

Establishing leadership in  
the rapidly accelerating  
respiratory remote digital  
monitoring environment

MARCH 2021

adherium

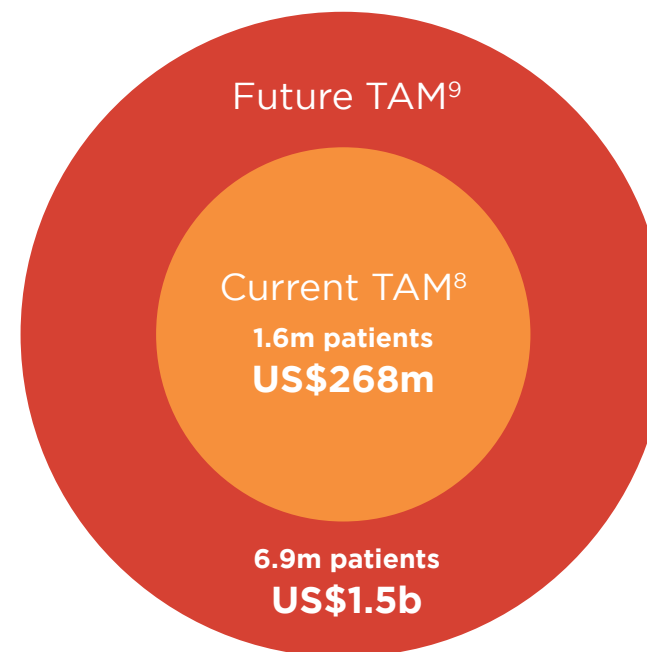
- Rapid evolution of telehealth & remote digital monitoring, accelerated by COVID and new reimbursement programs
- Well placed with strategy development beyond adherence alone, toward multi-sensor respiratory management ecosystem
- Potential for software platform leverage with established data portal capability
- Good progress made with core data portal refresh & development of physiologically enabled adherence monitoring devices
- Progress being made with existing commercial partners & >10 ongoing new partner discussions advancing
- Fundraise initiated to progress business toward breakeven target

\$15m fundraise to progress beyond 2021 commercial evaluations



**US\$34b** Annual preventable US healthcare cost for uncontrolled Asthma & COPD patients

ER visits	Hospitalisations	Severe Uncontrolled Patients
~1.6m Asthma pts <sup>1</sup>	~0.2m Asthma pts <sup>1</sup>	~1.0m Asthma pts <sup>2</sup>
~1.8m COPD pts <sup>3</sup>	~0.7m COPD pts <sup>3</sup>	~0.6m COPD pts <sup>2</sup>
Cost range per visit <sup>5,6</sup> Excludes 30-day readmission penalties and ITU cost	Cost range per hospitalisation <sup>6,7</sup>	RMP CPT code Billable amount per Patient <sup>4</sup> Coded 99453, 4, 7
~\$390-\$2,200	~\$5,000-\$21,000	~\$1,350 pa
~\$4.4b	~\$11.7b	~\$2.2b
Est. Avg. Cost for 3.4m patients ER visits	Est. Avg. Cost for 0.9m patients hospitalisations	Est. Total Billable amount for 1.6m patients



**US Asthma population<sup>2</sup>**

**1.0m**

**4.3m**

**9.5m**

**13.8m**

**15.8m**

**25.4m**

SEVERE UNCONTROLLED  
DIFFICULT TO TREAT GOLD C+D

MAINTENANCE

TREATED

DIAGNOSED

PREVALENCE

**US COPD population<sup>2</sup>**

**0.6m**

**2.6m**

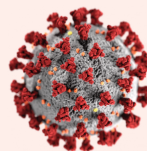
**6.2m**

**8.8m**

**12.2m**

**25.8m**

Focus on US market with initial TAM<sup>2,8</sup> of **US\$268m** & supported by our investment program expands to the larger **US\$1.5b** opportunity<sup>2,9</sup>



Significant emerging opportunity in diagnosis, assessment & management of chronic respiratory impact of post-COVID-19 syndrome, or “long COVID”, relevant for remote digital sensor management

