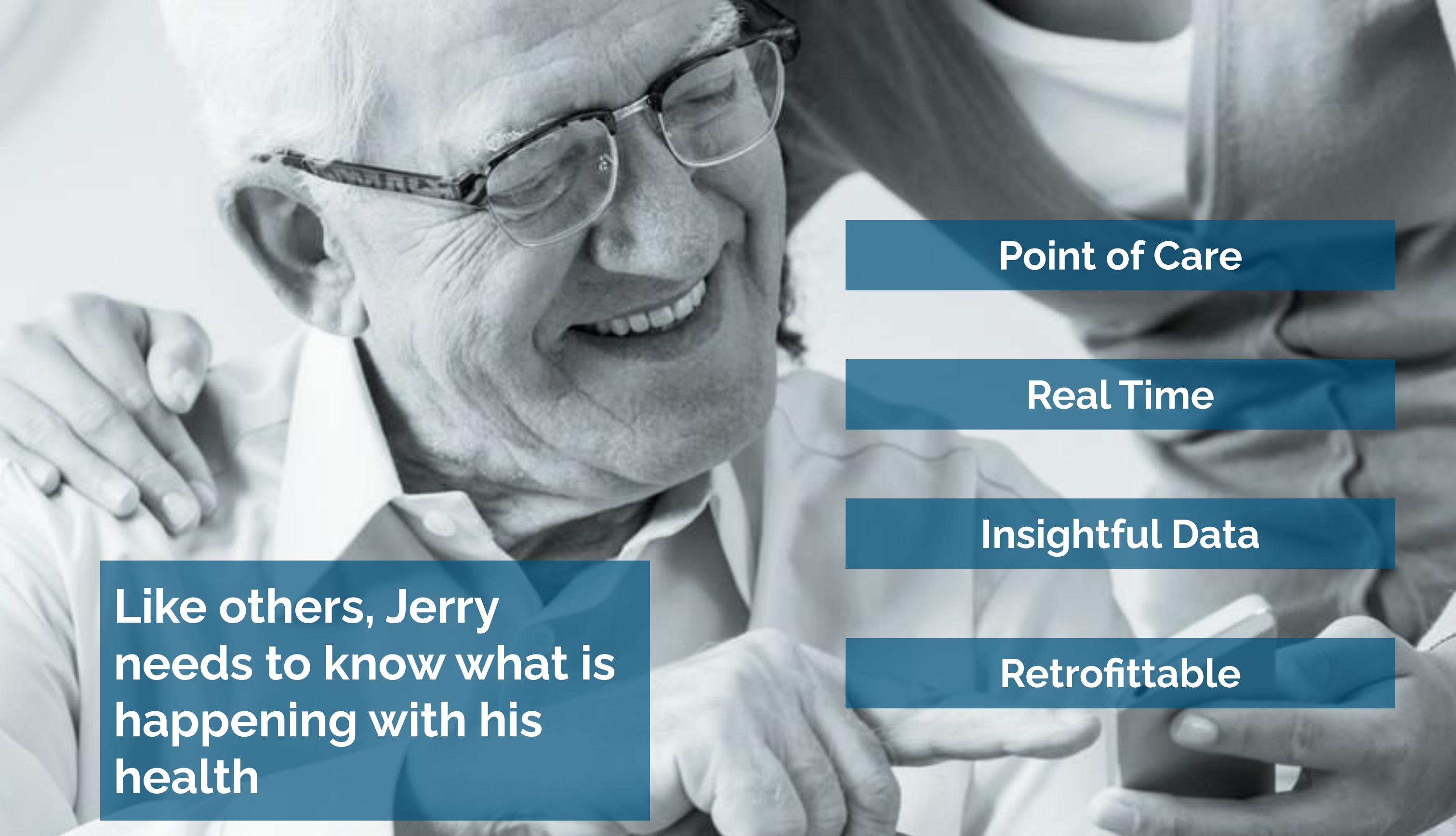




April 11th, 2018

Flow Measurement Devices



Point of Care

Real Time

Insightful Data

Retrofittable

**Like others, Jerry
needs to know what is
happening with his
health**



Does it matter?

Where is the opportunity?

What can we learn?

Product

- **Retrofittable device for toilets**
- **Urine Analysis**
- **Bluetooth data to cell phone**
- **Real time results and interpretation**



