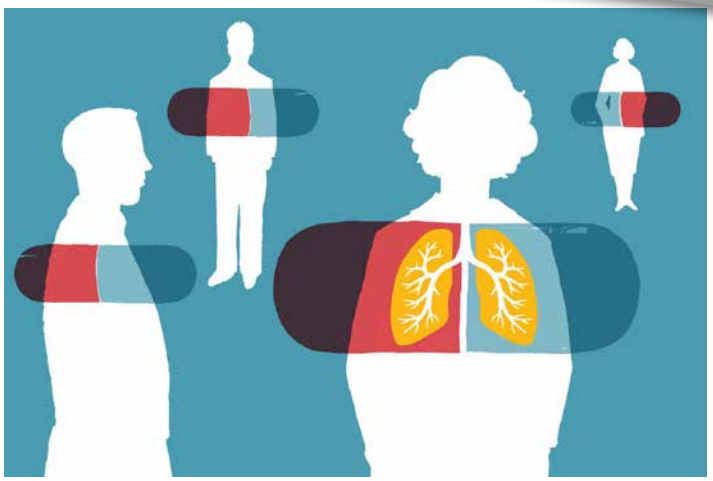

such as psychologists, nurses and social workers.

The Covid-19 pandemic remains an on-going concern for people with cystic fibrosis as we approach the end of 2021.

Of particular concern are the immunocompromised, including those waiting for or who have a double lung transplant as a consequence of CF. Many CF patients have been effectively 'cocooning' for almost 2 years with the concomitant impact on well-being and depression.

Momentum towards independent living has been slowed or paused as adults with CF now face additional challenges in accessing a living wage because of understandable additional health fears from the pandemic. A direct consequence of COVID-19 has been the reduction in most transplant programmes in Ireland. All lung transplants in Ireland declined by 58% between 2020 and 2019, with fears for similar reductions in 2021. This is not meant as a criticism of our dedicated hospitals and clinicians, but as a 'call for action'. Improved post-transplant CF care remains an ongoing priority for CFI. It is hoped that the promised change from opt-in to opt-out organ donation will be enacted in 2022 as a consequence of the Human Tissue Bill. It is also hoped that the Government will publish an updated National Rare Disease Plan in 2022, though progress remains slow.

Cystic Fibrosis Ireland takes this opportunity to thank all the dedicated healthcare workers; our CF hospital centres; the HSE and the Minister for Health, Stephen Donnelly TD for their ongoing support for CF care. We thank our many supporters and friends who have worked so hard to sustain our fundraising over the past 2 years. It is heartening that in a survey undertaken by UCD 80% of those surveyed said they looked to CFI for accurate information and support in 2020.

New Hope for COPD

Dr Suzanne Cloonan, Associate Professor in Respiratory Medicine in Trinity's School of Medicine and Tallaght University Hospital (TUH) describes her laboratory's research investigating how cellular iron metabolism is regulated in the lungs of patients with COPD, and how dysregulation of iron uptake, release, or turnover contributes to the disease process.

The role of iron in COPD

Excessive iron build up in the lungs is thought to be a major factor in COPD. Dr Cloonan's research team believe they have identified the culprit for the excess which is a gene they previously found to increase patients' susceptibility to the progressive lung disease. This gene, called IRP2 is tasked with regulating iron uptake in cells. The team's discovery was significant because it validates the results of a 2009 study that implicated IRP2 in the disease's development and demonstrates how the gene supports COPD. The findings also illustrate that IRP2 may be a powerful therapeutic target.

Dr Cloonan described the lab's focus, "We want to figure out where in the lung this iron accumulates and how this excess of iron affects the development of COPD. We are asking the following questions: Where does this iron come from given that cigarette smoke contains very little iron? What cells types are important in iron accumulation in the lung? Does having more iron promote the growth of bad bacteria rendering COPD patients more susceptible to infection?"

Dr Cloonan's team also aim to find out how iron is transported into and out of the mitochondrion (mitochondria are the 'powerhouse' of the cell). Mitoferrin-2 and mitoferrin 1 are mitochondrial membrane proteins that are thought to be involved in iron transport across the mitochondrial inner membrane into the mitochondrial matrix. The researchers investigate how these transporters contribute to normal mitochondrial function, metabolism and dynamics in the cell and how they co-ordinate with other aspects of cellular iron regulation.

The team also investigates how disturbances in iron metabolism underlie and drive alveolar macrophage-associated immune system disarray in COPD. Their research focuses on iron uptake, turnover, metabolism and export in alveolar macrophages and how these normal homeostatic processes are essential for the innate immune response to infection.

Dr Suzanne Cloonan, Associate Professor in Respiratory Medicine in Trinity's School of Medicine

Research collaborations

Dr Cloonan collaborates with TUH's Professor Seamus Donnelly (Professor of Respiratory and Interstitial Disease) and St James Hospital's Professor Joseph Keane (Professor of Medicine). She highlights the crucial input from post-doctoral researchers Dr Claire Healy and Dr Niamh Williams in her laboratory. Dr Cloonan is part of a multi-centre study of COPD aiming to better classify patients for clinical trials.

She says, "We worked closely with SPIROMICS (Subpopulations and Intermediate Outcomes in COPD Study). SPIROMICS is a USA-based multi-centre longitudinal observational study of chronic COPD. SPIROMICS was designed to guide future development of therapies for COPD by providing robust criteria for subclassifying COPD participants into groups most likely to benefit from a given therapy during a clinical trial, and identifying biomarkers/ phenotypes that can be used as intermediate outcomes to reliably predict clinical benefit during therapeutic trials."

Patient education on COPD

Creating awareness of COPD, along with engagement with patients and clinicians, is a core focus for Dr Cloonan and her team. Key groups include the Irish Thoracic Society and COPD Support Ireland.