



Wearable Device Platform for Remote Patient Monitoring

Our disruptive technology



Biobeat's proprietary sensor – patented hardware



Based on reflective PPG



Employs multiple light spectrums



Integrates signal processing and filtration



Incorporates Biobeat's cutting-edge algorithms

Vitals and parameters



Blood Saturation



Continuous Blood Pressure



Pulse Rate



Respiratory Rate



Stroke Volume



Cardiac Output



One Lead ECG
*Patch only



Pulse Pressure



Systemic Vascular Resistance



Skin Temperature



Heart Rate Variability



Mean Arterial Pressure



Cardiac Index

Approvals and certificates



Regulatory approvals



K190792
K181006



CE2972



Santé
Canada

Health
Canada



Australian Government
Department of Health
Therapeutic Goods Administration

Additional regulatory approvals

- Thai FDA
- AMAR (Israel)
- Ministerio de Salud (Costa Rica)



International work standards

- ISO 13485
- ISO 9001



Data security standards

- ISO 27001
- ISO 27799
- HIPAA Compliant
- GDPR Compliant



Our Products

Wrist-monitor
Long-term care



Chest-monitor
Short-term care



Management platform
Monitoring & Management



Wrist-monitor – Long-term care



Telemedicine providers



Chronic complex care remote monitoring



Nursing homes and assisted living



Research and pharma

Durable design for lasting and repeated use

Automated sampling



Charge duration of up to 2 hours

Battery life of up to 3 days of continuous monitoring

Chest-monitor – Short-term care



In-hospital
monitoring



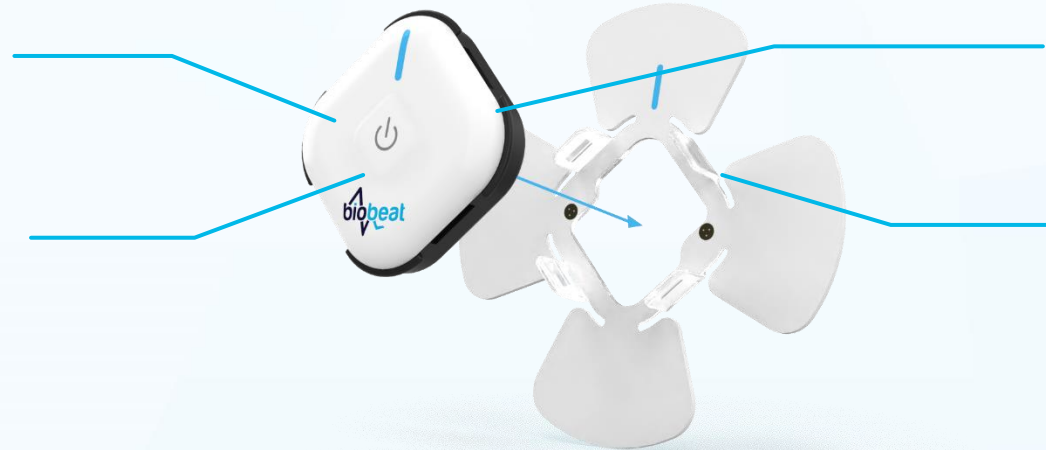
Pre- and post-hospital
monitoring



Ambulatory
home
monitoring

Disposable device
for single patient use

Automated sampling



Extended battery life –
up to 6 days of continuous
monitoring

Clip-in, clip-out design
(separate sensor and
adhesive units)

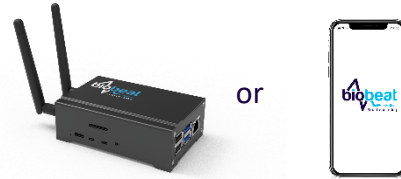
End to end solution

Four steps of implementation



1. Wear

Biobeat's wearable devices automatically and continuously collect vital sign measurements



2. Connect

Devices are connected to either Biobeat's Gateway or Mobile App (IOS/Android)



3. Transmit

The data is transmitted to our cloud (AWS), HIPPA and GDPR compliant



4. Observe

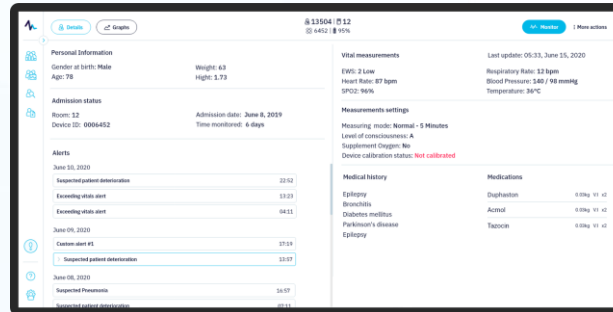
Data can be viewed by the medical staff through Biobeat's system, providing alerts on the patient's state and deterioration

