung ultrasound (LUS) by respiratory physiotherapists is increasing due to greater diagnostic accuracy of LUS compared to conventional assessment tools of auscultation and chest x-ray interpretation in identifying post-operative pulmonary complications (PCC) such as consolidation, pleural effusion, pneumothorax and interstitial syndrome. The aim of this service evaluation was to explore the use of LUS by physiotherapy in a post cardiothoracic surgery population.All cases between September 2021 and April 2022 where physiotherapy assessment incorporated LUS were retrospectively reviewed. Data collected included trigger for LUS assessment, LUS findings and recommendations based on findings. Data was analysed using descriptive statistics.Forty-two patients were assessed using LUS. Triggers for LUS assessment included failure to wean from mechanical ventilation (n = 3), failure to wean from oxygen therapy (n = 28) and dyspnoea limiting rehabilitation (n = 11). Findings are outlined in Fig. 1. Based on findings further physiotherapy treatment including airway clearance and volume recruitment was recommended in 11 cases. In 31 cases findings were not amenable to physiotherapy and were escalated to the medical team. Timely and appropriate treatment of PPC hinges on accurate diagnosis. Use of LUS aids the identification of PCC amenable to physiotherapy and expedites escalation of cases not amenable to physiotherapy.

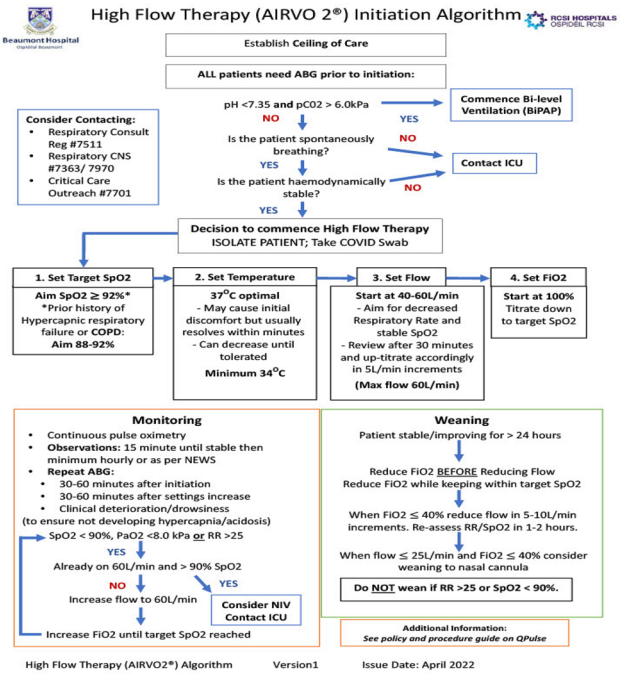

Fig. 1(9.5) Lung ultrasound assessment findings

Conflict of Interest: None to declare

9.6 Missed opportunities—need for venous thromboembolism prophylaxis not being identified at time of discharge following hospitalisation during pregnancy

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1. Beaumont Hospital, Dublin, 2. Royal College of Surgeons in Ireland;3.Rotunda Hospital, Dublin

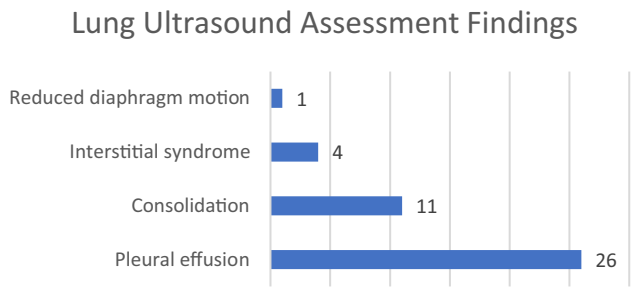
Background: Maternal death enquiries have highlighted venous thromboembolism (VTE) as the fourth leading cause of maternal death[1,2]
Aim: to audit quality of care in the diagnosis and discharge prophylaxis of VTE in pregnant patients admitted medically
Standard: Royal College of Obstetrics and Gynaecologists (RCOG) Green-top Guidelines 37a and 37b[3,4]
Method: Pregnancy-related admissions to Beaumont Hospital (BH) from 2019-2021 were identified using Hospital In-Patient Enquiry.

Retrospective chart review was performed against RCOG guidelines-based audit tool.
Results: 54 patients had diagnostic code for pregnancy. 20 (37%) were respiratory presentations, of which 14 (70%) were query pulmonary embolus with 1 (7%) subsequently confirmed. 6 of 20 (30%) had delayed time to chest x-ray (CXR), with 2 (14%) never undergoing CXR. Nine (65%) underwent CT pulmonary angiogram, 2 (14%) had perfusion scanning. 28% had no VTE diagnostic imaging despite working diagnosis of VTE, of which x (%) had empiric treatment. There was no documentation of VTE risk assessment on discharge, despite 57% meeting RCOG criteria for VTE prophylaxis during pregnancy.
Conclusion: this audit identified delays and omissions in diagnosis and prophylaxis of VTE in admitted pregnant patients. Addressing thrombo-prophylaxis at time of discharge in this at risk group is a priority audit outcome.

References

1. NPEC 2019
2. MBRRACE UK 2021
3. RCOG green-top guideline 37a
4. RCOG green-top guideline 37b

Fig. (9.6) Percentage of pregnant patients admitted with working diagnosis of pulmonary embolism who received recommended standard of care in diagnostic imaging and anticoagulation during admission and on discharge



Conflict of Interest: None to declare

9.7 Are We On The Right Trach? A Tracheostomy Service QI in an Acute Teaching Hospital

Eimear McCormack (PT), Sarah Rowland (SLT), Siobhan Connors (CCO), Paul Tierney (Anaesthetics)

Tallaght University Hospital, Dublin

Both the Intensive Care Society and UK National Confidential Enquiry into Patient Outcomes & Death recommend implementation of tracheostomy MDT's. Our tracheostomy MDT consisted of anaesthetics, critical care outreach, clinical specialist PT and SLT. Weaning assessments/goals, tube changes and decannulation plans were discussed with outcomes documented in health care records (HCR). Following ethical approval, 14 HCRs were retrospectively reviewed for baseline data. This was compared to 14 HCRs post MDT. Inclusion: tracheostomy to facilitate mechanical ventilation (MV) wean. Exclusion: tracheostomy for airway obstruction. We studied the effect of weekly MDT meetings on; (i)time to decannulation, (ii)evidence of MDT weaning assessments/plans, (iii)MDT goal setting, (iv)compliance with 30-day timeframe for tube changes and (v)time to wean from MV. Our findings included; decrease in median time to decannulation from 42 to 26 days. Increase in compliance with documented weaning assessment/plans and goal-setting from 0 to 100%. Decrease in median time to wean from MV from 12 to 8 days. Pre MDT compliance with tube changes was 58.3% with 41.7% failing to meet 30-day timeframe with no medical cause documented. Post MDT 57.2% of patients were decannulated before the 30-day tube change timeframe. The remaining 42.8% had tube changes on-time or delayed with medical cause.

References

1. Cameron, T., McKinstry, A., Burt, S., Howard, M., Bellomo, R., Brown, D., Ross, J., Sweeney, J., & O'Donoghue, F. (2009). Outcomes of patients with spinal cord injury before and after introduction of an interdisciplinary tracheostomy team. *Critical Care and Resuscitation, 11*(1), 14–19.
2. Cetto, R., Arora, A., Hettige, R., Nel, M., Benjamin, L., Gomez, C., Oldfield, W. & Narula, A. (2011). Improving tracheostomy care: a prospective study of the multidisciplinary approach. *Clinical Otolaryngology, 36*(5), 482–488.
3. de Mestral, C., Iqbal, S., Fong, N., LeBlanc, J., Fata, P., Razek, T., & Khwaja, K. (2011). Impact of a specialized multidisciplinary tracheostomy team on tracheostomy care in critically ill patients. *Canadian Journal of Surgery, 54*(3),167–172.
4. Hernández Martinez, G., Fernandez, R., Sánchez Casado, M., Cuena, R., Lopez-Reina, P., Sergio, Z., Luzon, E. (2009). Tracheostomy tube in place at intensive care unit discharge is associated with increased ward mortality. Respiratory Care, *54*(12):1644–52.
5. Pandain, V., Miller, C., Mirski,., Schiavi, A., Morad, A., Vaswani R., Kalmar, L., Feller-Kopman D., Haut, E., Yarmus, L., Bhatti, N. (2012). Multi-disciplinary team approach in the management of tracheostomy patients. *Otolaryngology Head Neck Surgery, 147*(4): 684–691.
6. Santos, A., Harper, D., Gandy, S., & Buchanan, B. (2018). The positive impact of multidisciplinary tracheostomy team in the care of post-tracheostomy patients. *Critical Care Medicine, 46*(1), 591–591.

