


SMART INHALERS

Breathing Innovation into Respiratory Care




The Crucial Need for Smart Inhalers in Modern Healthcare




1 out of every 10 children have symptoms of **asthma**





More than **300 million** people are living with asthma globally




By 2030, more than **500 million** people are forecasted to be impacted by **Chronic Obstructive Pulmonary Disease (COPD)**.



Smart Inhalers can help COPD and Asthma patients by:


-  Improving inhalation techniques
-  Enhancing medication adherence
-  Dosage reminders
-  Trigger identifications and real-time tracking

The Transformative Impact of Smart Inhalers




39%

Reduction in oral steroid use




61%

Reduction in severe exacerbations in adults



80%

Reduction in hospital admissions of children

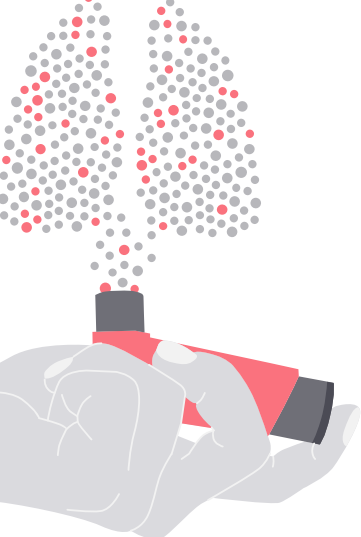


180%


Increase in preventive medication adherence in children and 59% in adults


IoT vs. Non-IoT Inhalers – Which Is Right for You?


The choice between them should be based on individual **patient tech-savviness, medical needs, infrastructure availability, data privacy preferences, etc.**




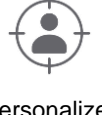
Non-IoT Smart Inhalers



Affordability



Immediate Feedback



Simplicity


Reduced Privacy Concerns


Personalized Care


Enhanced Physician Communication


Predictive Analytics


Improved Adherence


IoT-based Smart Inhalers

Inhalers Reimagined: Latest Advances in Respiratory Care

Computational fluid particle dynamics and ML integrated smart inhaler designed to treat juvenile-onset recurrent respiratory papillomatosis (JORRP)

Inhalable nanoparticle sensors for early lung cancer detection via a simple urine test


Tailored Drug Delivery



Novel Therapy: Exosome-based Drug Delivery

Inhalable exosomes, or nanobubbles, directly deliver IL-12 mRNA to the lungs





Inhalable Sensors for Diagnostics



Novel Mobile-IoT-based PUFFClicker3

A universal smart dose inhaler tracker compatible with pressurized metered dose inhalers (pMDI) and dry powder inhalers (DPI) inhalers

Breathing Innovations: Tomorrow's Respiratory Care

-  **Enhanced Connectivity and Data Integration**
-  **Advanced Sensor Technologies and Miniaturization**
-  **Artificial Intelligence and Machine Learning**
-  **Patient Education and Engagement**

- 5G and IoT Integration | Seamless EHR Integration | Telehealth Integration
- Environmental and Biometric Sensors | Smart Inhaler Caps | Ergonomic Improvements
- Predictive Analytics | Personalized Treatment Plans | Virtual Health Coaches | Voice-Activated Commands
- Augmented Reality (AR) Training | Interactive Apps and Resources | Gamified Adherence Tools

Perspectives

- **Personalized Health Monitoring:** Future smart inhalers will use advanced sensors and data analytics to monitor asthma and COPD in real time, improving personalized care.
- **Integrated Digital Health:** Integration with AI, IoT, and wearables will enable seamless data sharing among patients, providers, and researchers, enhancing clinical decision-making and patient outcomes.
- **Promoting Adoption and Accessibility:** Collaboration in development, rigorous trials, and ensuring data privacy and regulatory compliance are crucial for widespread adoption and accessibility of smart inhaler technology.

About FutureBridge

FutureBridge is a techno-commercial consulting and advisory company. We track and advise on the future of industries from a 1-to-25-year perspective to keep you ahead of the technology curve, propel your growth, identify new opportunities, markets and business models, answer your unknowns, and facilitate best-fit solutions and partnerships using our platforms, programs, and access to global ecosystems and players.