HEALTH Technology for Chronic RespiratOry Disease: Exploring and Mapping Unmet Needs

Top 20 HealthTech solutions for unmet needs in chronic respiratory disease: additional detail

★ Screening and proactive case-finding tools to identify people at risk earlier

Screening and proactive case-finding tools, including personalised risk assessments based on multi-source data, through annual or opportunistic screening, and community-based checks to identify people at risk earlier.

★ Triage and pathway tools to guide timely diagnostic escalation

Triage and pathway tools to guide timely diagnostic escalation from primary care or community settings, ensuring patients are sent for the right tests, imaging, or specialist input earlier.

★ Accurate diagnostic tools available in primary/community settings with real-time feedback and guided interpretation

More modern and quality-controlled diagnostic tools that are accurate and consistently available in primary and community settings, alongside or with integrated tools to guide performing and interpreting diagnostic tests, including real-time feedback and AI interpretation support to maximise quality of lung function and imaging analysis.

★ Digital reporting and communication systems to improve diagnostic turnaround

Faster diagnostic turnaround through digital reporting and communication systems, reducing delays in test interpretation, result sharing, and onward referral.

★ Patient-informed training and resources for healthcare professionals around diagnosis

Training and resources for healthcare professionals including lived-experience content and condition-specific information, to improve understanding and support respectful communication.

★ Patient-facing medication, dose monitoring and reminder tools

Patient-facing tools that support regular use of preventer medication, help keep track of treatment over time and highlight when medication may be being missed or over-used. Dose monitoring features could show how much medication remains and provide low-supply alerts, helping to avoid ineffective use of empty inhalers and reducing wastage.

★ Patient-held tools for symptom monitoring, reporting, self-management and education to help recognise and respond to exacerbations and support continuity of care

Tools that enable patients to monitor and report symptoms, recognise exacerbations and triggers, understand and follow personalised action plans, apply airway clearance techniques, use equipment correctly, and know when to self-manage or seek help. These should support continuity of care by allowing key clinical information, symptom records and management plans to travel with the patient across settings.

★ Tools to identify and monitor exacerbation triggers

Tools to identify and monitor triggers that increase the risk of respiratory exacerbations, such as real-time or linked monitoring (e.g. air quality, pollen), enabling pro-active action to reduce exposure or adjust treatments such as increasing inhaled medication dose.

★ Tools for individuals to reduce trigger exposure

Tools to reduce individual exposure to triggers that increase the risk of exacerbations. Examples could include air purifiers, breathing filters or masks.

★ On-demand specialist support and virtual care to identify and manage acute and chronic deterioration

On-demand specialist access, including direct communication routes, virtual ward/MDT input, and remote (video/telehealth) consultations and monitoring to prevent and respond to both acute and chronic deterioration during long waits between routine appointments. This would allow symptom progression and deterioration to be tracked, shared, and acted on promptly, and allow assessment and management at home during exacerbations or post-discharge.

★ Tools to strengthen patient voice and lived experience in clinical interactions

Tools that reinforce patient voice in clinical interactions, including supporting clinicians to listen to patient-reported changes, recognise lived experience, and improve understanding of the social and psychological impact of lung disease.

★ Tools to identify and prioritise higher-risk patients for routine review

Pre-review engagement and prioritisation tools, using simple questionnaires, symptom scores or lung function measurements to identify higher-risk patients, prioritise reviews, and focus appointments where they are most needed in both primary and specialist care.

★ Tools to maintain correct inhaler technique

Inhaler technique support and feedback tools, enabling patients and clinicians to assess, maintain, and correct inhaler technique over time, including during remote or infrequent reviews.

★ Inhaler delivery devices that are easier for people with diverse needs and abilities

Accessible and low-effort inhaler delivery devices, accommodating children, older adults, and people with visual or dexterity impairments to use their inhalers with confidence, including automated or assisted options.

★ Tools and resources to support breathlessness management, including breathlessness-related anxiety

Tools and resources to support patients and carers in recognising and managing breathlessness and breathlessness-related anxiety, including guided breathing, relaxation, mindfulness, reassurance and calming strategies. These should include techniques to improve confidence and function in daily activities, reduce panic and help people understand when symptoms are anxiety-related versus physical deterioration.

★ Oxygen systems that are reliable, light, unobtrusive, comfortable and convenient to use, both at home and on the move

Patient-centred oxygen systems that are reliable, light, unobtrusive, comfortable and convenient to use, both at home and on the move, with safe and intuitive flow control, smart monitoring and alerts, and improved tubing design. This should include solutions that reduce cost burden and ensure reliable, uninterrupted access.

★ Integrated exercise monitoring and digital education to support safe and effective exercise

Integrated exercise monitoring and digital education that combines real-time feedback (e.g., heart rate, oxygen levels, activity tracking) with clear guidance to help people interpret breathlessness and fatigue, pace themselves appropriately, avoid over-exertion, and exercise safely with confidence.

★ Tools to support managing cough and sputum clearance

Tools to support managing cough and sputum clearance, including access to appropriate devices and guidance to clear sputum safely and reduce feelings of chest tightness.

★ Digitally delivered rehabilitation and physiotherapy, including ongoing support after programme completion

Digitally delivered rehabilitation and physiotherapy, providing guided, safe exercise through apps and video-supported sessions to improve access and reduce delays. These should support continuation of care after rehabilitation programmes, through ongoing guidance, monitoring, and re-engagement when needed.

★ Tools to connect patients to services, care pathways, peer/community support and research opportunities

Tools that connect patients and carers to local services, care pathways, peer/community support and research/study participation opportunities, improving awareness of available help, enabling access or self-referral, and providing safe spaces to share experiences and reduce isolation.