Customer Validation

>70 interviews completed

Average control over health
6.9/10

80% interested in continuous
health monitoring

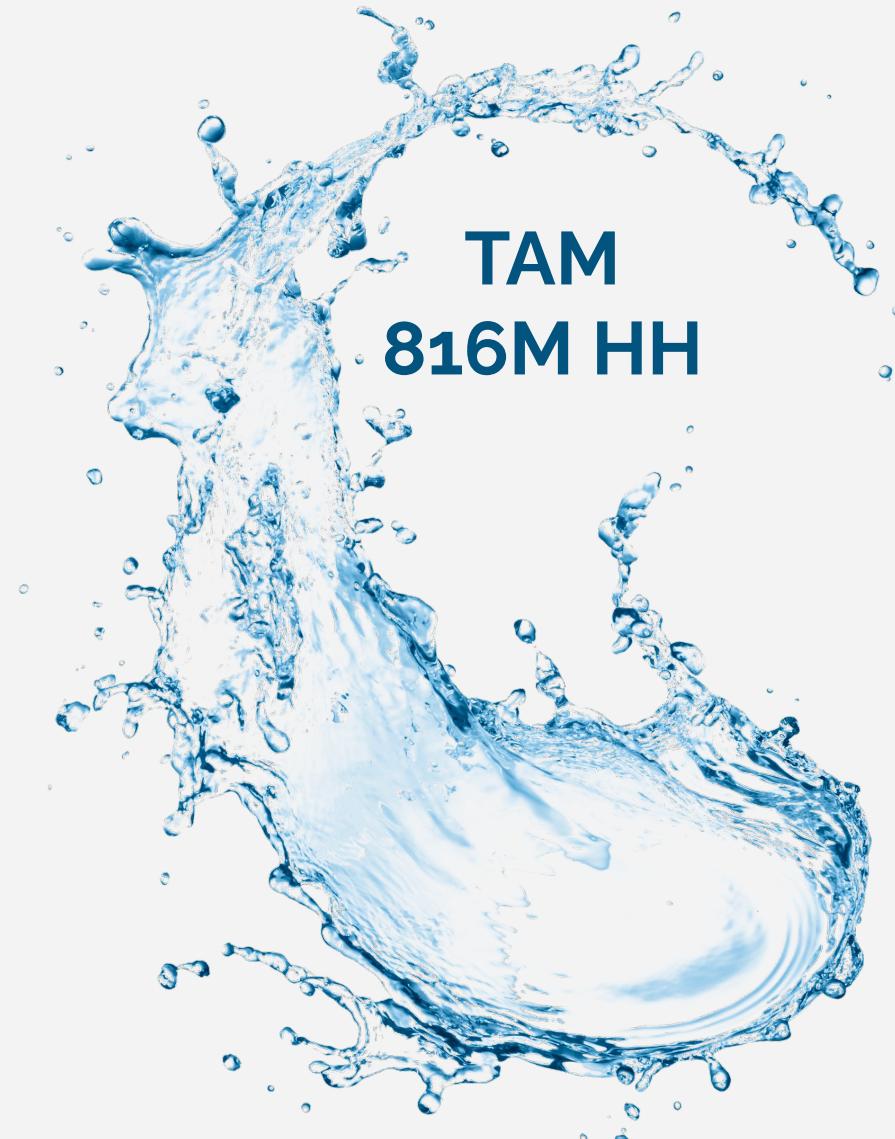
\$550 willingness to pay



Beachhead Segment

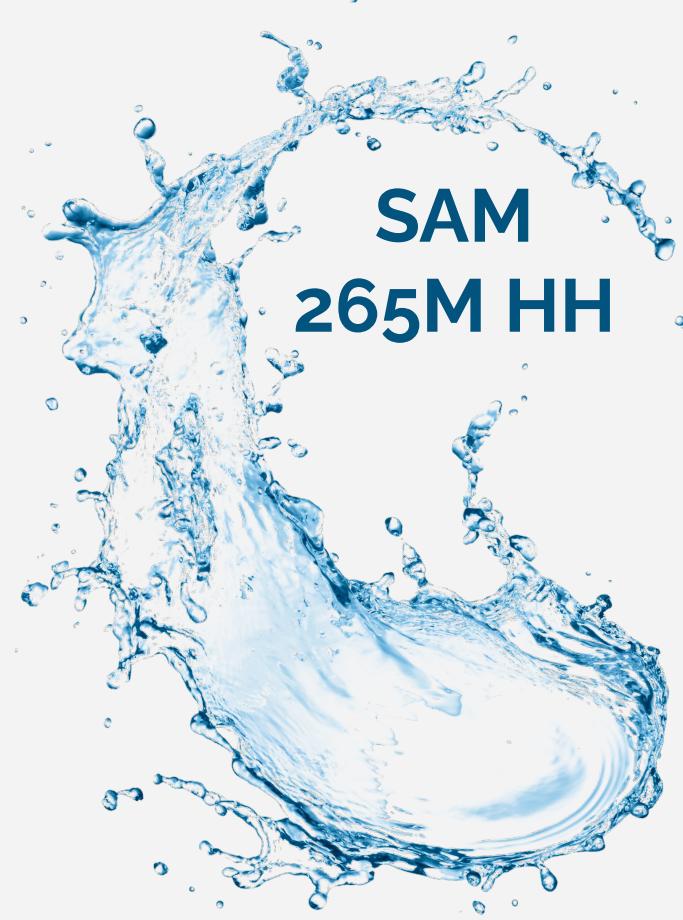
Who are they?	Senior Citizens	Senior Caretakers
What matters to them?	Maintaining quality of life	Keeping patients healthy
What motivates them?	To be there for loved ones	Concern for the people they look after
Who influences them?	Family	Facility administrators