Conflict of Interest: None to declare

9.8 Do we appropriately investigate our patients with Pulmonary Emboli to stratify severity using local management guidelines?

Eimear Connolly[1], Elaine Hayes[1], Tidi Hassan[1], Ian Counihan[1]

[1] *Our Lady of Lourdes Hospital, Drogheda*

Pulmonary embolism (PE) is a common presentation to acute hospitals. A local guideline based on the 2019 European Society of Cardiology guidelines was developed to optimise management of patients diagnosed with a PE and guide thrombolysis administration. It uses laboratory and radiologic investigations along with vital signs to stratify patients with PE into non-massive, low risk submassive, high risk submassive and massive, to guide management accordingly, based on severity. This audit was preformed to assess adherence to this PE management guideline. All patients discharged with a diagnosis of PE over a 6-month period (January 2022- June 2022) were identified, and charts reviewed to assess if patients had the required investigations done namely echocardiogram, arterial blood gas (ABG), Troponin, BNP and lactate levels. 43 patients were initially identified. Only 25 charts were available for inclusion (n = 25). Of these patients, only 36% had an ABG (n = 9), 60% (n = 15) had an echocardiogram, 32% (n = 8) had a BNP test, while 72% (n = 18) had a troponin checked. Only 1 patient had all 5 relevant investigations done. This highlights a lack of awareness of how to stratify PE severity and the potential for improving management of PEs with increased education around this local guideline.

Conflict of Interest: None to declare

9.9 Profiling patient demographics and patient journey in an unscheduled care respiratory inpatient rehabilitation service using a prospective database

Elaine Cribbin[1], Michelle Fitzgerald[1], Lijji Joseph[1], Patrick Mitchell[1],, Catherine Slattery[1], Sindhu Xavier[1], Eddie Moloney[1], Stephen Lane[1], Minesh Kooblall[1]

1 Peamount Healthcare, Dublin

Peamount Healthcare is a specialist inpatient multidisciplinary rehabilitation unit. Capturing patient profile and service key performance indicators (KPIs) are essential to support service quality and development. The aim was to profile patient demographics and service provision using KPIs in a new database. A new prospective database was developed. All patients (N = 19) admitted for inpatient respiratory rehabilitation from acute hospitals over a one-month pilot-period were included. Data was analysed using MS excel. The most common presenting conditions were COPD (N = 8), post- covid (n = 6) and other (n = 5). Most patients were female (n = 11); average age 68.5 (range 42-82). Physiotherapy was the most common HSCP referral (n = 19), followed by dietician (n = 9) and occupational therapy (n = 8). The average Charlson Comorbidity Index was 4.8 (range 3-7), and Rockwood Frailty Score was 4.2 (range 2-7). Of the patients discharged home during the pilot (n = 10), the average LOS was 11 days (range 3-18). A new database was successfully implemented for a one-month pilot, resulting in the creation of a profile of both patient demographics and service provision in an inpatient respiratory rehabilitation service. Further analysis of data is warranted to discern missing data and staff experience of the database. It is planned to continue with the database and expand the measures included.

Conflict of Interest: None to declare

9.10 Hereditary Haemorrhagic Telangiectasia – an update on national numbers

Sean Landers[1], Art Kelleher[1], Laura Monaghan[1], Emily O'Reilly[1], Margaret Murphy[2], Adrian P Brady1, Terence M O'Connor[1]

[1] Mercy University Hospital, Cork

Since 2003, the Mercy University Hospital Cork has been the national centre for Hereditary Haemorrhagic Telangectasia (HHT) in Ireland. The centre's mission is to identify as many affected individuals and families as possible and offer screening for and management of the condition's many manifestations. Complications include vascular malformations (lung, brain, liver typically), epistaxis and telangectasia. Screening consists of clinical history, genetic testing, bubble study echocardiography, CT-Thorax and MRI Brain. The Mercy University Hospital has assessed 704 patients thus far through tracking index cases and their relatives, with 298 confirmed diagnoses of HHT.
It is estimated that only 10% of affected individuals with HHT have been formally diagnosed globally. We show that a large proportion of patient with HHT develop severe complications (epistaxis (360 patients) and pulmonary AVMs (300 positive bubble study echocardiograms) being the most common complications seen).

Conflict of Interest: None to declare

9.11 Improving Patient Preparation for Bronchoscopy and Endobronchial Ultrasound-guided Transbronchial Biopsy

Caoimhe McGarrigle[1], Terence McManus[2], Juan Pastrana[3], Jason Wieboldt[4], Jan Kara[5], Frederick Opoko[6]

South West Acute Hospital, Enniskillen

Bronchoscopy and endobronchial ultrasound-guided transbronchial biopsy (EBUS-TBNA) is a procedure preformed for the diagnosis of chest pathology[1]. It is a carried out in the day procedure unit and elective patients should have investigations including bloods, electrocardiogram (ECG) and pulmonary function testing and a review of medications and comorbidities completed prior to procedure. It was noted that errors in patient preparation was leading to delays in procedures, late cancellations and medication errors. The aim of this quality improvement project was to reduce the mean number of errors per patient in patient preparation by half in 6 months to provide an efficient and safe service for patients.We retrospectively assessed the preparation of patients undergoing bronchoscopy ± EBUS-TBNA from January 2022 using 12 different parameters which should be addressed in procedure preparation. This baseline data showed a mean error per patient of 0.53. The baseline data was also used to identify patterns and barriers that prevent adequate patient reparation and targeted interventions were used to address these including introducing plans with laboratories for samples, feedback to consultants and the introduction of a check list locally.
Nakajima, T., Yasufuku, K. & Yoshino, I. Current status and perspective of EBUS-TBNA. *Gen Thorac Cardiovasc Surg* **61**, 390–396 (2013).

Conflict of Interest: None to declare

9.12 A Comparison of the ERS 1993 and GLI 2012 Reference Equations for Spirometry in a Waterford Cohort of Patients

Rebecca Murphy[1], David Collins[1], Mark Rogan[1], Susan Foley[1]

1.University Hospital Waterford

This study compared two different sets of reference equations for spirometry: the European Coal and Steel Community (ECSC) 1993 update and the Global Lung Function Initiative (GLI) 2012 reference equations for spirometry to investigate if there is an impact on disease classification. Retrospective spirometry data was collected from 250 subjects from the University Hospital Waterford patient database over an eight month period, subdivided by gender and grouped by age, with five age categories ranging from 36 to 85 years of age with 25 males and 25 females in each category. Predicted values and LLNs for FEV_1, FVC, and FEV_1/FVC ratio were then calculated using both sets of reference equations. The values were then analysed for each subject and was noted as correctly classified or misclassified.Under the ECSC reference values, 11.20% of male subjects and 7.20% of female subjects were misclassified using the FEV_1/FVC ratio (18.4% of patients were misclassified as having disease). In subjects aged 56 to 85, there was a 24-30% rate of misclassification. We propose that GLI reference equations are universally adopted to standardise Spirometry testing in Ireland.