1 [https://www.cdc.gov/asthma/most\\_recent\\_national\\_asthma\\_data.htm](https://www.cdc.gov/asthma/most_recent_national_asthma_data.htm), Asthma Attacks  
2 Patient Epidemiology sources; AstraZeneca Epidemiology data  
3 ES Ford Hospital discharges, readmissions, and ED visits for COPD or bronchiectasis among US adults: findings from the Nationwide Inpatient Sample 2001-2012 and Nationwide Emergency Department Sample 2006-2011 Chest, 147 (2015), pp. 989-998  
4 <https://www.cms.gov/apps/physician-fee-schedule/search/search-criteria.aspx>  
5 American Health & Drugs Benefits “Inpatient Treatment of Asthma Is Costly: \$5000 per Hospitalization Calls for Proper Office Management”, 14/02/2019  
6 Wang T, Srebotnjak T, Brownwell J, Hsia RY. Emergency Department Charges for Asthma-related Outpatient Visits by Insurance Status. J Health Care Poor Underserved. 2014 February ; 25(1): 396-405  
7 Dalal AA, Shah M, D’Souza AO, Rane P. Costs of COPD exacerbations in the emergency department and inpatient setting. Respir Med. 2011;105(3):454-460  
8 Current Target Accessible Market (TAM) based on current coverage of 56% of inhaler types sold & 8 drug presentations. TAM represents both device & expected annual data charges  
9 Future TAM based on current coverage of 80% of inhaler types sold & 18 drug presentations. TAM represents both device & expected annual data charges

# opportunity

Telehealth & remote digital management of patients transformed in last 24 months due to introduction of reimbursement codes & impact of COVID pandemic

## COVID has changed expectations on care delivery

- Estimates of pre-pandemic awareness of telehealth benefits has risen from 24% to 80%<sup>3</sup>
- Estimates over 1/3 of ambulatory visits could be done remotely<sup>3</sup>
- Telehealth<sup>3</sup> offers possibility for over 50 million Americans in remote areas access to routine healthcare
- 11% consumers using telehealth in 2019<sup>2</sup>
- 76% consumers indicated they were highly or moderately likely to use telehealth going forwards<sup>2</sup>
- 50-175x reported increase in health systems & practices reported use of telehealth<sup>2</sup>
- Estimated \$250b market size<sup>2</sup>

## Reimbursement availability now a catalyst for adoption

- Introduction of Medicare reimbursement for Remote Patient Monitoring opened the professional market by creating clear financial incentives & a path to payment for physicians
- This was a 'watershed' moment; Medicare & Medicaid cover 1/3 of the patient universe with insurers covering remaining 2/3 typically following Medicare / Medicaid lead in coverage & payment

*"...in April 2020, nearly half (43.5%) of Medicare primary care visits were provided through telehealth compared with less than one percent (0.1%) in February before the public health emergency [Covid-19]"<sup>1</sup>*

1. <https://www.hhs.gov/about/news/2020/07/28/hhs-issues-new-report-highlighting-dramatic-trends-in-medicare-beneficiary-telehealth-utilization-amid-covid-19.html>

2. <https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/telehealth-a-quarter-trillion-dollar-post-covid-19-reality#>

3. Lisa Gill JPM insights commentary <https://www.jpmorgan.com/solutions/cib/insights/health-care-conference#insights>



# opportunity

Telehealth & remote digital management of patients transformed in last 24 months due to introduction of reimbursement codes & the impact of COVID-19 pandemic



1 Provider sets patient up on a remote monitoring platform/system



Provider bills  
**once**

2 Physiological data is captured/recorded over at least 16 days



Provider bills  
**monthly**

3 Clinical staff review RPM data & interact with the patient



Provider bills  
**monthly**

Physician's billable amount per patient per year **~US\$1,350+**

Reimbursement shows 2021 National Rate for non-facility sites. Actual rates vary by Provider & depend on site-of-care. Physician specific time can also be billed instead of 99457, for up to 30 mins of time using 99091. Separate codes exist for remote monitoring of blood pressure & for mental health services.

SOURCE: CMS Physician Fee Schedule, <https://www.cms.gov/apps/physician-fee-schedule/search/search-criteria.aspx> (accessed Jan 5 2021); CMS Final Rule CY21 (Federal Register)