Market Size



TAM
816M HH

\$4.08T



SAM
265M HH

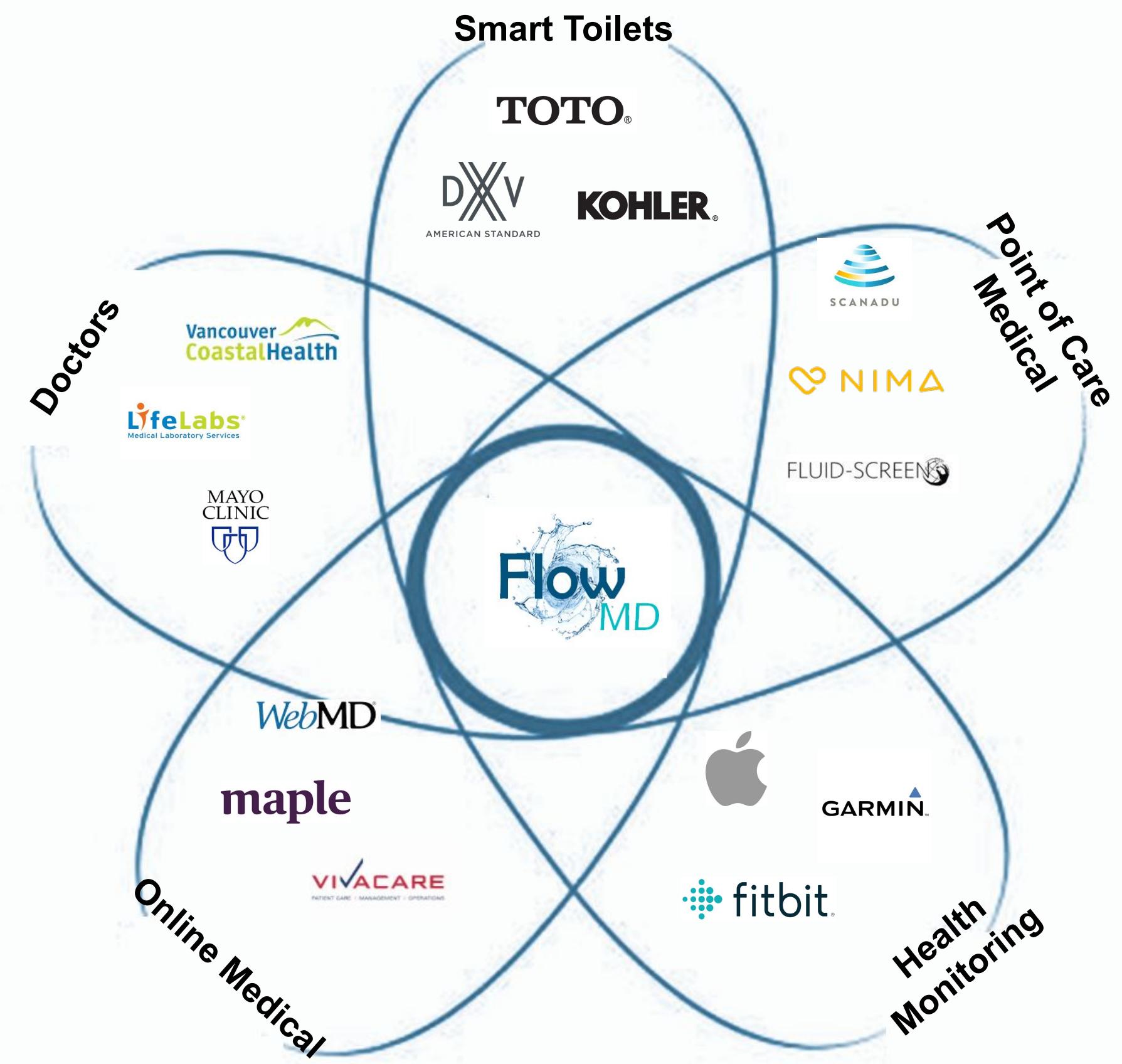
\$133B



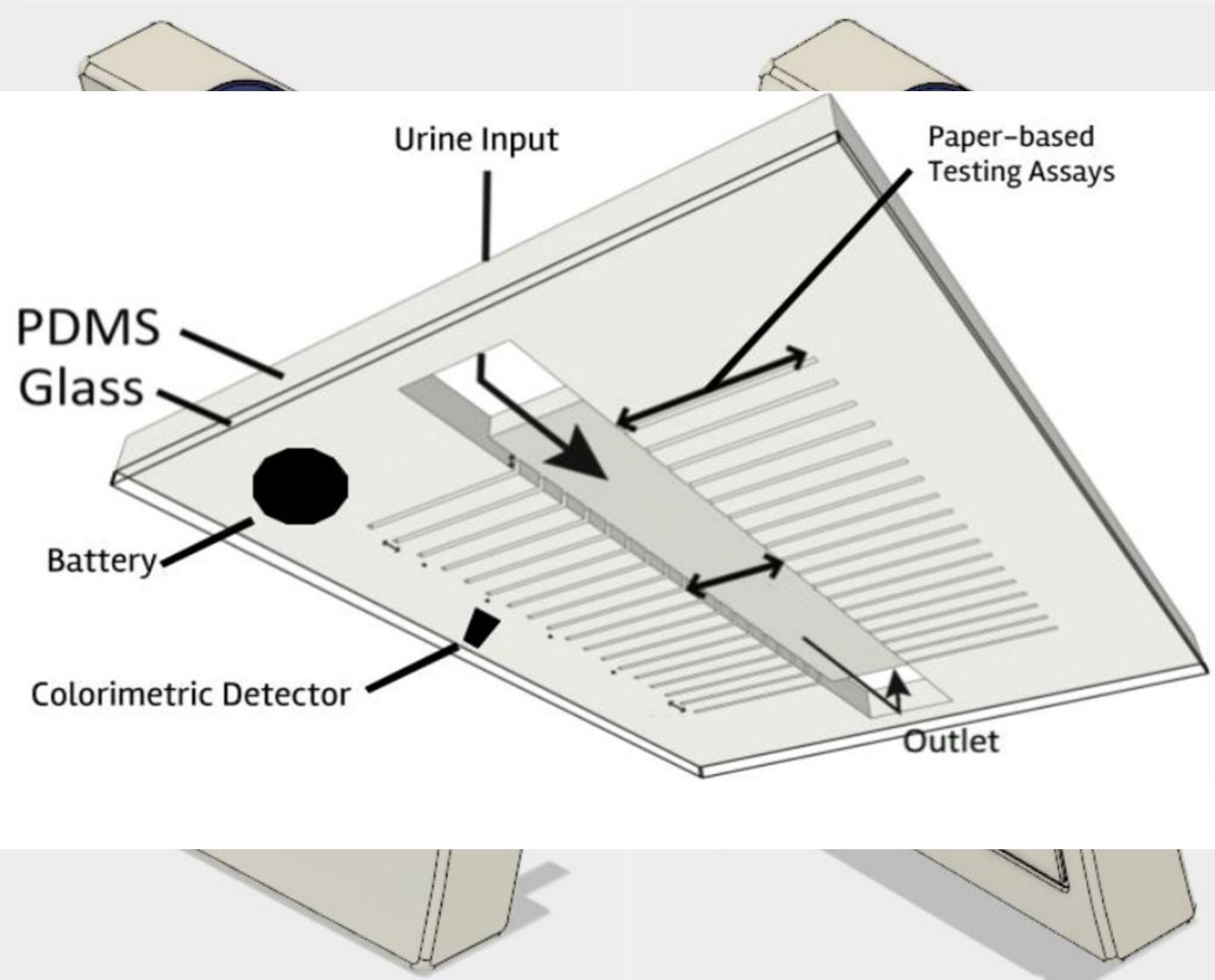
SOM
4M HH

\$1.85B

Competition



Product - Hardware Overview



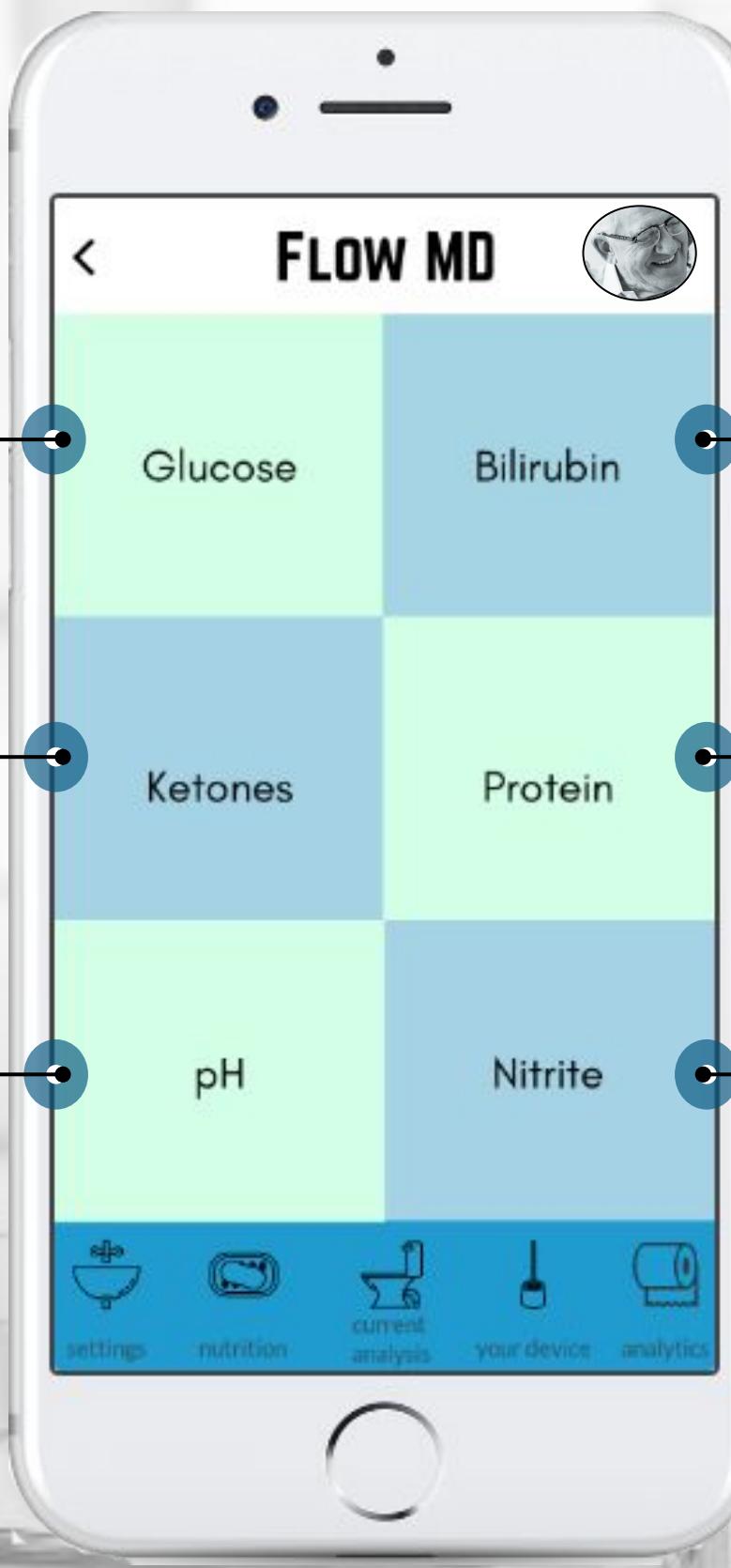