Conflict of Interest: None to declare

9.13 Investigating the Role of PPAR-δ in Mesenchymal Stromal Cell Therapy for Acute Respiratory Distress Syndrome

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Mesenchymal Stromal Cells (MSCs) have attracted attention as a cell-based therapy due to their immunomodulatory and immunoregulatory properties. MSCs have been investigated in clinical trials for the treatment of a variety of inflammatory conditions, such as Acute Respiratory Distress Syndrome (ARDS). Studies have shown that MSCs require activation, known as 'licensing', in order to be considered efficacious. The disease micro-environment is thought to contribute; primarily due to the presence of pro-inflammatory cytokines,

such as TNF-α and IFN-γ, which are known to license MSCs. Other factors, such as the Peroxisome Proliferator-Activated Receptor delta (PPAR-δ), have shown to negatively regulate MSCs; reducing MSC efficacy in vivo upon stimulation. Free fatty acids (FFAs) are thought to be natural ligands for PPAR-δ and this implies that patients, or delivery sites, with abundant FFAs will show poor outcomes to MSC therapy. Interestingly, our data also demonstrates that antagonism of PPAR-δ can enhance MSC therapeutic efficacy. This study kick-starts a dialogue about factors that may be present in patients that can negatively affect cell-based therapeutic efficacy. To investigate the mechanisms associated with PPAR-δ modulation of MSC function, we have developed chemical antagonists, agonists and shRNA knockdown approaches and use an Acute Lung Injury (ALI) mouse model.

Conflict of Interest: None to declare

9.14 Why has the decline in smoking among Irish teenagers stopped?

Salome Sunday[1] Joan Hanafin[1], Luke Clancy[1]

[1] Tobacco Free Research Institute Ireland (TFRI), TU Dublin—FOCAS Research Institute

As reported previously[1], in Ireland, teen smoking decreased from 41% in 1995 to 13.1% in 2015. But, in 2019, current smoking increased overall to 14.4% from 13.1% in 2015, with the prevalence in 2019 being greater in boys than girls (16.2%) vs (12.8%). This is a serious threat to Ireland's tobacco endgame.We used data from 1,493 (2015 wave) and 1,949 students (2019 wave) of ESPAD Ireland (European School Survey Project on Alcohol and other Drugs) to analyse the use of tobacco products by teenagers and offer an explanation for the increase. Adjusted incidence risk ratios (IRR) for current smoking were estimated using a Poisson regression analysis.The increase in current cigarette smoking in 16-year-olds in Ireland between 2015 and 2019 was associated with an increasing use of e-cigarettes as well as with having peers who smoke. Lack of parental regulation increased the odds of smoking.

Our findings highlight the negative impact that increased youth e-cigarette use has had on current teenage cigarette smoking. We recommend extending tobacco control legislation regarding minors to include e-cigarettes. This may be desirable to prevent exposure to secondhand aerosol (SHA) but also because of the possible renormalisation of smoking.

Conflict of Interest: None to declare

Funders: RCDHT Grant No. 184; Department of Health ESPAD Grant.

[1] Sunday S, Hanafin J, Clancy L. Increased smoking and e-cigarette use among Irish teenagers: A new threat to Tobacco Free Ireland 2025. ERJ Open Res 2021; (https://doi.org/10.1183/23120541.00438-2021).

Table 1 (9.14) Sample Characteristics, and Poisson regression results (Adjusted Incidence Risk Ratios - IRR) of factors associated with current smoking in 16-year-olds, based on data from the Irish 2015 & 2019 ESPAD Surveys

	Sample Characteristics		Poisson Regression Results Current smoking (16-year-olds)		
	2015 n (%)	2019 n (%)	Total Adjusted IRR (95% CI)	Male Adjusted IRR (95% CI)	Female Adjusted IRR (95% CI)
Year					
2015	1493	–-	1	1	1
2019	–-	1949	**0.91 (0.85, 0.98)***	0.91 (0.82, 1.00)	0.95 (0.86, 1.05)
Gender					
Male	752 (51.1)	946 (48.5)	1		
Female	720 (48.9)	1003 (51.4)	1.00 (0.93, 1.07)	N/A	N/A
Ever-used e-cigarettes					
No	1088 (77.0)	1219 (62.7)*	1	1	1
Yes	325 (23.0)	723 (37.2)	**1.27 (1.16, 1.40)***	**1.33 (1.17, 1.51)***	**1.27 (1.11, 1.45)***
Current e-cigarette use					
No	1270 (89.9)	918 (84.5)*	1	1	1
Yes	143 (10.1)	351 (18.1)	**1.45 (1.31, 1.61)***	**1.39 (1.21, 1.60)***	**1.49 (1.26, 1.75)***
Household composition					
Single parent	262 (17.8)	371 (19.0) *	1	1	1
Two parents	1109 (75.3)	1490 (76.4)	0.90 (0.83, 0.98)*	0.88 (0.78, 0.99)*	0.93 (0.82, 1.05)
Blended family	101 (6.9)	88 (4.5)	0.84 (0.71, 0.99)*	0.87 (0.68, 1.11)	0.81 (0.64, 1.03)
Parental Regulation					
Know always	906 (62.7)	1194 (63.2)	1	1	1
Know quite often	337 (23.3)	455 (24.1)	0.97 (0.89, 1.06)	0.97 (0.86, 1.09)	0.97 (0.86, 1.10)
Know sometimes	128 (8.9)	166 (8.8)	1.16 (1.04, 1.30)*	1.15 (0.98, 1.34)	1.16 (0.98, 1.38)
Usually don't know	73 (5.1)	74 (3.9)	**1.25 (1.07, 1.45)***	**1.28 (1.06, 1.53)***	**1.23 (0.92, 1.63)**

	Sample Characteristics		Poisson Regression Results Current smoking (16-year-olds)		
	2015 n (%)	2019 n (%)	Total Adjusted IRR (95% CI)	Male Adjusted IRR (95% CI)	Female Adjusted IRR (95% CI)
Peer smoking	478 (33.4)	558 (29.8)	1	1	1
None	802 (56.1)	1125 (60.1)	1.00 (0.92, 1.08)	0.99 (0.89, 1.11)	1.01 (0.90, 1.13)
A few/some	150 (10.5)	188 (10.1)	**1.20 (1.06, 1.35)***	1.08 (0.92, 1.28)	**1.33 (1.13, 1.57)***
Most/all					

**Statistical significance at p < .05*

15 Factors Associated with E-Cigarette Use in Young Adults

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The increase in e-cigarette ever and current use among young people represents a growing concern for tobacco control efforts in Ireland. Identifying factors associated with increasing prevalence offers the opportunity to develop appropriate preventative interventions.Using cross-sectional data from 5,190 20-year-olds in the Growing up in Ireland (GUI) survey (Wave 4, 2019), we performed stepwise logistic regression analyses to examine e-cigarette prevalence and factors associated with e-cigarette use in this age group. The prevalence of e-cigarette ever-use was 47.8% and current use was 13.4%. E-cigarette ever and current users were significantly more likely to be male (AOR 1.63 vs 1.71 for females), ever-smokers (AOR:2.99 vs AOR:5.25), current smokers (AOR:1.68 vs AOR:3.22), and ever cannabis users (AOR:2.28 vs AOR:1.97). E-cigarette ever-users were more likely to ever-use alcohol (AOR:3.65) and non-prescribed drugs (AOR:1.44). E-cigarette ever and current use was inversely associated with high leaving certificate points (ever-use: AOR 0.30; current use: 0.49) and being in two-parent families (current use AOR: 0.61).Ever and current e-cigarette use was high among 20-year-olds in this study. Our findings suggest that poly-drug use needs to be addressed simultaneously with e-cigarette prevention strategies to be successful.