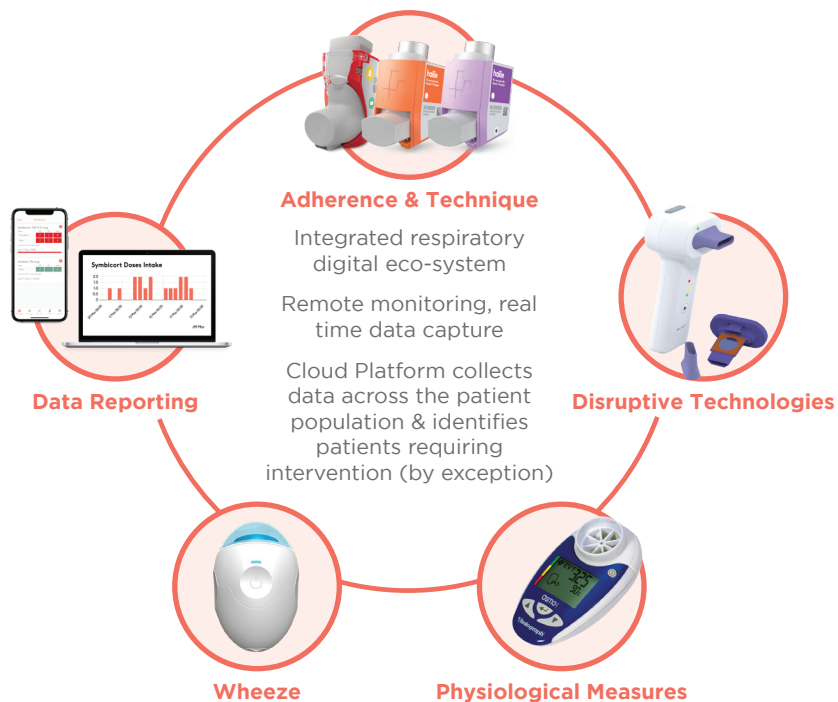
## 2021 Payment Rates

CPT Code	Descriptor	Value US\$ (non-facility)
99453	Patient set up (once per episode of care)	<b>\$18.77</b>
99454	Device delivery/supply (every 30 days, min.16 days of data collection)	<b>\$62.44</b>
99457	Patient Monitoring & interactive communication First 20 mins (every 30 days)	<b>\$51.61</b>
99458	Patient Monitoring & Communication. Each additional 20 mins (every 30 days)	<b>\$42.22</b>
99091	Collection & Review of Physiological Data (every 30 days)	<b>\$59.19</b>

# strategy

Opportunity NOW to transform Adherium to lead commercially valuable integrated management solutions

## respiratory digital management ecosystem



Business with range of digital inhaler sensors & portal platform for adherence monitoring

## evolution



### Adherium

#### Now

Adherium Hailie® Sensors  
Peak Flow Meter

Business based on a respiratory ecosystem providing a portal & software platform with architecture for the integration of proprietary & 3rd party digital sensors, connected devices & data management systems

Sensors  
Portal  
Adherence

### Phase 1

Assets from current relationships

Adherium Hailie® Sensors  
Peak Flow Meter

Revenue generation  
Healthcare providers & payers  
Partner Summatix / Planet Innovation  
for data aggregation / analysis  
Population risk assessment

### Phase 2

Assets from current and future discussions

Assets from current relationships

Adherium Hailie® Sensors  
Peak Flow Meter

### Existing Partners



- Phase 1 training completed
- Pilot Program of evaluations in specialist Asthma centers initiated
- Pilot read outs expected Q2 CY2021



- Initial workflow assessment complete
- Modifications made to patient materials & app in response to feedback
- Rescue inhaler patient population data collection ongoing



- Primary activity from clinical trials & development contracts
- Four clinical studies underway using Adherium sensors
- Development projects upgrading patient user experience initiated

### Current Portfolio

#### Sensors





- Physiologically enabled sensor development progressing well (plan increases asthma/COPD device market coverage from 56% to 80% by US medication volume by H1 CY2022)
- Physiological measure proof of concept transferred to commercial product design
- Submission of first 510(k) of physiological enabled sensor expected Q1 CY 2021
- Finalist in “Australia by Design” Innovation Award TV series

#### Software

- Migration of platform to Microsoft Azure® completed to deliver capacity & capability for scale-up
- Peak Flow meter integration expected early Q2 CY2021 as first step in ecosystem build
- App & portal upgrades enhanced user experience & data presentation for patients & physicians
- System architecture design allows integration of third party devices into the platform

# strategy

HGE Health & Monaghan Medical Corporation open up the professional market via immediate distribution capabilities into hospitals, specialist clinics & disease management providers

	Right time	Channel Partner	Existing Revenue Models	Planned Future Revenue Model with Physiological Sensors
Current Channels	Specialist Distribution (Hospitals & Clinics)		Sensor sales at unit transfer price	Sensor sales at unit transfer price Software license for platform access Data licence fee
	Disease Management Providers		Per patient per sensor per month fee	Per patient per sensor per month fee Share of remote patient monitoring service fee to providers Share of incremental savings from Risk Share contracts
Legacy Channels	Direct Sales		Sensor sales Clinical trial supplies & support	Sensor sales Clinical trial supplies & support Software licence for platform access
	Pharma		Sensor sales at unit transfer price Development contracts Clinical trial supplies & support	Sensor sales at unit price Development contracts Clinical trial supplies & support Data licence fee

Rapid acceleration in telehealth & digital monitoring reflected in increased partnering opportunities strengthening revenue stream potential with >10 ongoing commercial partnering engagements currently progressing at C suite level