- Real-time health monitoring
- Keurig-model customizability
- Microfluidic-based detection
- Bluetooth integrated



Diabetes

Diabetes

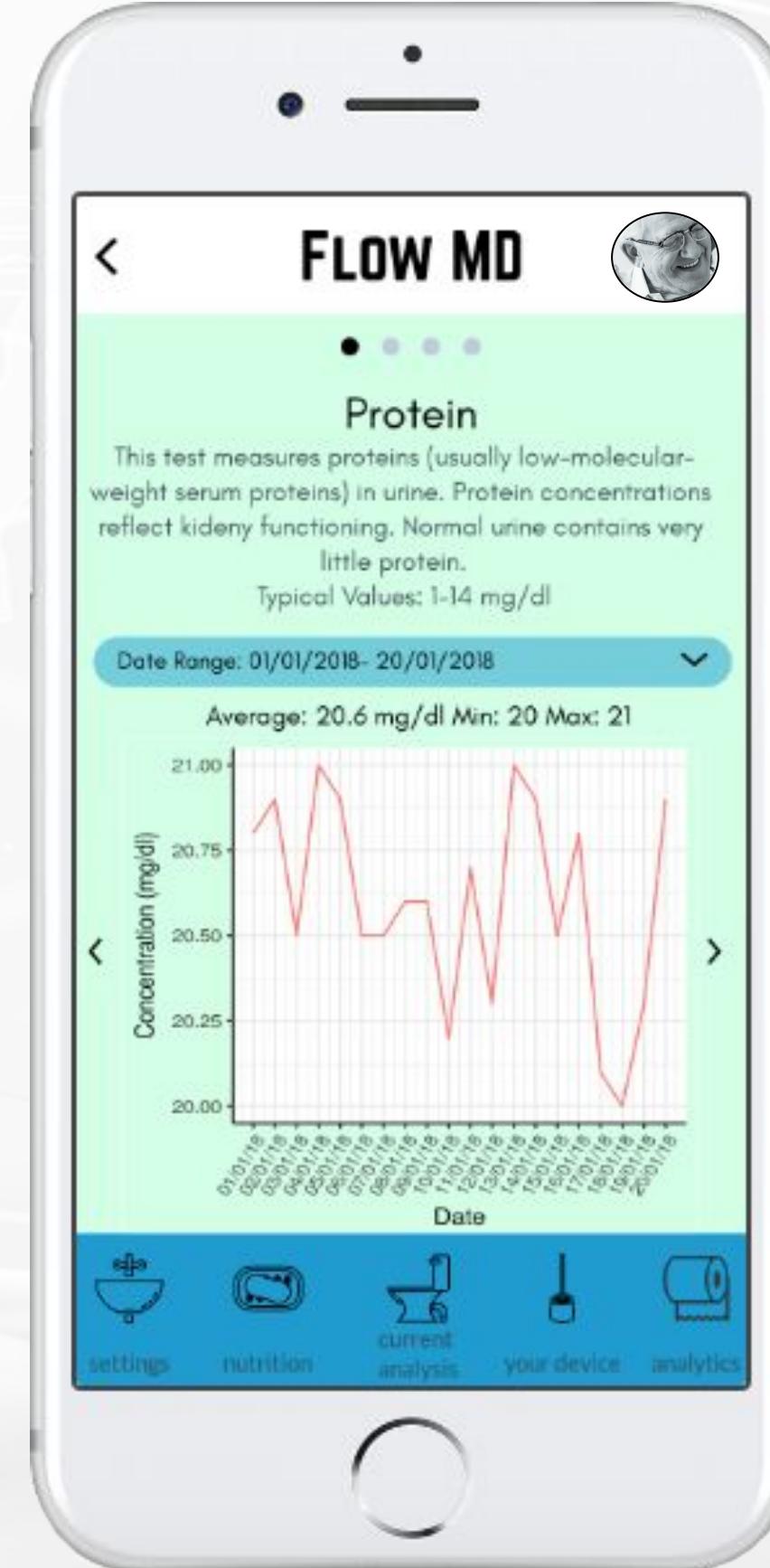
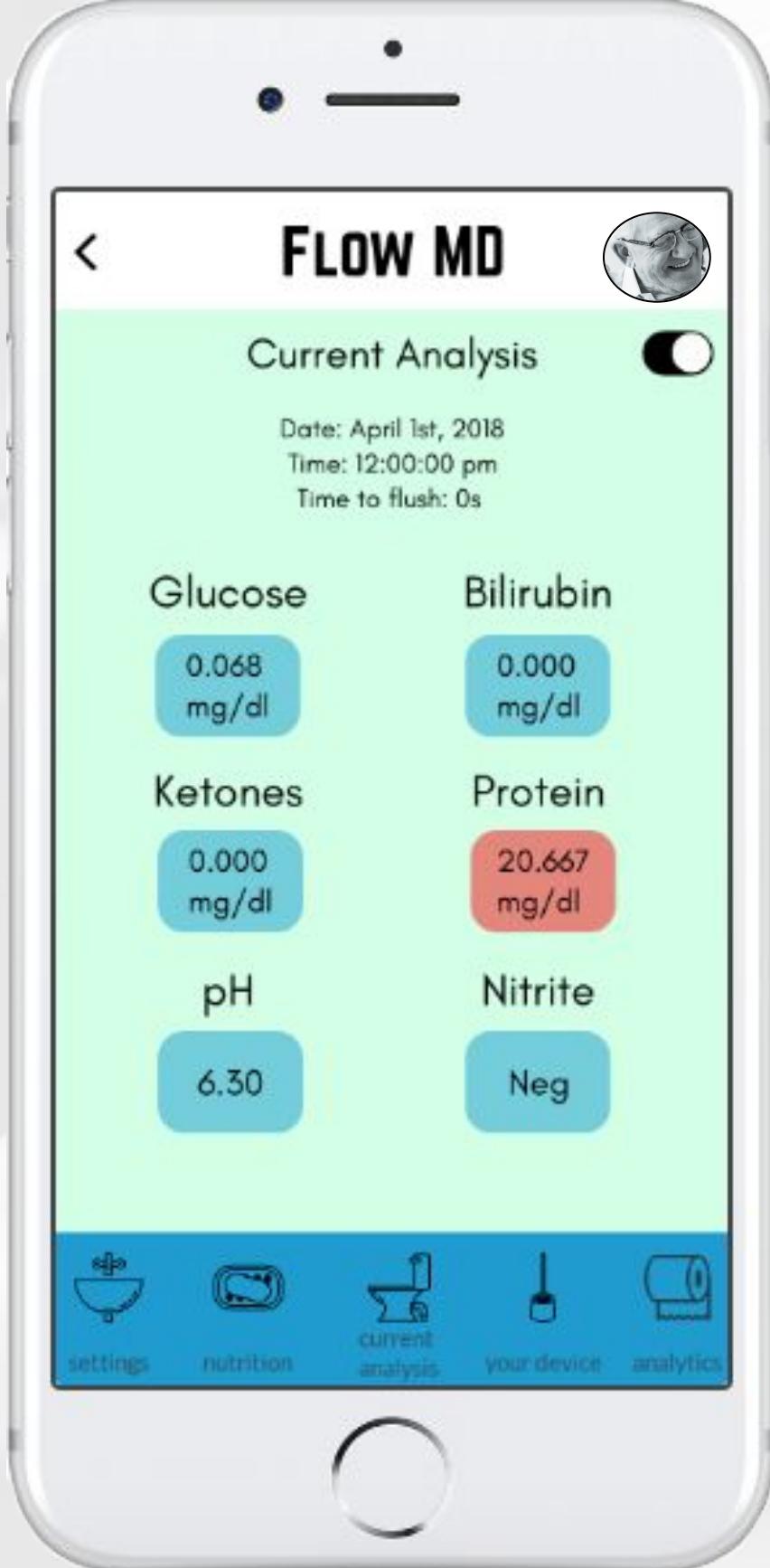
Body Acidity



