A disease pathway for Interstitial Lung Diseases by pain points visualization and stakeholder analysis using Innovation Think Tank methodology

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OBJECTIVE

Today, healthcare providers lay emphasis on common diseases with a high mortality and morbidity that affect the global population. Newer diagnostic and treatment methods are being investigated for such diseases. Interstitial lung diseases (ILDs) are a rare group of disorders with a low incidence and prevalence and are often misdiagnosed or diagnosed late. More focus from clinicians, medical technologists, and other experts worldwide needs to be directed into such rare diseases with a high mortality. There is a need for early and accurate diagnosis as well as better management of ILD. The purpose of this paper is to create a pathway for ILD showcasing the entire patient journey including the stakeholders involved, the challenges faced by them, and the relevant solutions.

METHODS

By using the Innovation Think Tank (ITT) methodology, ITT teams at Siemens Healthineers created a disease pathway for ILD. Firstly, the global burden of the disease was studied and an initial understanding of ILD was obtained by basic research. Next, we listed down the various stakeholders involved in the entire patient journey. We identified the challenges faced by each stakeholder across the complete care plan and spotted improvement potentials for each challenge. Some of the pain points and solutions collected were identified via customer interviews and literature review, and many others were validated by radiologists and other experts from across the world.

RESULTS

A disease pathway was prepared for ILDs comprising of two sections: infographics and care plan stages. The infographics section contained facts and figures relating to the incidence, prevalence, mortality, and economic burden of ILD globally, its symptoms, differential diagnosis, and impact of COVID-19 on ILD. The next section mapped out the entire patient journey into seven care plan stages: prenatal, prevention, symptoms, diagnosis, treatment, rehabilitation, and follow-up. In the prenatal stage, methods of disease prevention in an individual even before birth were investigated. Particularly, genetic factors play an important role here. Smoking was also found to be a major risk factor for certain types of ILDs. Correlation between some connective tissue disorders and ILDs was also observed. In prevention, risk factors of the disease and measures to prevent them were explored. For diagnosis of ILD in symptomatic individuals, measures to improve the process and aid in early diagnosis by incorporation of artificial intelligence and machine learning were considered. For treatment of ILD patients, solutions that can result in better treatment outcomes and prognosis prediction were proposed. The role of virtual reality and other innovative technologies for the rehabilitation and follow-up of ILD patients were also identified. During this study, we identified a total of 38 pain points from 16 different stakeholders across the care plan, and proposed 46 solutions in the categories of digitalization, automation, sensing, and clinical innovation.

CONCLUSION

Although there is a high demand on tackling prevalent diseases, it is important to divert some focus into other diseases like ILDs since they have a huge impact on the lives of people affected. A simple way to understand the impact of these diseases is via the disease pathway that this study presents respective to ILD as it includes the entire patient journey with respect to the disease lifecycle. Clinical and technological innovations like artificial intelligence may also have a potential role in the diagnosis, treatment, and prognosis prediction of ILD.

LINK TO THE ITT METHODOLOGY WEBPAGE

https://www.siemens-healthineers.com/vn/careers/innovation-think-tank