Partner Type	Disease/Population Management Partners	CDMO's	Pharmaceutical Companies
<b>Rationale</b>	Connected Health Solution PERS & RPM Employer / Commercial Payers Plans Integrated Managed Care Consortia Telemedicine / Virtual Care Providers On-Line Pharmacies	Pharma / Biotech Medical Devices Inhaled Pharmaceuticals	Inhaled Pharmaceuticals
<b>Product Range</b>	Series of ongoing discussions in North America to provide Hailie® digital sensors & portal reporting to enhance existing care provision & remote patient monitoring	Potential to integrate Hailie® digital sensor technology into CDMO products & leverage Adherium portal with CDMO customers	Potential to provide complementary digital sensors alongside sponsor products & leverage Adherium portal
<b>Revenue Model</b>	Adherium Sensor sales Software licence fee (SaaS & PaaS) Data licence fee		

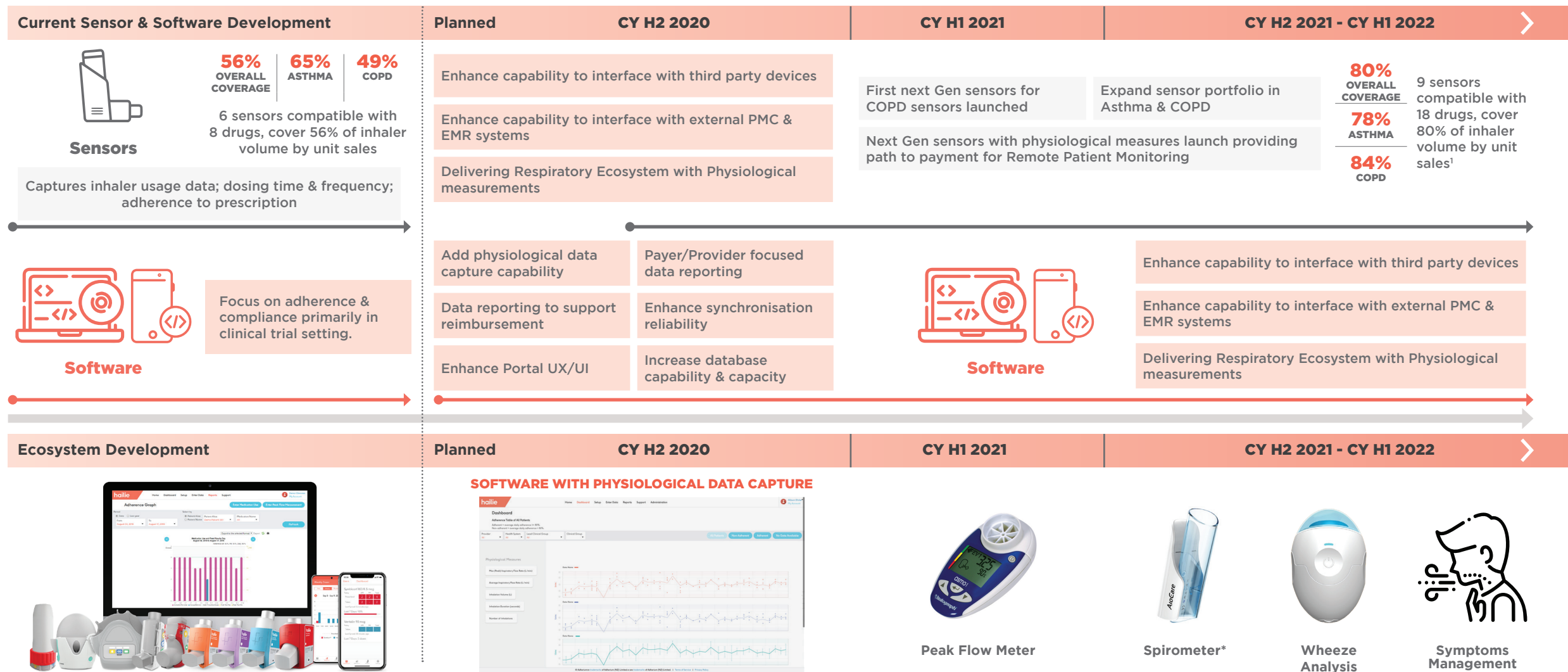
Ecosystem evolution enhances overall product proposition to end clinical providers & payors with multiple longitudinal data points, leverages portal platform, & extends revenue stream potential for individual & combination of assets beyond adherence alone