Web monitoring management platform



Department dashboard:

- Integration with local EMR
- Status overview
- General trends



Patient portfolio:

- Historical data
- Personal graphs and trends
- Medications, illnesses and treatment logs



Monitor screen:

- Real time measurements
- Customizable alerts for each vital sign
- ECG display (chest-monitor)

Optimized for and accessible through any web platform (mobiles, desktops, tablets, large monitors)

Data driven and AI capabilities

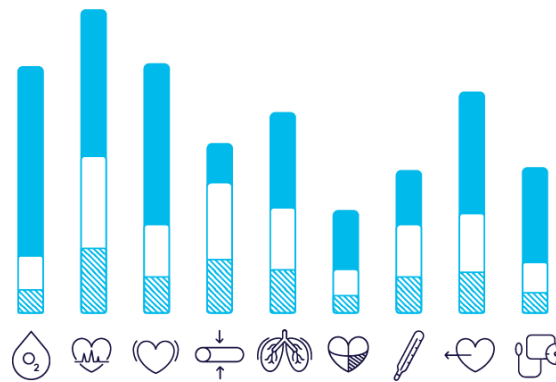
Data generator

Biobeat's devices generate millions of data points per patient per day



Big data

We have monitored more than 6,000 patients to date and created a large and unique vital signs measurements database



Health AI-optimized application

Using AI & ML algorithms to analyze the collected data, detecting early clinical changes in vital signs as well as pre-symptomatic deterioration for prevention and early intervention



The Biobeat data-driven web application

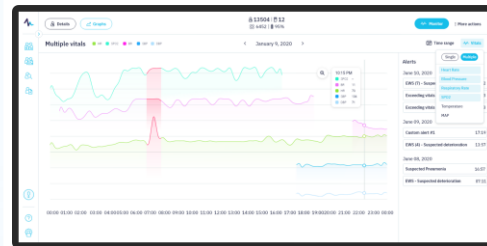
Personalized care

The patient data collected via Biobeat's devices allows healthcare practitioners to adopt a data-driven approach, wherever the patient is located



Data analysis

Optimization of data collection, providing medical staff the required clinical data instantly