Table 1 (9.15) Multivariable (stepwise) logistic regression of e-cigarette ever and current use among young adults

	N (%) N = 5190	**Ever used e-cigarettes N = 2460 (47.8%)**	**Current e-cigarettes use N = 690 (13.4%)**
		AOR (95% CI)	**AOR (95% CI)**
Gender	2548 (49.10)	*Reference*	*Reference*
Female	2642 (50.90)	**1.63 (1.37, 1.94)**	**1.71 (1.30, 2.25)**
Male			
Religion	1502 (28.99)	*Reference*	-
None	2831 (54.65)	-	
Catholic	758 (14.63)	-	
Other Christian	89 (1.72)	0.85 (0.72, 1.01)	
Other			
Leaving Cert points	1110 (23.32)	*Reference*	*Reference*
Low Achieving	1438 (30.21)	**0.58 (0.45, 0.76)**	-
Medium Achieving	1439 (30.23)	**0.45 (0.35, 0.58)**	**0.67 (0.49, 0.92)**
Medium High Achieving	773 (16.24)	**0.30 (0.23, 0.40)**	**0.49 (0.32, 0.75)**
High Achieving			
Ever smoked	1344 (26.10)	*Reference*	*Reference*
No	3807 (73.90)	**2.99 (2.36, 3.78)**	**5.25 (2.66, 10.34)**
Yes			
Current smoking	3204 (62.20)	*Reference*	*Reference*
No	1947 (37.80)	**1.68 (1.38, 2.04)**	**3.22 (2.40, 4.31)**
Yes			
Ever alcohol use	185 (3.58)	*Reference*	-
No	4967 (96.42)	**3.65 (1.54, 8.62)**	
Yes			
Ever tried cannabis	1992 (39.46)	*Reference*	*Reference*
No	3055 (60.54)	**2.28 (1.88, 2.76)**	**1.97 (1.41, 2.74)**
Yes			
Ever used non-prescribed drugs	3673 (71.55)	*Reference*	-
No	1460 (28.45)	**1.44 (1.14, 1.82)**	
Yes			
Household type	1139 (23.31)	-	*Reference*
Single	3748 (76.69)		**0.61 (0.43, 0.85)**
Couple			

Conflict of Interest: None to declare

Irish Thoracic Society Poster Review and Discussion

Friday 2nd December 2022
Telehealth

10.1 A Stimulating Review: Use of Video Consultation in the Management of Narcolepsy

Louise Byrne[1], Lisa Slattery[1], Deirdre O'Rourke[1], Barry Kennedy[1], Brian Kent[1]

[1]St. James's Hospital, Dublin

Narcolepsy is an uncommon chronic sleep disorder, characterised by excessive daytime sleepiness, cataplexy, and fragmented nocturnal sleep. The majority of people with narcolepsy require ongoing pharmacotherapy with frequent adjustment of agent and/or dosage. A video assessment service was established to address this and increase access to our national centre for all patients.We retrospectively analysed narcolepsy patient data from a two-year period in a National Referral Centre for Narcolepsy in Ireland. The aim of this study was to establish patient characteristics, and identify trends in medication use.

This study included 52 patients, and 77% had a diagnosis of Type 1 narcolepsy (narcolepsy with cataplexy). 33% had documentation of receiving the Pandemrix H1N1 flu vaccination prior to symptom development. 98% of patients attending were on at least 1 stimulant medication, and 54% of patients were on 2 or more. The most commonly prescribed medication was Concerta XL in 44% of patients, and was concomitantly prescribed with Modafinil in 26%, and Pitolisant or Venlafaxine in 30% of cases respectively. The majority of patients reported significant improvements in quality of life.
This highlights the utility of digital health in the ongoing management of patients with a rare disease in an Irish healthcare setting.

Table 1 Patient Demographics and Medication Use in Narcolepsy Patients

Demographics	**No. (%) of patients**
Sex	Female 59%, Male 41%
Mean Age	31 ± 12.7
Received Pandremix H1N1 Flu Vaccine	33% (N = 17)
Type 1 Narcolepsy (With Cataplexy)	77% (N = 40)
Type 2 Narcolepsy	23% (N = 12)
Medications	**No. (%) of patients prescribed medication(s)**
Modafinil	21% (11)
Concerta XL	44% (N = 23)
Pitolisant	28.8% (N = 15)
Venlafaxine	25% (N = 13)
Ritalin	25% (N = 13)
Sodium Oxybate	3.9% (N = 2)
% Patients on 1 medication	44% (N = 12)
% Patients on 2 medications	30% (N = 16)
% Patients on 3 medications	23% (N = 12)

Conflict of Interest: None to declare

10.2 Early Experiences of a Pilot Remote-Access Obstructive Sleep Apnoea Video Clinic in a Tertiary Referral Centre

Louise Byrne[1], Peter Coss[1], Orla Gavin[1], Eileen McGinnis[2], Una Kearns[3], Brian Kent[1]
[1.] St. James's Hospital, Dublin,[2]ResMed PEI,[3]MyPatientSpace

Obstructive Sleep Apnoea (OSA) is a highly prevalent sleep disorder characterised by repeated episodes of airway obstruction during sleep. The global burden of sleep disordered breathing is enormous, affecting > 10% of adults worldwide. Access to sleep clinics is limited, with long wait times for assessment.To improve access to care, an online OSA video clinic was launched in St. James's Hospital in July 2022 for new patients. Prior to video assessment, patients downloaded an app and completed a variety of sleep questionnaires. Home testing was conducted via a single use diagnostic device (WatchPAT-One), and data was reviewed via a cloud-based platform before patients received a video consultation through the app. An initial cohort of patients (N = 8; Table 1) were triaged for suitability, requiring internet access and basic technological proficiency. Average wait time from referral to clinic day was 2.6 months, compared to 7.25 months for in-person OSA clinic. 75% of patients received a diagnosis of OSA on their first visit, and of these, 67% were commenced on CPAP therapy.These early results are promising, and indicate that remote access video clinics can aid in decreasing wait times, increase access to healthcare, and hasten commencement of CPAP therapy in OSA patients.

Table 1 (10.2) Patient demographics

Demographics	**Result**
Sex	Male 50%, Female 50%
Age	43 ± 7
BMI	33.6 ± 7.3
Apnoea-Hypopnoea Index (AHI)	17 ± 16.8
Commenced CPAP	50%
Wait Time	2.6 months ± 0.70

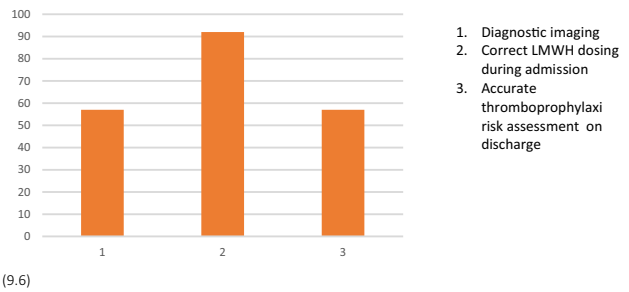
Conflict of Interest: None to declare

10.3 The 'SATELITE Project' – Sleep Apnoea TELephone IniTiativE. A Quality Improvement Study

Peter Corry, Frederick Okpoko, Caoimhe McGarrigle, Jan Kara, Juan Pastrana, Jason Wieboldt, Terence McManus

Western Health & Social Care Trust, Northern Ireland, South West Acute Hospital, Enniskillen

In January 2020, over 400 patients from the Southern Section of the Western Trust were awaiting assessment for Obstructive Sleep Apnoea (OSA). Some had been waiting for almost 4 years. We implemented a quality improvement approach to evaluate existing systems and generate potential solutions: the rate-limiting step in our existing model was insufficient slots available in physical outpatient clinics; we devised a new phone consultation pathway aiming to reduce our waiting list by 100 patients within 6 months.The Project consisted of 4 Plan Do Study Act (PDSA) cycles: 1) Devise a standardised phone consultation template for use by non-consultant doctors to safely assess patients via phone; 2) Transpose the template to an electronic document; 3) Training sessions for non-consultant doctors; 4) six month trial of ad hoc phone assessments.After 6 months, despite regular new referrals, we had reduced our waiting list to 127 patients. Qualitative analysis via random survey of patients revealed high satisfaction with the pathway. Phone consultations are safe, effective and time efficient for the assessment of OSA, enhancing patient care by dramatically reducing waiting times. They necessitate minimal additional financial costs as they utilise existing resources. The model is potentially transferable to other common referrals.