Ecosystem Build	Initial ecosystem of Adherium sensors plus 3rd Party Devices & Apps				Second Phase under investigation	
Product	Adherium Sensors	Peak Flow Meter	Spirometer	Wheeze Analysis	Capnography COPD	COPD exacerbations predictor
Rationale	Monitors patient adherence (frequency, date & time); inhaler technique; physiological measures*	Measures maximum speed of expiration, assesses ability to breath air out as an assessment of airway obstruction.  Primarily used in asthma.  Complementary diagnostic assessment of control with adherence. Portal platform leverage	Measures lung function. Volume of air inspired & expired. Primarily for COPD patients  Complementary diagnostic assessment of disease control with adherence  Portal platform leverage	Measures wheeze a symptom of airway obstruction in asthma.  Complementary diagnostic in conjunction with other parameters such as adherence, peak flow & lung function	Extends offering in COPD & supports predictive analysis of exacerbations.  Application in asthma under investigation	Extends offering in COPD & supports predictive analysis of exacerbations
Product Range	6 sensors available today with 56% coverage, build to 9 with physiological data capture giving 80% coverage in H1 CY2022	Peak flow sensor integration progressing.  Commercially available with portal integration from H1 CY2021	Digital device integration assessment progressing.  Target commercially available with portal integration from H2 CY2021	Initial pharmacy pilot & clinical trial evaluation being initiated in Australia	Point of care device with physician data reporting	App with integration to peak flow data & biomarker data
Revenue Model	Adherium Sensor sales Software licence fee (SaaS & PaaS) Data licence fee					

Significant potential for further ecosystem sensor device integration including digitised spacers, nebulizers, OPEP mucus secretion devices

# strategy

Opportunity NOW to transform Adherium to lead commercially valuable integrated management solutions in rapidly accelerating respiratory remote digital monitoring environment



### 1 CY Q3 2020 – Q2 2021

Initial partner model establishment/proof of concept

- Validate channel partners
- Test operational model
- Validate business model
- Limited initial sensor volumes & orders
- Appointment of key leadership roles in US & CTO in Australia
- Contracting new industry partners
- Establish ecosystem framework & initial sensor integration assessment

### 2 CY Q2 2021 – Q4 2021

Partner scale-up in US with revenue traction

- Scale-up of HGE & Monaghan; initiate industry partner activity
- Progressive revenue growth
- Increase penetration in COPD
- First wave sensors with physiological measures
- Complete market launch of full range of physiological enabled sensor
- Limited highly selective ex-US activity
- Pilot ecosystem build with early roll out of 3 new integrated sensors

### 3 CY 2022

Full expansion & platform leverage in US & ex-US

- Accelerated US commercialisation with full portfolio
- Potential expanded scale-up ex-US
- Assess next wave device development e.g. nebulisers/integrated sensors
- Potential multi-provider data integration leverage & monetisation
- Scale ecosystem with further new sensors with progressive revenue growth

\$15m fundraise to progress beyond 2021 commercial evaluations



# use of funds

## Structure

- Shares on issue: 679,596,011
- Available capacity:
  - ❖ LR 7.1 15% 101,939,401
  - ❖ LR 7.1A 10% 67,959,601
- Commitments from existing shareholders
- Agreement in principle for conversion of Secured Convertible Notes
- Pricing – to be confirmed

## Use of Funds

Research & Development	\$9.1m
Sales & Marketing	\$4.0m
General & Administration	\$1.2m
Offer expenses	\$0.7m
<b>Total</b>	<b>\$15.0m</b>



**James Ward-Lilley**  
Chairman

- Extensive experience in operational & executive leadership roles in pharmaceutical & medical devices industry
- >28 years in global roles at **AstraZeneca**, successfully leading their Respiratory & AutoImmune Global Franchise
- Then joined **Vectura PLC**, the inhaled respiratory formulation & device specialists, as Chief Executive
- During time at both **AstraZeneca** & at **Vectura**, worked closely with both **Adherium** & **Propeller Health**



**Mike Motion**  
Executive Director & CEO

- >35 years experience in medical devices & pharmaceuticals
- 15 years **Baxter Healthcare** in international commercial leadership roles
- Joined **Biocompatible's**, 2005, led commercialisation of its interventional oncology portfolio, setting up a direct US sales force & global distributor network
- Grew business to -US\$40m; acquired by **BTG**, 2011 for US\$283m
- Led **BTG** Oncology, Digital & Vein franchises until acquired by **Boston Scientific** 2019
- Joined **Adherium**, November 2019: key activities re-financing, refresh strategy, new business model, technology development plan



**Anne Bell**  
Chief Financial Officer

- Qualified as a Chartered Accountant in 1984 with **Arthur Young** before joining **Arthur Andersen** & becoming a partner in the Business Consulting practice
- Joined **Colonial** (subsequently acquired by Commonwealth Bank of Australia) in 1996
- Global roles with **AstraZeneca** 2003-2008
- CFO for **Invida**, which was bought by **Menarini** in 2011 – remained at **Menarini** until 2018



**Geoff Feakes**  
Chief Technical Officer

- >25 years of information technology governance & leadership, solution innovation & realisation across Australia & Internationally including Europe, USA & Asia
- Executive positions in the Acute healthcare sector in Australia & 10 years with **Tunstall Healthcare**, both globally & Australasia
- Extensive experience with Remote Patient & Chronic Disease management platforms & solutions, including development & market release across multiple geographies
- Medical Technology Association of Australia (MTAA) Industry and Connected Healthcare Advisory Group member