Liver Disease

Kidney Disease/High Blood Pressure

Urinary Tract Infections



Customer Acquisition

Awareness

- Trade shows
 - Conferences
 - Trade publications
 - Cold-call
-
- Organic social media
 - SEO
 - Advertisement
 - Strategic partnership

Consideration

- Sales pitch
 - Test-trial
 - Word of mouth
-
- Website
 - SEO
 - Influencers & bloggers
 - In-store promotions

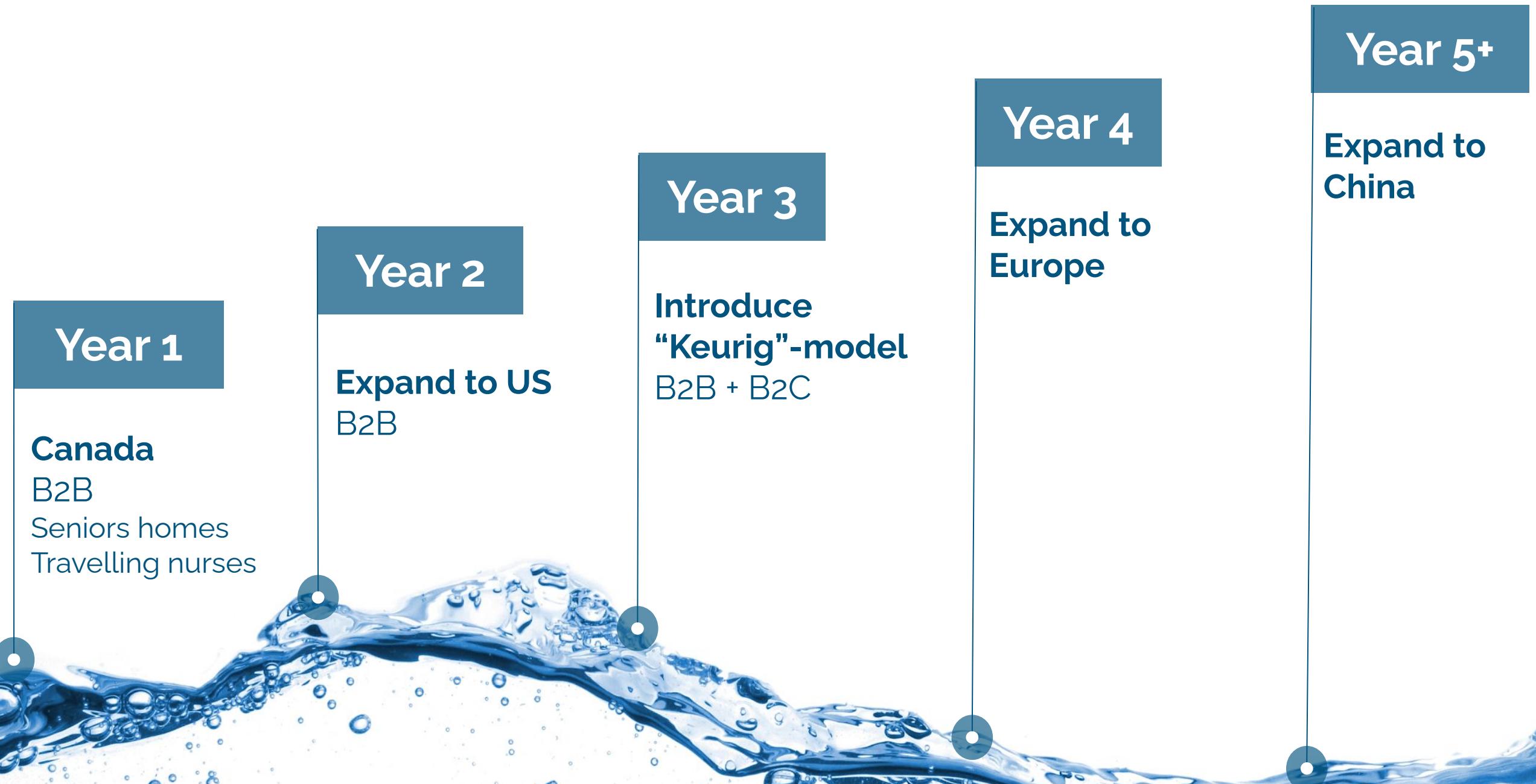
Purchase

- Direct sale
-
- Website sale
 - Pharmacies

Retention

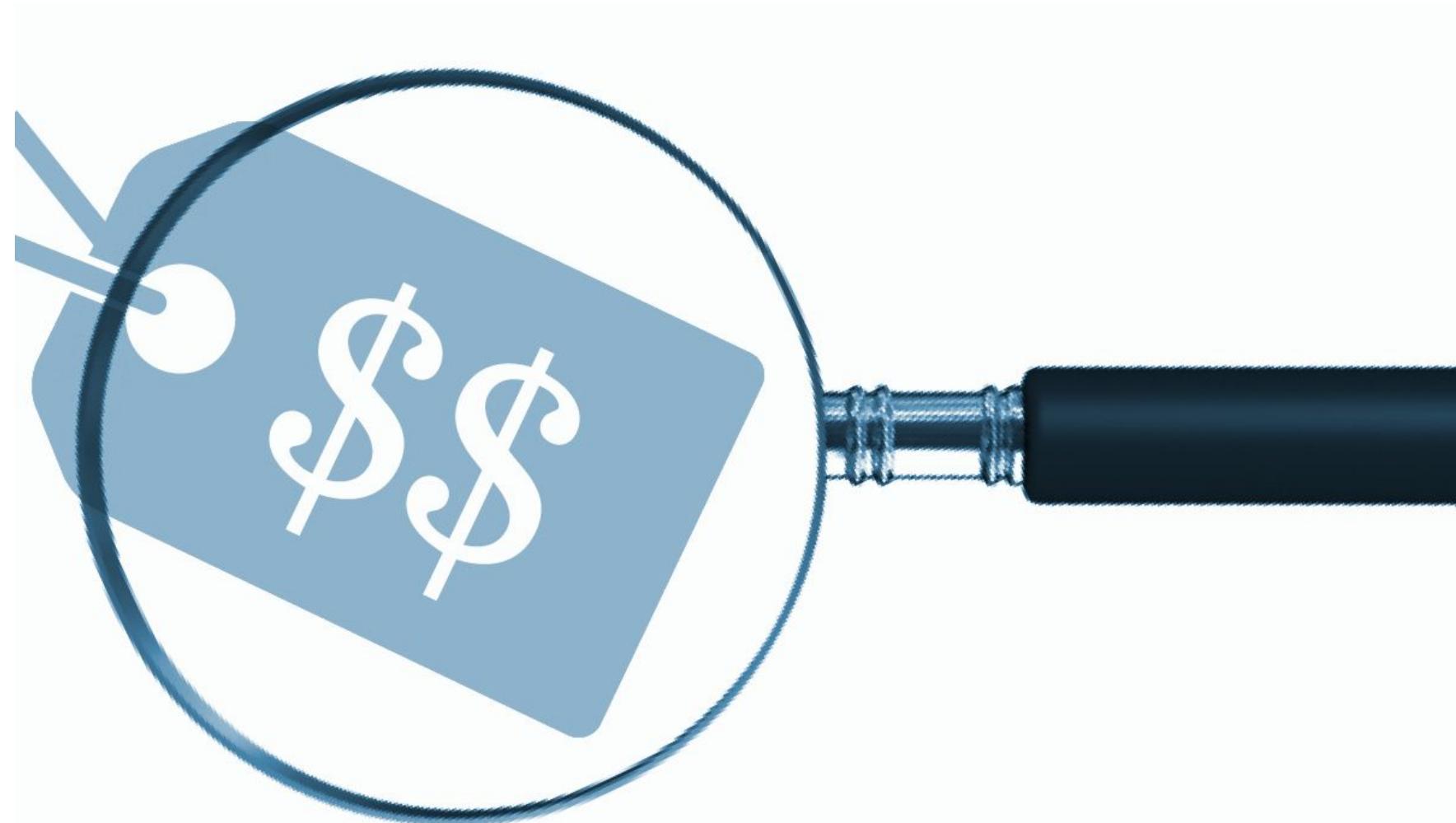
- Warranty
- Customer support

Expansion Plan

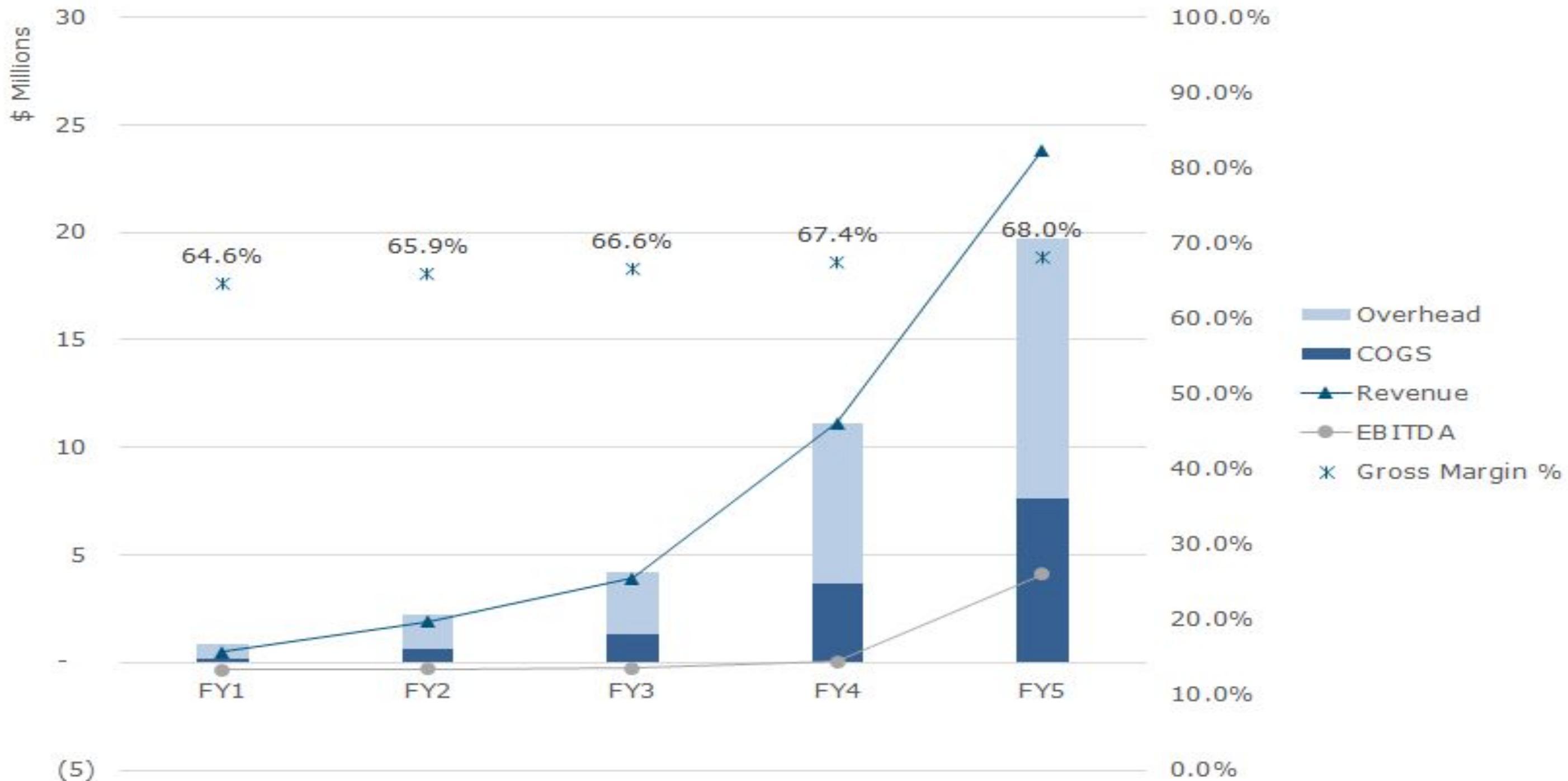


Pricing Strategy

- Device Cost: \$500
 - One-Time Purchase
- COGS: \$100
- Replacement Pods: \$25
 - Every quarter
- COGS: \$5



Financial Projections



A close-up photograph of a black electronic calculator with white numbers and symbols on its buttons. In front of the calculator is a piece of paper with a line graph titled 'Blended Gasoline Prices' showing price fluctuations from August to October. The background is slightly blurred.

Financing

- R&D cost projection
 - 2018 - \$100,000
 - 2019 - \$310,000
 - 2020 - \$720,000
- Financing
 - \$25k personal contributions
 - \$10k F&F financing
- Funding
 - IRAP
 - SR&ED

Why Us?



Patrick Fortune
BSc, BEd, MBA

2+ years marketing
experience



Tobiah Newton
PEng, MBA

5+ years project
management
experience



Evan Trofimchuk
BSc, MSc

5+ years life
sciences research
experience



Arjun Baghela
BSc, MSc

4+ years of life and
data science
research
experience



Moon Zhang
CFA, MBA

4+ years investing &
consulting
experience



Manny Jagpal
CPA, MBA

5+ years controller
experience



The Ask

- Mentorship
- Support with government funding
- Guidance with regulation/legal

Thank you



APPENDICES

Technical

Cleanliness

Who's Who?

