

# CREATING HAPPIER LIFE FOR CF TEENAGERS



## Smartphone coach and friend

### Being a CF teenager

Young patients with CF often do not have enough information about their illness and how to effectively fight it. Growing-up as a teenager is not an easy process by itself. For cystic fibrosis youngsters, there are even more challenges to tackle. This age of defiance takes its toll and usually brings **decreasing therapy adherence (<60%)** and increased risk of health complications.

### Building good habits and improving adherence

Smartphones are more and more used in healthcare and self-management. The idea is to utilize the enormous potential for target group which uses the smartphone extensively at every occasion. CF Hero focuses on **building long-term habit of daily exercises** (inhalation and airway clearance). The mobile application enables good use of the **playful design** and **psychological triggers** to persuade teenagers to **adhere to therapy willingly** and so that they know why they should stick to it. It also helps to sideline the **parents** a bit as they very often play the role of a “watchdog” (as kids say) and **transfer maximum responsibility** onto the child.

### Social life improvement

During face-to-face interviews many of **young patients** surprisingly stated that **are ashamed of their illness** and they do not want to speak about it with their friends and teachers. That sometimes makes a huge gap in understanding and strange situations occur e.g teacher sends a child out of the classroom because it cannot stop coughing or child returns home for lunch because he/she doesn't want to be seen taking digestive enzymes.

Such **understanding among peers** is essential and can lead to rapid **social life improvement for the adolescent**. People around the CF youngster should know that the disease is not contagious and there are certain limits to respect to keep the CF patients healthy and help him with the treatment.

### Learn by game

The secondary app **aim is to break taboo of day-to-day life**, create a “cool” image of the CF teenager among peers and **educate** directly or indirectly with **comics content** and **tips & tricks** how to communicate information about disease.

# Method

## Entertaining inhalation exercises

By using gamification, CF Hero improves the commitment of young patients to treatment. **Inhalation is a "game"** for which **virtual coins** (little oxygens) are earned if the user sticks to the plan.

The Oxie bubble character is growing and shrinking, showing to patient the right **breathing pattern**. With the help of this breathing animation (consulted with physiotherapists and tested with users) helps to make inhalations more efficient and **empowers children to stick to therapy** even when they feel good.

This increases probability of qualitatively better and longer life, because **preventive exercise** can lead to minimizing hospital stays and postpone the lung transplant.



## Virtual character

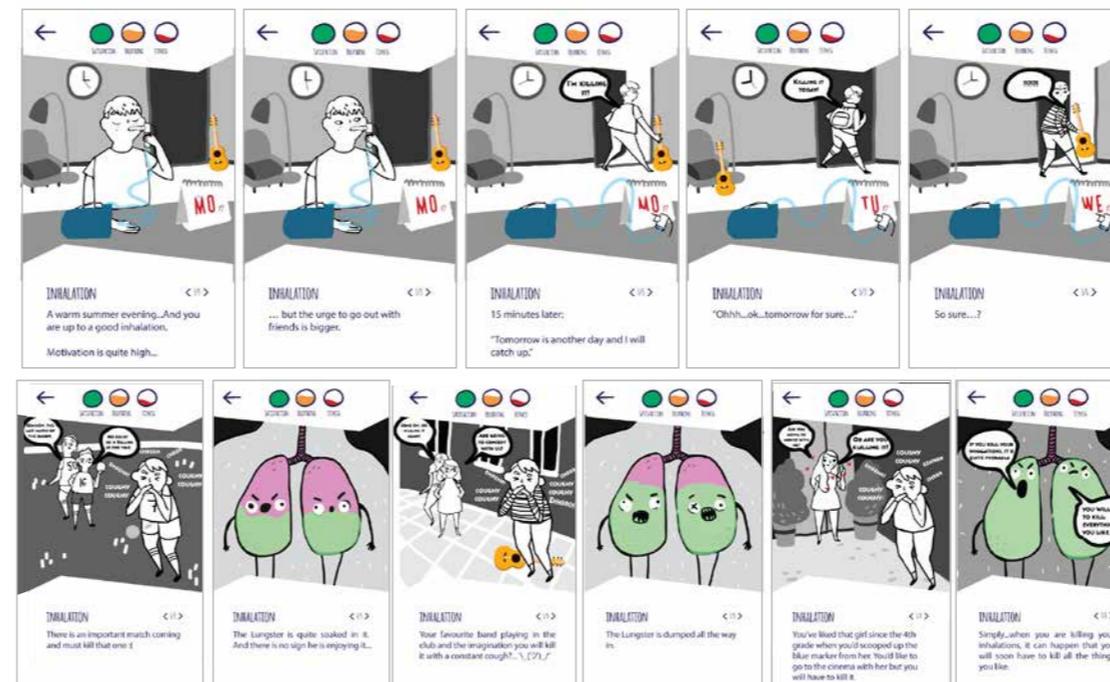
User creates it's own **virtual character**, on which he can buy items from shop for a Oxygens coins. Creating and customising the character in "shop" **motivates** user to stay with inhalation therapy. Sharing the character visual with other patients will be integrated in next phase of the app.



## Adherence Plan

The app collects **data** about inhalation therapy and physiotherapy (device, medicines and its doses, frequency) that **can be further shared with healthcare practitioner** who often doesn't have regular feedback from the patient.

It provides **good overview** about frequency of inhalations and thus lowers the bias and necessary time to speak about solutions, asking about events that have occurred long time ago and patients cannot remember or wouldn't tell.



## Comics stories

With earned virtual oxygen coins and **fulfilled inhalation plan**, the user can enter **interesting and funny comics stories** that show real-life or fictional situations linked to CF.