**Jane Lapon**  
Head of Pricing & Reimbursement

- >25 years international experience in pricing & reimbursement in medical devices
- Held executive positions with **Bristol-Myers Squibb**, **BTG** & **Boston Scientific**
- Exemplary track record ensuring physicians get paid by public & private payers for company products globally
- Achievements include securing reimbursement for:
- Failing pulmonology device in Germany, reversing business trajectory
- Flagship device in France, securing ~€60m/year in public funding, resulting in exponential sales in a previously untapped market

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adherium 

**appendices**



# product

Robust and Secure Microsoft Azure Cloud ecosystem enabling end-to-end management of Respiratory Care. From Sensors on Inhaled devices through to a Digital Connected Dashboard. Delivering Physiological measures and medication usage.



**Adherium Sensors**

Sensors attach to inhaled medication device

Captures medication use & physiologic data

Connect via Bluetooth

Provide missed-dose audio-visual medication reminders



**Hailie® App**

Monitors device activation, adherence & timing

Physiologic measures in development

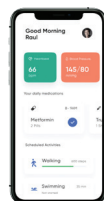
Reimbursement-compliant data

Patient feedback via app as appropriate

Enable in-app and/or on-sensor missed-dose medication reminders

Manually log peak flow readings

**3rd Party App with Hailie® SDK**



**Data management & analytics, Microsoft Azure**

**Regulatory, HIPAA & GDPR compliant cloud infrastructure**

**3rd party cloud**

**Payor / Provider Online Interfaces**



Reimbursement-compliant reports

Billing support & audit trail

**Health Care Professional**



Tailored clinical reports

Clinical dashboard connected to cloud

Clinical Triage and Alert Management

**3rd Party Integration**



Integration with 3rd party or EMR solutions

Integration via Rest API

Integration with 3rd party PMS and EMR solutions



### Hailie® Sensor features\*

- Audio / visual reminders on sensor or app
- Compatible with spacers
- Inhaler presence detection and identification
- Cap on, cap off
- Shake detector / duration / orientation sensor
- Pill crushing rotation detection, number & direction
- Activation coordination timing \*\*
- Physiological measures, inspired air flow, duration \*\*
- Battery status



#### Rechargeable:

Lasts a minimum of 3 months between recharging  
2-year shelf life, 2-year service life



#### Non-Rechargeable:

Lasts a minimum of 12 months between recharging  
3-year shelf life, 1-year service life



