

## 3D-CF: High Frequency Digit Triplet test as a screening tool for the early detection of hearing loss in individuals with cystic fibrosis

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### The Clinical Rationale

Cystic fibrosis causes recurrent lung infections and progressive lung damage. Patients therefore have repeated, long courses of antibiotics, including aminoglycosides, which can cause hearing loss. Regular monitoring of patients' hearing may help identify early problems so other antibiotics can be used. Standard hearing tests are not feasible for this.

### Our Technological Solution

- The High Frequency Digit Triplet test is a five minute computer-based test that could be done in clinic or at the bedside.
- The patient listens to a triplet of numbers and is asked to identify them against a background noise.
- The test is adaptive: the background noise gets louder with correct responses and quieter when incorrect.
- 25 responses are averaged to calculate the speech reception threshold.

### Benefits for Children

We estimate that a quarter of CF patients have some degree of hearing loss. For children this can interfere with schooling and social development.

Preventing hearing loss is essential to maintain the most normal life possible for people with CF.