(9.6)

Conflict of Interest: *None to declare*

Fig. (10.3) Run Chart showing Number of Patients awaiting assessment for Obstructive Sleep Apnoea (OSA)

Conflict of Interest: None to declare

10.4 An evaluation of patient outcome measures comparing hospital based pulmonary rehabilitation (PR) with virtual pulmonary rehabilitation at Tallaght University Hospital (TUH)

Elaine Joyce[1], Ciara Scallan[1], Judith Maxwell[1], Sara Keane[1], Avril Kilkelly[1], Alanah Quinsey[1], Eddie Moloney1, Minesh Kooblall[1]

[1]Tallaght University Hospital

Pulmonary rehabilitation (PR) is the most cost effective intervention for reducing exacerbations and hospital admissions in COPD and other respiratory conditions. Studies which have compared virtual PR to traditional face to face (F2F) hospital based classes have found virtual PR to have similar clinical improvements in the 1 min Sit To Stand (1 min STS) and disease specific outcome measures.Virtual PR was introduced in TUH in June 2020 as a response and solution to Covid 19 restrictions, and F2F PR was reintroduced in Sep 2021 when restrictions were eased. A comparison of patients who completed greater than 12 classes of F2F PR (n = 28) and virtual PR (n = 43) in TUH found that patients who completed F2F PR had a greater improvement in outcome measures when compared against the minimal clinical importance difference (MCID) than those who completed virtual classes. Ninety-six per cent of F2F participants achieved the MCID for 1 min STS test, compared with 79% in virtual PR. Further, 59% of F2F participants achieved the MCID in the COPD Assessment test, compared with 50% in virtual PR. Moreover, 52% of F2F participants achieved the MCID improvement in the Modified Medical Research Council Dyspnoea Score in the F2F class, compared with 29% improvement in virtual PR.

Conflict of Interest: None to declare

10.5 A remote monitoring project for post lung transplant recipients using a patientMpower digital mobile application (pMp app)

[1]Lourdu Anitha Anthonycruze, [1]Sara Winward, [1]Patricia Ging, [1]Michelle Murray

1. Mater Misericordiae University Hospital, Dublin.

Background: Lung transplant recipients in Ireland receive lifelong follow up at the National Lung Transplant Centre. The focus of this project was the early identification of complications post-transplant, using pMp app. The project commenced in March 2021 with funding from HSE Slaintecare Integration Fund.

Methods: From March 2021 to March 2022, 49 patients were enrolled. There are currently 37 active participants. Bluetooth enabled handheld spirometer, pulse oximeter, weighing scales and blood pressure monitor were provided and linked to the pMp app. An algorithm was developed to standardise review of patient data. A nurse monitored data during office hours. Service evaluation was completed between August 2021 and March 2022.

Results: More than half of the participants (51%; $n = 19$) remained stable at home. Among the remaining (49%) who had episodes of decline in lung function or other concerning readings, 22% ($n = 8$) were found to have infection; 3% ($n = 1$) with rejection; 8% ($n = 3$) were false alarms due to poor technique. 16% ($n = 6$) had other issues such as hypo/hypertension and weight gain/loss. Six patients self-withdrew. Three monthly satisfaction questionnaires were issued to all active participants. In March 2022 there were 28 responses (75.6%). 96% of the participants found pMp app easy to use; 82% felt that the app gave them confidence and reassurance; 100% supported continuation of the service.

Conclusion: Remote monitoring was successfully introduced. It demonstrated a positive impact on patient experience and the clinical care with the early identification of decline in lung function allowing timely investigation.

Conflict of Interest: None to declare

10.6 Remote Forced Vital Capacity (FVC) Monitoring in Patients with Connective Tissue Disease related Interstitial Lung Disease (CTD-ILD)

Wan Lin Ng[1], Anja Schweikert[2], Donough Howard[1,2], Laura Durcan[1,2], Killian Hurley[2]

[1] Beaumont Hospital, Dublin, [2] RCSI, Dublin

Background: Interstitial lung disease (ILD) is an essential comorbidity to address in patients with connective tissue diseases (CTD). We aim to determine if home spirometry monitoring can detect early progressive fibrosing ILD in CTD-ILD resulting in timely treatment leading to improving mortality and morbidity.

Method: Patients with CTD-ILD, idiopathic pulmonary fibrosis (IPF) and familial pulmonary fibrosis (FPF) were recruited and followed prospectively for 12 months. Participants were given a handheld spirometer and oximeter linked to a real-time electronic health journal via a smartphone app. The highest readings of the day are used for analysis.

Results: 113 patients were recruited; 62 CTD-ILD, 31 IPF and 21 FPF with median age of 66, 71 and 69 years respectively. 47.8% were males. Preliminary data on 93 patients demonstrated median forced vital capacity (FVC) predicted were 79.55% in the CTD-ILD, 77.70% in IPF and 78.88% in FPF cohorts. The median oxygen saturation (SpO2) was 96% the CTD-ILD and FPF, and 95% in the IPF cohort.

Table 1 (10.6) Distribution of FVC and SpO2 readings between males and females in patients with interstitial lung disease

	CTD-ILD		IPF		FPF	
	Male	Female	Male	Female	Male	Female
No. of Patients	23	28	17	8	7	10
Median Age (years)	71	63	73	65	62	69
No. of FVC Readings	1103	1640	1203	725	259	569
Median FVC (L)	3.00	2.05	2.76	2.32	3.00	1.61
Median FVC Predicted (%)	74.66	84.17	72.67	91.08	72.52	79.29
No. of SpO2 Readings	1124	1612	1135	831	255	617
Median SpO2 (%)	96	96	95	96	96	96

Conclusion: Patients with CTD-ILD were younger and have a higher percentage predicted FVC. There were distinct differences in the FVC between men and women with ILD in all categories. Monitoring FVC remotely is feasible and acceptable to patients with CTD-ILD despite impaired hand function.

Conflict of Interest: None to declare

10.7 Patient Appraisal of New Innovative In Car Respiratory Service

A.M. Curran, A.M. O'Connell, T. Quadri

Naas General Hospital, Kildare

An In Car Respiratory Service was set up in Naas General Hospital to provide patients who were already known to the respiratory services an efficient and safe way to avail of certain pulmonary function tests. Patients attending had numerous conditions including COPD, asthma, goitres and sleep investigations.The service involved driving to a designated area in the car park. Spirometry, FeNO testing and overnight oximetry services were provided. The patient remained in their car during testing.

Methods: The last 50 service users were contacted and asked to appraise their experience. The questions were as follows:
Table 1 (10.7) Questions asked

Q1	Easier?	50	100%
Q2	Safer?	50	100%
Q3	Quicker?	50	100%
Q4	Use again in future?	50	100%
Q5	Drive yourself?	35	72%
Q6	If no, easy to find transport?	14	93%
Q7	Prefer in hospital appointment next?	3	6%

Results: 100% of patients thought the service was—a) felt safer b) more convenient patient experience c) quicker than attending laboratory. 100% would use service again.72% of patients drove themselves. 93% found it easier/convenient transport wise. 6% (3 patients) would prefer to attend in hospital for future testing.
Conclusion: This survey concluded that patients found it safer, more convenient and easier to use than in lab services.

Conflict of Interest: None to declare

(10.8 Not for Publication—The effects of a 6-week virtual COVID19 recovery programme on exercise capacity, fatigue scores and quality of life in individuals recovering from COVID-19)

10.9 COVID-19 Remote Monitoring Programme in Our Lady of Lourdes Hospital Drogheda

Michelle Uno, Aisling O'Connor, Sarah Farrell, Tidi Hassan

Our Lady of Lourdes Hospital, Drogheda

The COVID-19 Remote Monitoring (RM) programme was developed as a response to the increased demands on the acute care services, to provide a supported discharge option to the patients with COVID-19 who can be safely managed at home with additional home monitoring. PatientMpower smartphone application for COVID-19 links to a portable pulse oximeter and is used to monitor oxygen saturation, pulse rate, breathlessness, and other symptoms. Information captured in the application is immediately available to the RM team via a secured patient data portal and the team can make an appropriate decision about the ongoing care of patients being monitored at home. Between April 2020 and the end of December 2021, a total of 386 patients were enrolled in the program, and a total of 39 patients were readmitted to the hospital via fast-track access to the Respiratory team. Remote monitoring is an effective service in controlling hospital capacity when there is an increased demand in hospital beds. It improves patient flow by reducing the length of stay and avoiding unnecessary hospital admissions and identifying patient deterioration at an earlier stage reducing the need for ICU admissions.