RFID

Indicators

Pod Change

Refractory Period

Data Transmission

IP Prior Art

Funnel Specs

Contamination

Detection Overview

Technical Roadmap

Corporate Roadmap

Customer Archetypes

Market Size

Competitive Pricing

Comparable Evaluations

Regulatory Environment

China Opportunity

Funding R&D Costs

Business



APPENDIX - Cleanliness

- Hydrophobic coating
 - Manganese oxide polystyrene
 - Zinc oxide polystyrene (ZnO/PS) nano-composite
- 0.2 uM nylon filter on back piping
- Minimize grooves to prevent bacteria/feces deposits

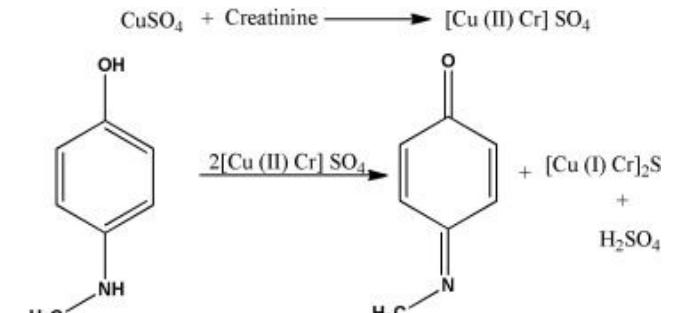


APPENDIX - Urine Analytes of Interest

Analyte	Biomedical Relevance	Reaction Mechanism
Proteins	<p>The most indicative of renal disease is the protein determination. For example, proteinuria is often associated with early renal disease. Normal urine contains very little protein, usually less than 100-300 mg/L or 100 mg per 24 hours is excreted. Healthy kidneys do not allow a significant amount of protein to pass through their filters. But filters damaged by kidney disease may let proteins such as albumin leak from the blood into the urine.</p> <p>Proteinuria can also be a result of overproduction of proteins by the body.</p>	$\text{Indicator-H}^+ \text{ (Yellow)} + \text{Protein} \rightarrow \text{Indicator} \text{ (Blue-green)} + \text{Protein-H}^+$
Hemoglobin and myoglobin	<p>The presence of hemoglobin (blood component) in urine is closely related with traumatic damage to the kidneys or the genitourinary tract.</p>	$\text{H}_2\text{O}_2 + \text{Chromogen} \rightarrow \text{Oxidised chromogen (coloured)} + \text{H}_2\text{O}$
Glucose	<p>In diabetes mellitus elevated sugar levels cannot be reabsorbed at the kidneys, elevating urine sugar levels.</p>	$\text{Glucose} + \text{O}_2 \rightarrow \text{D-glucono-}\delta\text{-lactone} + \text{H}_2\text{O}_2$
Ketones	<p>Normally, your body burns sugar for energy. But if you have diabetes, you may not have enough insulin for the sugar in your bloodstream to be used for fuel. When this happens, your body burns fat instead which leads to elevated ketone levels</p>	$\text{Sodium nitroprusside} + \text{Acetoacetic acid} + \text{Alkali medium} \rightarrow \text{Pink-magenta complex} + \text{Water}$



APPENDIX - Urine Analytes of Interest

Analyte	Biomedical Relevance	Reaction Mechanism
Bilirubin	This is not common in the urine of healthy individuals. Simple detection of bilirubin may be indicative of liver failure or jaundice.	Bilirubin glucuronide + Diazonium salt → Azo dye (violet)
Urobilinogen	When urine urobilinogen is low or absent in a person with urine bilirubin and/or signs of liver dysfunction, it can indicate the presence of hepatic or biliary obstruction.	Urobilinogen + p-dimethylaminobenzaldehyde → Red dye
Nitrite	A positive test for nitrites in the urine is called nitrituria. This test is commonly used in diagnosing urinary tract infections (UTI)	Para-arsanilic acid or sulphanilamide + NO_2 → Diazonium salt Diazonium salt + tetra-hydro-benzoquinoline → Pink azo dye (commonly referred to as a Griess Reaction)
Creatinine	Creatinine is critically important in assessing renal function and glomerular filtration rate	$\text{CuSO}_4 + \text{Creatinine} \longrightarrow [\text{Cu (II) Cr}] \text{SO}_4$ 

APPENDIX - Data Transmission

- Bluetooth Smart/Low Energy
 - Transmission of small amount of data periodically
 - Energy efficient
 - Compatible with most smartphones
 - iOS 5 and later
 - Android 4.3 and later

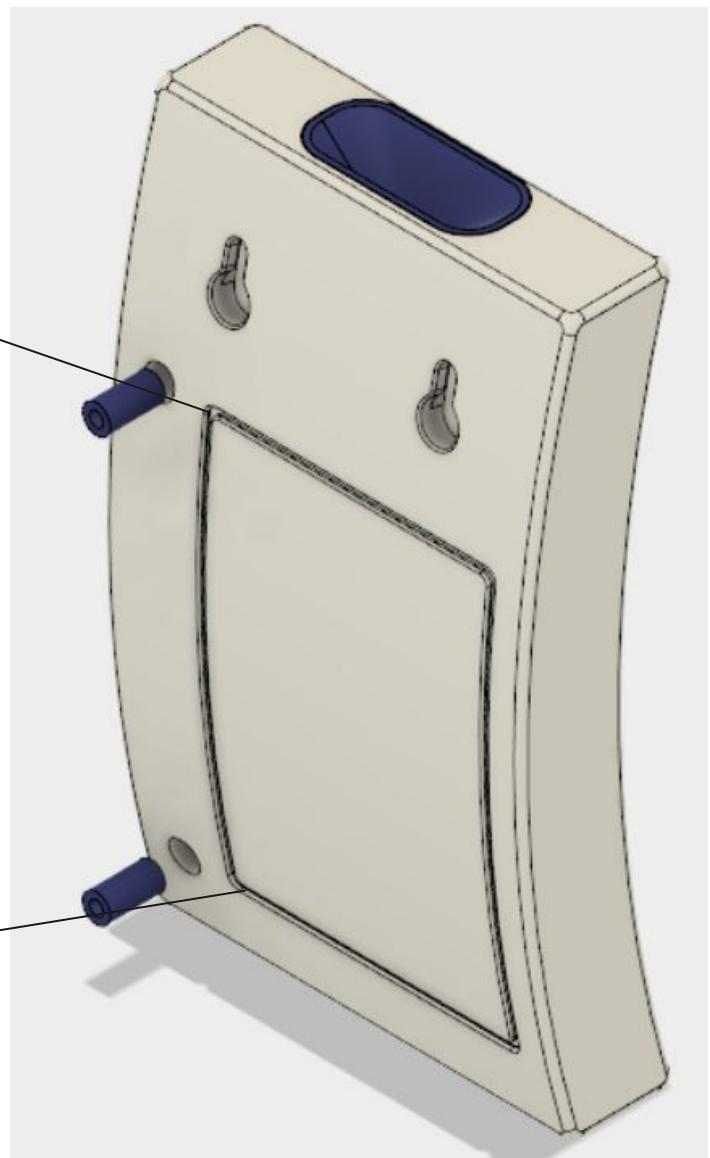
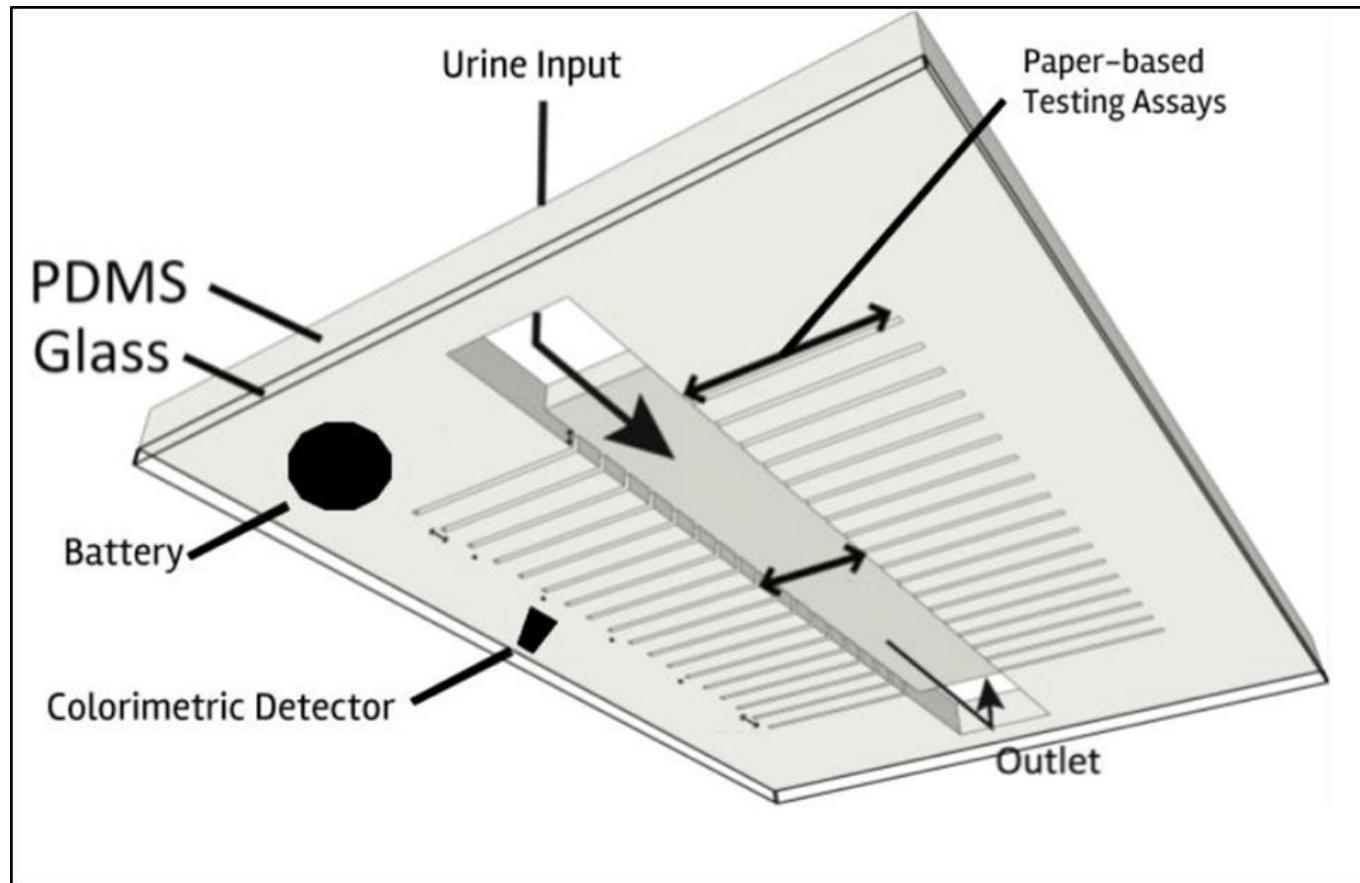