# product

## The Hailie® Solution Sensor Range



**hailie**  
for Ventolin™ HFA pMDI



**hailie**  
for Advair™ HFA pMDI



**hailie**  
for Flovent™ HFA pMDI



**hailie**  
for ProAir™ HFA pMDI



**hailie**  
for Symbicort™ HFA pMDI



**hailie**  
for Bevespi Aerosphere®



**hailie**  
for Symbicort™ Turbuhaler™



**hailie**  
for Advair™ Diskus™ /  
Flovent™ Diskus™



**hailie**  
for Spiriva® HandiHaler®



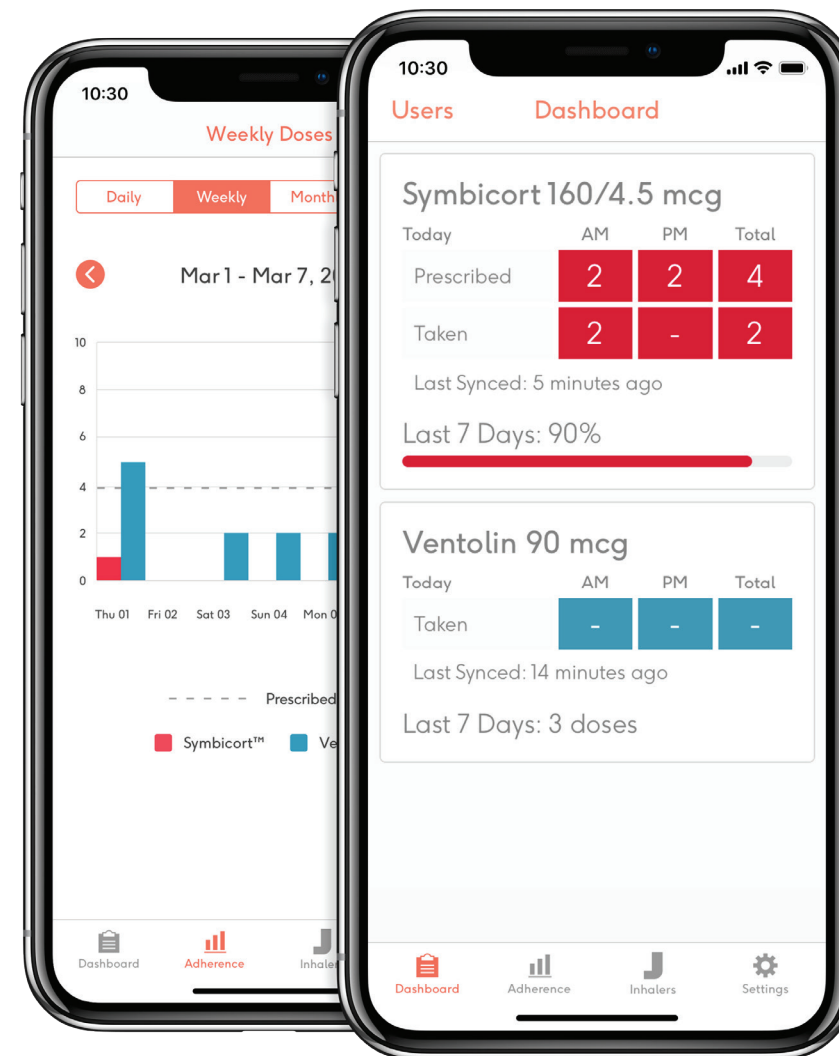
### Hailie® App features

The **Hailie® App** for patients to track their adherence & medication use & capture clinical data which is sent in real time via our secure cloud to the physician portal

Hailie® App is available in 2 formats:

- the **Hailie® Lite App** for “diagnostics”; passive monitoring to establish baseline adherence; data download at clinic visits or monitoring during clinical trials
- the **Hailie® Full App** provides full visibility of medication usage plus supporting features to help them manage their asthma/COPD. i.e. alarms, alerts, peak flow capture
- Our development roadmap allows integration with other 3rd party devices e.g. spirometry, Apple Health Kit.

Hailie App is available for iOS & Android.