Conflict of Interest: None to declare

10.10 The use of remote electronic spirometry to assess patient adherence to peak flow monitoring in a tertiary teaching hospital

Finbarr Harnedy[1], Deirdre Long[1], Dorothy Ryan[1]

[1]*Beaumont Hospital, Dublin*

The use of peak flow measurements is a core tenant of asthma management but adherence levels to peak flow diaries are often low. Self-monitoring is the cornerstone of chronic disease management with studies suggesting an increase in adherence to self-monitoring may be linked with increased treatment adherence. New technologies have enabled remote monitoring of patient symptoms, adherence to medication, assessment of technique and provide objective measures of disease such as peak flow readings and at home spirometry readings. In this study we analysed patient adherence to remote handheld spirometry monitoring over a 90-day period. Data from 17 patients, 71% female, were examined. Mean ± SD age was 45 ± 18 years (Range 17 – 74). 71% (n = 12) recorded a spirometry reading greater than 66% of the time. Mean number of days where patients recorded one or more readings was 67 ± 27% with a median value of 77%. In the month of July 2022, 97% of spirometry reading were recorded in less than 2 min. Home monitoring of patient spirometry is an effective, well tolerated, and convenient way to monitor patient ability to effectively perform peak flow recordings and monitor response to treatment.

Conflict of Interest: None to declare

10.11 VIRTUAL PULMONARY REHAB VERSUS PHYSICALLY ATTENDING PULMONARY REHAB IN A RURAL AREA

Dr. John Kiely, Mary Osborne, Christina Tobin, Bryan Jacob, Filipe Afonso, Doireann O Donovan and Catherine O Hanlon

Mallow General Hospital, Cork

In 2020, we started up a new Pulmonary Rehab(PR) programme for patients in North Cork, as with any new service there are challenges but COVID restrictions were in addition. Due to COVID 19 and public health restrictions the delivery of the programme had to change!In October 2020, 6 patients participated in Virtual PR using the Webex platform. The target population in North Cork is rural and a significant cohort of patients availing of the service are over 65, with limited IT literacy and access to internet. Unlike the city catchment area for PR, internet connection proved to be problematic but was overcome by the support of family, neighbours, landline telephone support and an exercise You tube video and exercise booklet. Due to the HSE Cyberattack the second cycle of virtual PR had to pivot back to physically attending PR. Overall, the virtual programme displayed similar clinically significant outcome measurements to our physically attending PR programme. However, following a qualitative approach to data collection, the results indicated that the majority of patients preferred physically attending PR, except for a small number of participants. To conclude the patient's satisfaction survey was very positive for both programmes.

Conflict of Interest: None to declare

10.12 National Rollout of Virtual Pulmonary Rehabilitation

Angela Ryan, Susan Curtis

HSE, National Clinical Programme for Respiratory

Pulmonary Rehabilitation (PR) is a priority service for the National Clinical Programme for Respiratory (NCPR) in the management of Chronic Obstructive Pulmonary Disease (COPD). Prior to March 2020, PR was routinely delivered in in-person in-hospital / health-centre settings. In March 2020, these services ceased to provide in-person PR due to the onset of COVID-19. NCPR aimed to provide services in line with the Models of Care for COPD and Asthma, while adhering to Public Health Guidance. The NCPR developed clinical guidance to support the delivery of online / virtual services, secured the appropriate clinical expertise to approve the guidance (through the Irish Thoracic Society) and worked with national professional bodies to support implementation of the guidance.Health Care Professionals who provided online PR identified factors that facilitated and those that challenged the online service delivery. Facilitators included: management and colleague support, prompt publication of the national clinical guidance document among several internal and external factors. Challenges included a range of technological and personal factors.NCPR are updating the national clinical guidance document, in line with current international

clinical guidelines.NCPR are engaging with the Enhanced Community Care and eHealth Programmes regarding current and future provision and procurement.

Conflict of Interest: None to declare

10.13 Evaluating the Effectiveness of Home-based Pulmonary Rehabilitation with Telephone Support for Patients with Chronic Respiratory Disease: A Service Review

Orla Threadgold[1], Eve Stanley[1], Danielle Moynihan[1]

Chronic Disease Management Hub, Carlow/Kilkenny[1]

Home-based pulmonary rehabilitation with telephone support has been suggested as an alternative rehabilitation model for patients with a chronic respiratory disease who, for a variety of reasons, cannot attend centre-based pulmonary rehabilitation and do not have access to appropriate information technology devices to participate in virtual pulmonary rehabilitation [1] [1].In March and April 2022, 67 patients on a pulmonary rehabilitation waiting list were offered either virtual pulmonary rehabilitation or a home-based programme with exercise support.Of the 27 patients that opted for home-based pulmonary rehabilitation, 9 completed an 8-week programme and 2 were lost to follow-up. Patients had a diagnosis of COPD (n = 4) and ACOS (n = 3) and had a mean age of 74.14.
Patients received a home-based exercise programme consisting of progressive aerobic and strengthening exercises and a weekly telephone call from a Physiotherapist to monitor and progress the programme. Patient outcomes were measured with the CAT and mMRC. Following the 8-week programme, the mean CAT score increased by 5.5 points, indicating a worse outcome, however the mean mMRC score reduced from 1.5 to 1.1.The results of this service review indicate that although there is an emerging role for home-based pulmonary rehabilitation as another form of service delivery, further evidence is required to establish the most effective model for patients with chronic respiratory disease.

Conflict of Interest: None to declare

References

1. Holland, A.E., Cox, N.S., Houchen-Wolloff, L., Rochester, C.L., Garvey, C., ZuWallack, R., Nici, L., Limberg, T., Lareau, S.C., Yawn, B.P. and Galwicki, M., (2021) 'Defining modern pulmonary rehabilitation. An official American thoracic Society workshop report', *Annals of the American Thoracic Society*, *18*(5), pp.e12-e29.

10.14 Experiences and Perceptions of Telemedicine in Patients Living with Advanced COPD

Úna O'Connor[1], Geraldine Crilly[1], Claire Quinn[3]

1. St. John's Hospital, Limerick, 3.University of Galway

Chronic Obstructive Pulmonary Disease (COPD) is a chronic, progressive respiratory condition. It results in increasingly debilitating shortness of breath, which impacts greatly on the daily lives of patients in advanced stages of this life-limiting illness. Telemedicine is increasingly deployed to address significant challenges, including practicalities of attending face-to-face consultations, disease progression and functional decline.There is limited published research to date exploring COPD patients' experiences of telemedicine as a remote healthcare approach.This qualitative evidence synthesis (QES) explored experiences and perceptions of telemedicine for patients living with advanced COPD. Systematic literature search of twelve electronic databases was undertaken.Independent screening was undertaken by two authors. Quality appraisal was conducted using Critical Appraisal Skills Programme (CASP). Framework synthesis was applied using the COM B model. Qualitative findings were synthesized using Thomas and Harden's thematic synthesis method. GRADE-CERQual assessed confidence in review findings.
Eight studies were selected for synthesis. Four analytical themes were generated (1) Ownership and Control (2) Virtual Relationships/Being Heard (3) Telemedicine: Benefit versus Burden (4) Trust in Virtual Health Services. The lived experience of COPD patients and their engagement with telemedicine may serve to inform policymakers in the delivery of remote healthcare services. Further research on patient and healthcare professionals' views on using telemedicine in the palliative stage of COPD is valuable.