APPENDIX - Who's Who

- Bluetooth connectivity will be required to activate and operate the device
- Data will only be sent to users who have the app and have established connection to device
- Range can be optimized to allow only toilet users to use the device

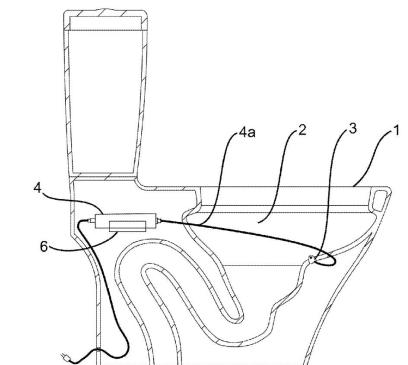
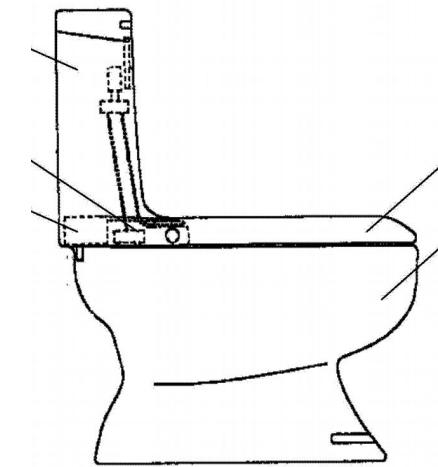
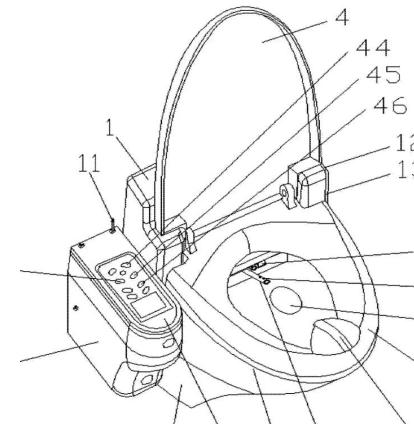


APPENDIX - Pod Change

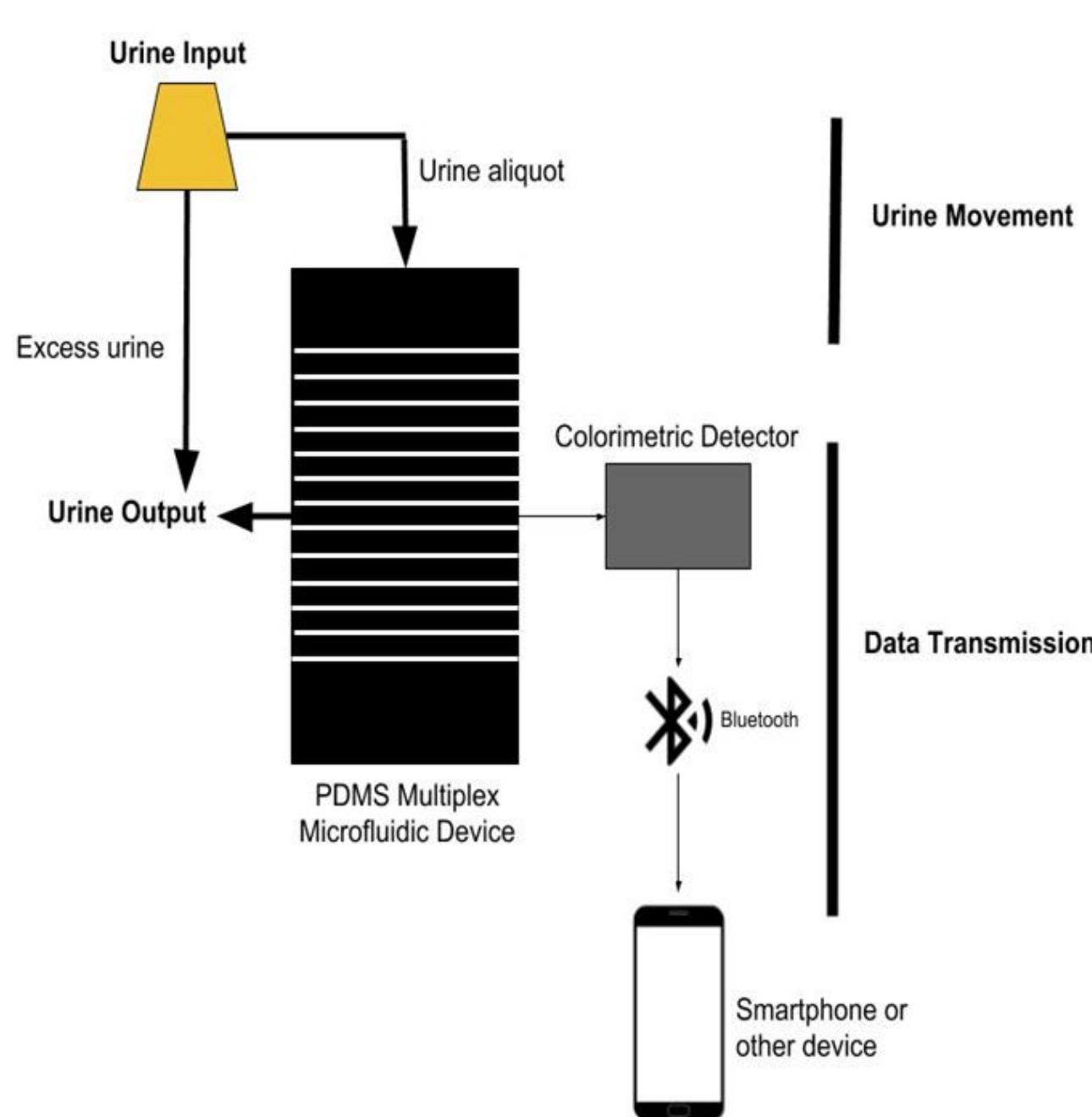


APPENDIX - IP Prior Art

- Patent #1 CN2015 10148278: “*Intelligent toilet bowl for urinalysis monitoring*”
 - Internet of things connectivity
 - Urinalysis (metrics not specified)
- Patent #2 CN2014 2013305: “*Intelligent toilet bowl with dynamic human health status monitoring function*”
 - Monitors body temperature, blood pressure, and glucose
- Patent #3 US2017 15652727: “*Health Monitoring Toilet System*”
 - Fiber optic raman spectrometer for urine sample analysis (metrics not specified)