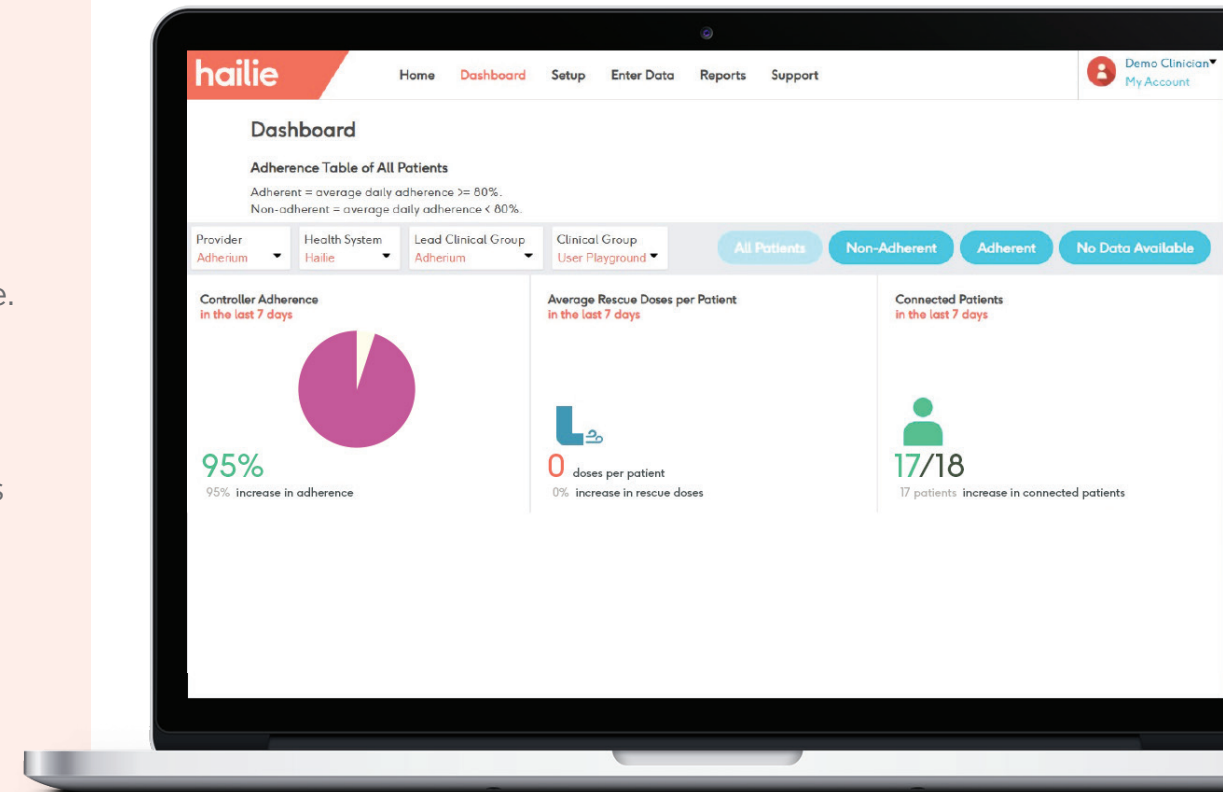
### Hailie® Portal features

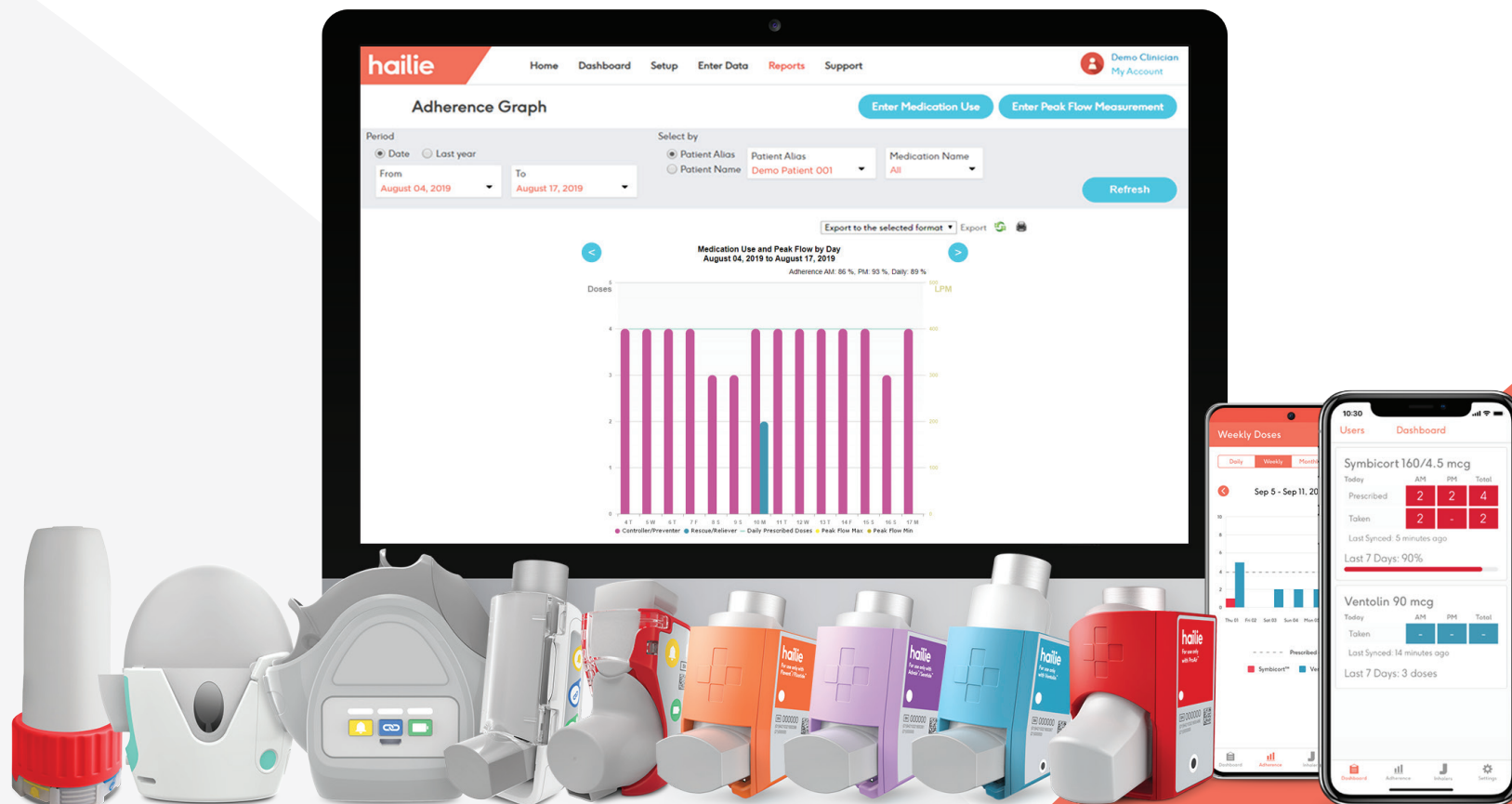
The Hailie® Portal - a secure Cloud-based remote patient monitoring platform enabling remote care and management of Respiratory patients.

Architected to enable Health Care Professionals to monitor & manage patient adherence & medication compliance, whilst utilizing real-time physiological data & supporting remote patient monitoring reimbursement practices in the US aligned with the Medicare Physician Fee (MPS) Schedule.

Hailie® Portal key features include:

- Secure Cloud platform
- Integration with Adherium's Rescue & Preventor Asthma & COPD Sensors
- Physiological data & Medication compliance reporting
- Real-time Adherence reporting
- Patient management
- Integration with Adherium SDK & Rest API
- Framework for future Data Management & Analytical services.





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