Conflict of Interest: None to declare

There is limited published research to date exploring COPD patients' experiences of telemedicine as a remote healthcare approach.This qualitative evidence synthesis (QES) explored experiences and perceptions of telemedicine for patients living with advanced COPD. Systematic literature search of twelve electronic databases.

10.15 The design process and development of a digital solution which uses respiratory rate as a key value in the monitoring of patients with Chronic Obstructive Pulmonary Disease (COPD) in a Community Virtual Ward led by an Advanced Nurse Practitioner: Providing a bespoke hospital avoidance solution using digital technology to support community based care

Antoinette Doherty [1], Prof Vera Keatings [1], Gintare Valentelyte [2], Myles Murray [3]

[1] Letterkenny University Hospital, Co Donegal, [1] University of Galway Medical Academy,[2] RCSI University of Medicine and Health Sciences, Dublin,[3] PMD Solutions, Cork

Background: Individuals with exacerbating COPD display a pattern of repeated illness culminating in hospital admission. A community virtual ward (CVW) with a bespoke platform that incorporated respiratory rate trends was designed, implemented and offered as an alternate to inpatient care in Co Donegal between 16/05/2022 – 16/08/2022 to 15 eligible individuals with COPD.
Aims: To explore the feasibility of a proof of concept CVW which aims to support individuals with COPD become partners in their disease management.
Methods: Patients with COPD were admitted to the CVW for remote monitoring, optimisation of existing care plan and provision of a rescue script for suitable individuals. The objective and subjective patient data was reviewed daily by the advanced nurse practitioner. When a trend from normal became apparent the patient was assessed and necessary support was provided virtually. If applicable their rescue script was activated.
Results: Patient data from10 admitted individuals was used in the final report. Six individuals had one or more exacerbations with a total of 19 courses of antibiotics and 8 courses of steroids being dispensed to participants during the study. The average length of stay in CVW was 74 days with no hospital admissions recorded. An increase individuals understanding of their COPD was demonstrated also.

Conflict of Interest: None to declare

10.16 'Wellbeing via dance caught my mind': A qualitative study exploring health impacts of online dance classes among patients with pulmonary fibrosis

Vikram Niranjan1, Giampiero Tarantino1, Jaspal Kumar2, Nicola Cassidy3, Liam Galvin3, Gemma O'Dowd3, Tracey Barnes4, Finola O'Neill3, Matthew Cullen3, Ray O'Connor5, Andrew O'Regan5

1 UCD,2 National University of Singapore, 3 Irish Lung Fibrosis Association, Dublin,4Dancing for Health CIC, Derbyshire,5.University of Limerick,

Dance is considered to be an excellent physical activity (PA) to improve physical and mental health outcomes among various groups of patients. This qualitative study aimed to investigate the perspectives of adults living with pulmonary fibrosis (PF) who had participated in a dance intervention.

A group of patients with PF, members of the Irish Lung Fibrosis Association, participated in 75 min online dance intervention for eight weeks delivered by an experienced choreographer. An exploratory qualitative study using thematic analysis of semi structured interviews was carried out to understand feasibility as well as health and wellbeing impacts of dancing.Eight participants (6 Female, 2 male; mean age 72.3 years) were recruited. Four key themes emerged: 1) Dance is fun – we're not exercising 2) Improved sense of wellbeing 3) Positive impact of own online social space 4) Connecting dance impacts to clinical health. Overall, our virtual dance intervention was acceptable, enjoyable, preferable, and feasible among participants; who strongly perceived health benefits especially breathing efficiency and mental health improvements for managing their day-to-day struggles with PF.Emerging themes could influence the development and evaluation of dance as an alternate form of PA for patients with PF, exploring its benefits and sustainability.

Keywords: Dance, wellbeing, quality of life, community-engaged research, chronic disease, pulmonary fibrosis, pulmonary diseases

Authors Contributions: VN conceptualized supervised and obtained funding for the study. VN, NC, LG, GOD, ROC AOR developed the methodology. GT JK and VN performed data collection and analysis. GT and VN wrote the manuscript with input from TB, NC, LG, GOD, FON, MC, ROC AOR and JK. All authors have seen and approved the final version of the manuscript for publication.

Ethics approval and consent to participate: Ethical approval for this study was granted by the institutional Human Research Ethics Committee – Sciences UCD with reference no. LS-21–94-Niranjan and all participants provided written informed consent.

Conflict of interests: No author has any conflict of interest

Irish Thoracic Society Poster Review and Discussion

Friday 2nd December 2022

11. Oral Presentation

11.1 Use of digital measurement of medication adherence and lung function to guide the management of uncontrolled asthma: The INCA Sun randomized clinical trial

Elaine Mac Hale[1], presenting author on behalf of the INCA Sun randomized clinical trial work group

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Disclosures

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Elaine Mac Hale has no potential conflicts of interests to disclose

Objective: Treatment decisions guided by digitally-acquired data on adherence, inhaler technique and peak flow were compared with current methods.Design: Patients >18 years with severe uncontrolled asthma were enrolled to a 32-week multicentre single-blind randomized clinical trial (INCA Sun) comprising a 1-week run-in period, 3 education visits over 8-weeks, and 3 treatment adjustment visits over 24-weeks in ten asthma clinics.

Intervention: The active group had personalized biofeedback on inhaler adherence, technique, and PEF. Treatment decisions were informed by digital data. The control group had adherence coaching, inhaler training, and an action plan. Treatment was adjusted based on pharmacy refill rates, asthma control, and risk of exacerbations. Both groups used a digitally-enabled inhaler and digital PEF.

Results: Of the 220 patients who consented to participate, 213 were randomized (control: 105; active: 108) and 200 completed the 32-week study. The mean age was 47[SD, 14.9] years, 137[64%] women participated. At week 32, 11(11%) active and 21(21%) control patients required add-on biologic therapy OR 0.42, 95%CI [0.189-0.95], p=0.038). Three of 19(16%) active and 11 of 25(44%) control patients who started on FP 500mcg/day were increased to 1,000mcg/day (OR 0.26; 95%CI [0.07–0.99], p=0.049). Twenty-six of 83(31%) active and 13 of 73(18%) control patients who started on FP 1000mcg/day were reduced to FP 500mcg/day, OR 2.11, 95%CI [1.01–4.74], p=0.047). Despite a lower treatment burden were no differences in asthma control, lung function, T2 inflammation, nor exacerbations between the two groups. No safety differences were observed.

Conclusions and relevance: Evidence-based care informed by digital data safely led to a significantly lower treatment burden.

Conflict of Interest: None to declare

11.2. A systematic assessment clinic for COPD reduces hospitalisation rates

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Hospitalisations for exacerbations of COPD reduce quality of life and increase mortality. Systematic assessment clinics for severe asthma reduce exacerbations. We examined the impact of a new systematic assessment clinic for severe COPD on hospitalisation rates.

At the COPD At-risk Assessment (CARA) clinic, COPD patients with high symptom burden and high healthcare use undergo multidisciplinary medical, nursing ANP, and physiotherapy assessment. Individualised COPD optimisation strategies are implemented. The number of hospitalisations in the 12 months pre-CARA and up to 6 months post-CARA was compared.

Data from 34 patients, 56% female, was examined. The mean age was 69(7.8) years. One-quarter had GOLD stage 4 COPD, 32% GOLD 3, 35% GOLD 2, 9% GOLD 1. One-third were prescribed ambulatory oxygen, 30% LTOT and 27% home NIV. Three patients died at 6 months. Of the remaining 31 patients, COPD hospitalisations reduced by 73% from 55 in the 12 months pre-CARA to 15 in the 6-months post. The mean hospitalisation rate was 1.77(1.84) pre-CARA and 0.48(0.89) post-CARA, p=0.0002. 64% of those with ≥1 hospitalisation in the 12 months pre-CARA had no further hospitalisations by 6-months post.A systematic assessment approach to outpatient COPD care has substantially reduced hospitalisations in this cohort of severe COPD patients.