The reward-like mechanism of achieving these stories aims to build **long-term habits** but also **educates the user** about different aspects of CF life in an entertaining way.

# Results

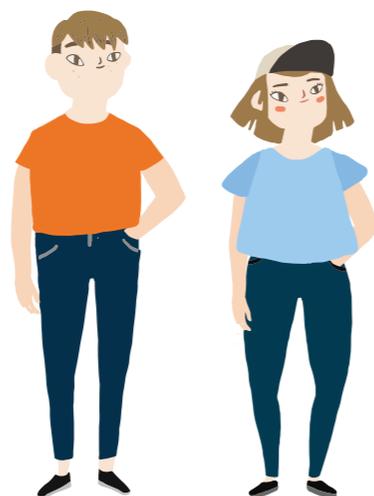
## Data from app usage

2nd April, 2019 LAUNCH in Czech Republic,  
Android platform  
/ metrics reference date: 30th May, 2019

**72%** of users **willing to share data** about usage for the **study purpose**

## Users data

- Target group in CZ: **122**
- Downloads: **267**
- Active instalations: **153**
- Active users: **103**
- Age range : from **6 - 26**
- Male : **55.6 %**
- Female: **44.4. %**



## Therapy data

- Inhalation sessions reported **1416**
- Most used device **Pari Eflow Rapid**
- Most inhaled medicine **NaCl solution**
- Aprox used **4.7 liters of NaCl**



## Did you know?

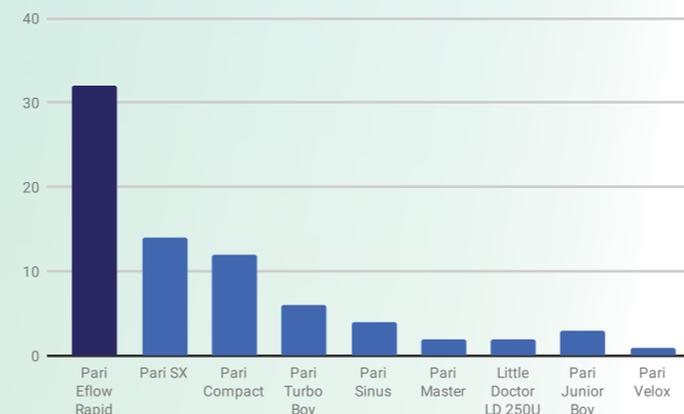
**RamboRat** is the most popular comic story



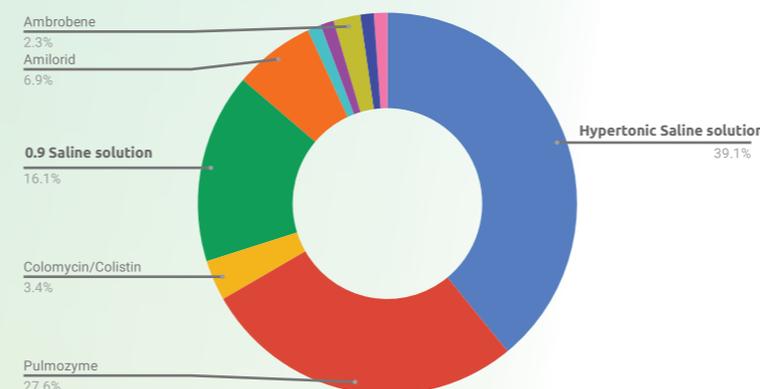
## Statistics

Date: May 2019  
Respondents: 21

### Used nebuliser devices

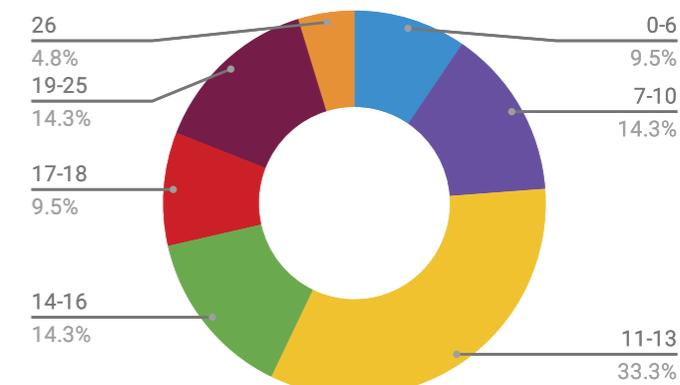


### Nebulised medicines/solutions

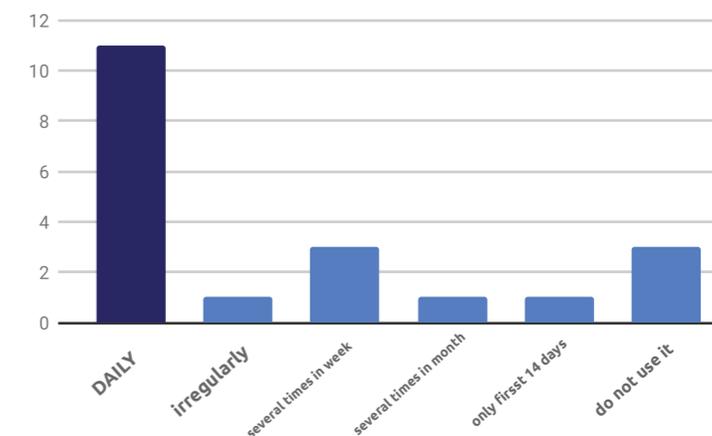


**81%** of respondents recommend app to others

### Age of responders



### How do you use CF Hero app?



### Most loved features