APPENDIX - Detection Overview



- Real time monitoring of key urine biometrics
 - Glucose, nitrite, protein, bilirubin, ketones, pH
- Microfluidic-based detection
 - Low-cost
 - Lab-on-chip design
 - Enhanced analytical sensitivity

APPENDIX - RFID

- Radio frequency distribution (RFID) can also solve the multiple users concern
- Nursing homes are now incorporating RFID to identify and track patient movement
- Data transmission can still occur through bluetooth

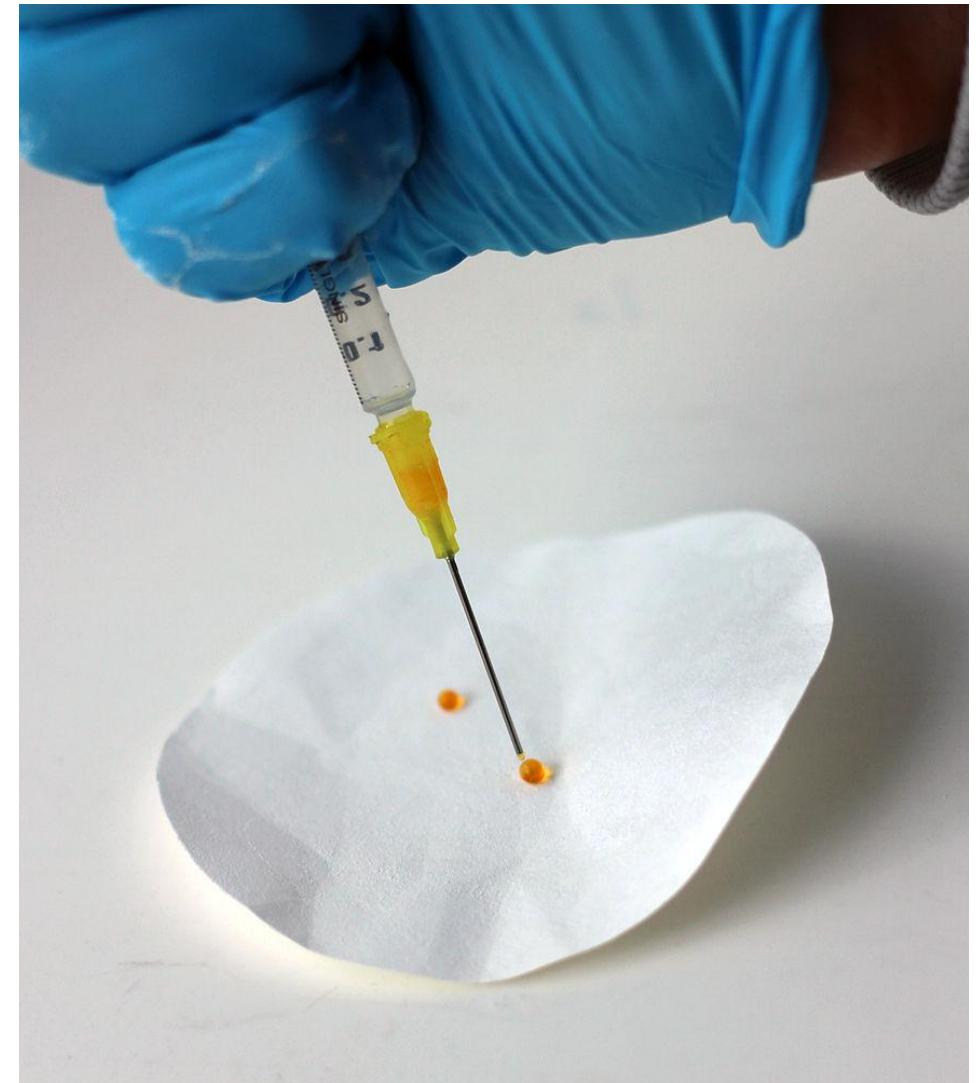
APPENDIX - Refractory Period

- 1-5 minute refractory period (device resetting) is required to successfully clean the device during the flush cycle
 - Cleaning requires toilet flush water or clean toilet bowl water



APPENDIX - Funnel Specs

- Funnel is designed to collect pure urine for analysis
- Only a small amount is needed for actual analysis
- Current size: 3.5 cm by 1.5 cm
- Future prototypes will have mechanical cover over funnel to prevent contamination
 - Controlled from phone via bluetooth



APPENDIX - Technical Roadmap

Technical Roadmap

Flow MD

		2018												2019												
TASK	ASSIGNED TO	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Q1	Q2	Q3	Q4
Proof of Concept																										
Chemical testing evaluation in urine																										
Assay shelf-life																										
Multiplexing design																										
Cleaning and contamination assessment																										
Mobile app mockup																										
Prototype																										
Ergonomics of urine testing																										
Customer experience evaluation																										
Product mounting																										
Pump and droplet functioning																										
Battery life																										
Assay re-loading and interchangeability																										
Signal transmission																										
Overall component synchronization																										
Software Development																										
Software UI/UX																										
Software security																										
Continued Improvements (encompasses components listed above)																										
Regulatory and Legal																										
Health Canada Consultation																										
Data storage, usage, and privacy																										
Patent filing																										
Roll-Out Additional Testing Assays																										
Kidney Disease Assay																										
Diabetes Disease Assay																										
Prostate Cancer Assay																										
Liver Disease Assay																										
Future R&D (ex. Fecal Microbiome Analysis)																										
Production Scaling																										
Chemical testing optimization																										
Large-scale hardware manufacturing																										



APPENDIX - Corporate Roadmap

Corporate Roadmap

Flow MD

Project Start: Fri, 6/1/2018

Display Year

APPENDIX - Customer Archetypes

							
Name	Jerry	The Smith Family	Darrell	Stacy	Henry	Susan	
Who are they?	Aging monitors	Predisposed	Athletes	General health aware	Hypochondriacs	Caretakers	
How do they buy?	Retail	Retail or online	Retail or online	Retail or online	Retail or online	Retail or online	
What matters to them?	Maintaining quality of life	Monitoring for warning signs	Performance advantage	Measure of normalcy	Reassurance	Peace of mind and confirmation	
What motivates them?	To be there for loved ones	Motivated to beat condition	Personal success	Aspire to control health	Fear	Concern	
Who influences them?	Family	Self	Coaches or Self	Self	Self	Patient/loved one	

APPENDIX - Market Size

In Thousands	Canada	US	Europe	China	Total
TAM: # of households	14,100	126,200	220,000	455,940	816,240
HH w/ Income ≥ 75K	7,050	63,100	110,000	227,970	408,120
% HH Health-conscious	65%	65%	65%	65%	65%
# of Device/HH	1	1	1	1	1
SAM	4,582	41,015	71,500	148,180	265,278
% HH that bought health-monitoring device	50%	50%	50%	50%	50%
% HH non buyers we can convert	10%	10%	10%	10%	10%
% HH we can capture	5%	1%	1.4%	1.4%	2.2%
SOM	126	226	1,001	2,075	3,715

APPENDIX - Pricing Comparables

	Device Cost	Cost per Test	Description
Scanadu	\$350 (\$550 retail)	N/A	Blood pressure, Temperature
Orphidia	Unknown	\$25	Blood Testing
EverlyWell	N/A	\$230	Mail in tests
Petnostics	N/A	\$30	Pet tests



APPENDIX - Valuation Comparables

	Seed Funding	Valuation	VC Investors	Series A
Scanadu	\$2m	\$4m	AME Cloud Ventures, Relay Ventures	\$10.5m (35m Series B)
Orphidia	\$505k	\$6m		
EverlyWell	\$2.5m	\$9m		
Petnostics	\$300k	\$1.5m		

APPENDIX - Regulatory Environment

- Initial plan
 - Disclaimer that our product is not a medical device
 - Enable us to go to market immediately without incurring a significant regulatory burden
- Seek regulatory approval in the background and update our product features and description as approval is granted



APPENDIX - China Opportunity

- 76% of urban Chinese will be considered “Middle Class” by 2022
 - A consumer economy worth \$6.5 trillion dollars in 2020
- Strong societal stigma against institutionalizing elderly loved ones
- The decades long one child policy & resulting population bottleneck
 - Fewer younger relatives to care for the estimated 202 million senior citizens over 65
- Massive opportunity to help these over burdened young relatives with a device that makes family health monitoring easier



APPENDIX - Funding R&D Costs

- IRAP Eligibility
 - ARP - \$50K grant
 - Youth Employment program
 - Mid-sized Technology Innovation Projects
 - Will apply in FY3
- SR&ED Tax Credits
 - Non-cash repayment
 - Acquisition benefits