Conflict of Interest: None to declare

11.3 The Benefit of a Liraglutide-Based Weight Loss Regimen Alone or in Addition to Standard CPAP Therapy on Metabolic Function, Atherosclerosis and Inflammation in Patients with Obstructive Sleep Apnoea - an Explorative, Proof of Concept Study

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Obstructive sleep apnoea (OSA) is associated with cardiometabolic disease processes, but the benefit of continuous positive airway pressure (CPAP) therapy is uncertain. Here, we evaluated the effect of CPAP vs. a glucagon-like peptide (GLP)-1 (Liraglutide)-mediated weight loss strategy (LWR) across a range of cardiometabolic outcomes. These are data from a randomized proof-of-concept study (clinicaltrials.gov: NCT04186494). 30 patients with moderate to severe OSA without diabetes were randomised to CPAP, LWR alone or both in combination for 24 weeks. All patients underwent analysis of vascular inflammation by FDG-PET CT at baseline and at study completion, as well as evaluation of metabolic markers, anthropometrics, endothelial function and inflammatory markers.
30 subjects (50±7 years, 75% males, apnoea-hypopnoea index (AHI) 50±19/hr, body mass index (BMI) 34.8 ±3 kg/m2) completed the study. There was a significant decrease in BMI with LWR vs CPAP (-1.85±1.1 vs +0.86±1.5, $p<0.01$), while the reduction in AHI was greater with CPAP vs LWR (-39±24 vs. -15±23, $p = 0.053$). Greater improvements in metabolic outcomes occurred with both LBW and combination therapy, but only subjects on CPAP had a significant decrease in vascular inflammation.CPAP therapy improves vascular inflammation in OSA, while combination therapy and LBW have beneficial effects on metabolic function.

Conflict of Interest: None to declare

11.4 Evidence of mTORC1 pathway in Diffuse Idiopathic Pulmonary Neuroendocrine Cell Hyperplasia (DIPNECH)

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Diffuse Idiopathic Pulmonary Neuroendocrine Cell Hyperplasia (DIPNECH) is a rare disease affecting essentially women. It is considered pre-neoplastic and is commonly associated with pulmonary carcinoids and less commonly in other lung malignancies. Histologically, there is a proliferation of neuroendocrine cells in the epithelium of the bronchioles (linear, nodular, tumourlets) with occasional peribronchial fibro-inflammatory changes.As the mTOR pathway is described to be involved in the development of pulmonary carcinoids, we explored downstream proteins RPS6 and 4EBP1 on DIPNECH and control lung tissue sections using immunohistochemistry.The cohort of patients included 15 women, aged 26-80. Five were symptomatic (cough, dyspnoea); two had MEN syndrome, 4 previous breast cancer, 11 carcinoids, 2 multiple tumourlets.7 controls lung tissue without DIPNECH from lobectomies sampled away from carcinoids, lung carcinoma and sarcoma metastases were included.4EBP1 is ubiquitously expressed in resident pulmonary epithelial cells and expression was observed in all cases with neuroendocrine cell hyperplasia and tumourlets. RPS6 expression varies within resident cells, and was expressed in the majority of neuroendocrine cells but not as diffusely as 4EBP1.This preliminary data shows that mTORC1 pathway protein are expressed in DIPNECH and might support the role of mTOR inhibitors in the treatment of symptomatic patients.

Conflict of Interest: None to declare

11.5 Investigation of the Utility of Exhaled Breath Condensate (EBC) as a Liquid Biopsy in the Detection of Spatial Genomic Heterogeneity in Patients with Early-Stage Non-Small Cell Lung Cancer (ESLC)

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Spatial genomic heterogeneity is implicated in treatment resistance and recurrence and may lead to sampling bias in diagnostic biopsies. Liquid biopsy has the potential to overcome the challenges of tumour heterogeneity. This study investigated the potential of using EBC as a liquid biopsy to detect spatial heterogeneity in ESLC.Four quadrants of the resected tumour, a lymph node and normal lung tissue from 8 patients were analysed by whole exome sequencing. Patient specific panels of 5 mutations were designed based on the sequencing results. Cell free DNA (cfDNA) extracted from EBC and plasma, collected before surgery and at 6 and 12 weeks post-operatively, was analysed using digital droplet PCR.The median level of spatial genomic heterogeneity was 30.2% (IQR 11.4-57.8) raising the possibility of sampling bias in biopsy samples. 39/40 mutations (97.5%) were detected in pre-operative EBC samples compared to 40/40 (100%) mutations in plasma. A trend towards reductions in mutation copy numbers was observed in post-operative EBC and plasma. In 3/8 biopsy samples not all mutations were detected by ddPCR. Using this ultra-sensitive technology, almost all selected mutations were detected in EBC. Both liquid biopsies were superior to the original biopsy in the detection of spatial genomic heterogeneity ($p=0.0001$).

Conflict of Interest: None to declare

11.6 Circulating soluble P2X7 receptor as a novel indicator of resolution of inflammation in patients with cystic fibrosis

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In patients with cystic fibrosis (PWCF), loss of normal anion transport leads to impaired mucociliary clearance, chronic airway infection and inflammation. The P2X7 receptor (P2X7R) is an important regulator of inflammation and we have recently demonstrated the role of P2X7R in promoting ATP-induced inflammasome activation in CF monocytes. Moreover, published studies have shown increased soluble P2X7R (sP2X7R) protein levels in plasma of patients with sepsis, yet, the presence of sP2X7R in the circulation of PWCF has not been explored. The aim of this study was to assay sP2X7R levels in PWCF pre- and post-elexacaftor/tezacaftor/ivacaftor (ETI) CFTR modulator therapy, to assess the potential use of this protein as a circulating indicator for resolution of inflammation. We evaluated plasma samples prepared from whole blood of 35 PWCF eligible for ETI treatment (pre-ETI $n = 17$, 12 months post-ETI $n = 15$, including $n = 6$ paired samples of pre- and post-ETI treatment). sP2RX7 levels were assessed by sandwich ELISA.A significant reduction in levels of sP2X7R were detected in PWCF 12 months post-ETI therapy compared to sP2X7R levels pre-treatment ($p<0.021$, paired samples). Similarly, our results

showed significantly higher levels of plasma sP2X7R in all patients pre-treatment compared to 12 months post-CFTR modulator treatment ($p<0.04$). This promising data suggests the use of sP2X7R as an indicator of resolution of inflammation in PWCF, with ongoing studies exploring sP2X7R levels in non-CF bronchiectasis and COPD patient groups.This project is supported by The US Cystic Fibrosis Foundation [Grant Number: REEVES21G0].

Conflict of Interest: None to declare

11.7 Results of the Irish Thoracic Society (ITS) Bronchoscopy questionnaire in preparation for the National Bronchoscopy Quality Improvement project

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The National Bronchoscopy Quality improvement (QI) programme will be the fourth of its kind in addition to established QI projects in GI Endoscopy, Histopathology and Radiology. In preparation for the programme a questionnaire was circulated to public and private hospitals analyzing common trends in Bronchoscopy nationally. 19 hospitals (15 Public, 4 private) with Bronchoscopy units responded. 70% of institutions use the EndoRAAD Bronchoscopy reporting system with the reminder using Unisoft (18.75%) or other systems. Average waiting time for non- urgent essential ronchoscopy is 11.68 days and for suspected lung cancer is 4.10 days. Waiting time for EBUS-TBNA is an average of 7.33 days. Midazolam and Fentanyl are almost universally used for conscious sedation and use of reversal agents documented as an adverse event in every institution. 81.25% of facilities have onsite access to ICU while the remainder have access to immediate ambulance transfer for emergencies. 62.5% of units provide Registrar training with 93.75% supervised by consultants. This joint ITS/RCPI QI programme supported study reveals that waiting times for urgent and non-urgent bronchoscopy are within international recommendations and sedation and safety practices are broadly similar nationally. The questionnaire will help select key performance indicators (KPIs) for the QI programme moving forward.

Conflict of Interest: None to declare

11.8 (Not for Publication) Incidence and outcomes of pulmonary arterial hypertension in the Republic of Ireland
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