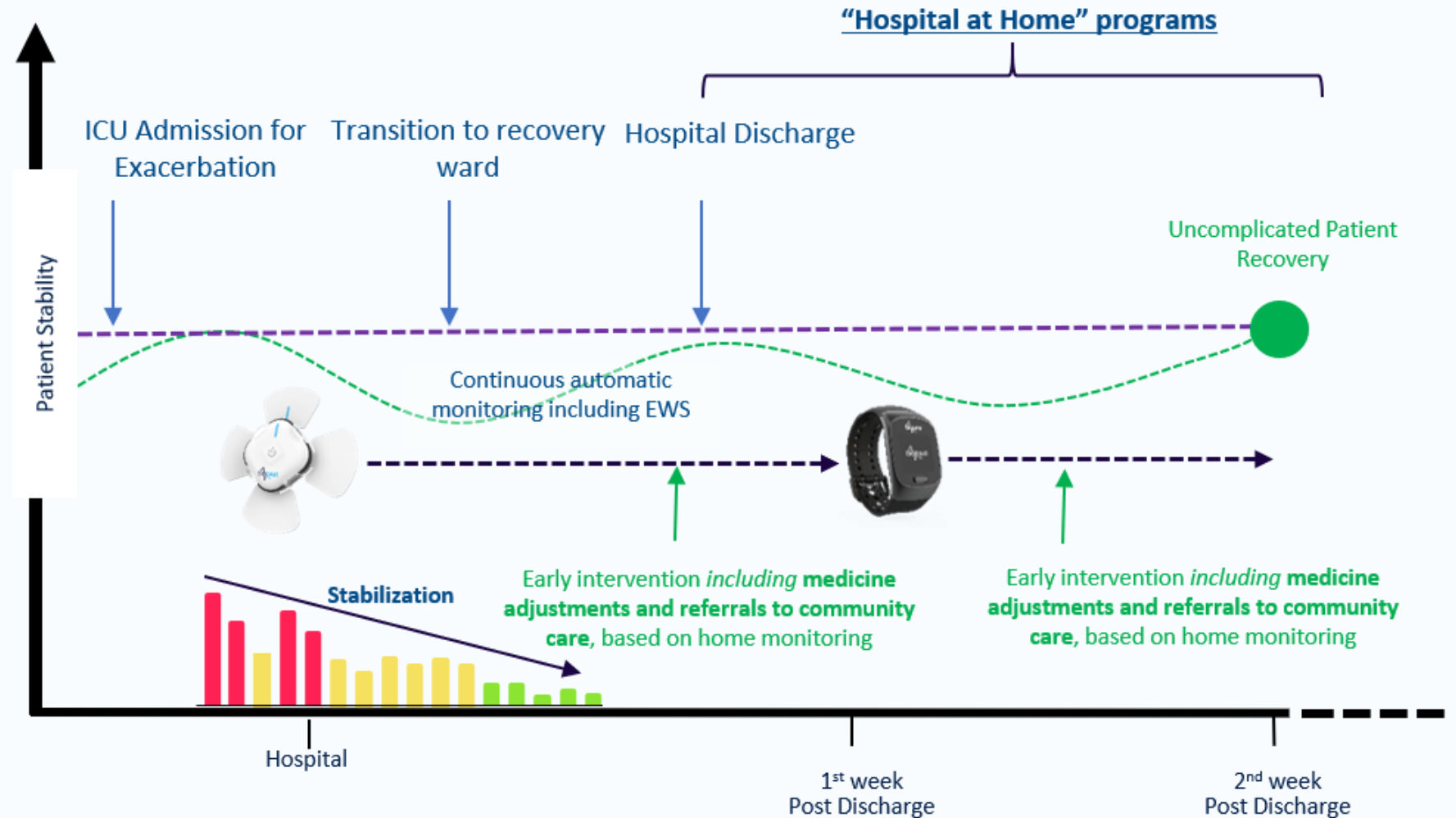
Decision support tool

Through access to real-time patient data, the AI-processed data provides insights into trends and patterns which brings efficiency into the process of healthcare delivery



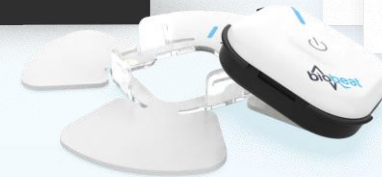
Future Patient Journey With the Biobeat Platform

Prevention of Exacerbation



Specific ambulatory use cases

- Biobeat has developed several ambulatory applications based on the disposable chest-monitor
- This includes a complete report generated automatically at the end of the ambulatory test, transmitted to the health care provider



A better user experience

With Biobeat's ABPM platform:



Does not interfere with the **patient's daily** routine



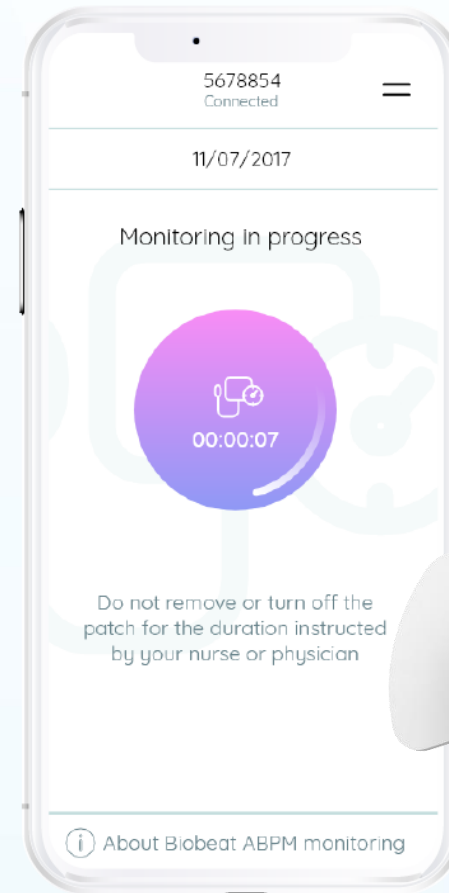
Device can be worn **discretely**



No need to physically meet a **physician** in order to conduct the tests



High availability
No waiting list



Superior data analysis tools

With Biobeat's ABPM platform:



Data is **accessed from any web platform**



Report **automatically generated and analyzed**



Additional parameters (stroke volume, cardiac output, systemic vascular resistance, and more)



Data is interactively displayed in **graphical form including trend analysis**



ABPM report screen

ABPM Report

ABPM Report - Patient 200549432
 Report produced: May 08, 2021 10:15

Personal Information
 Device: 38852
 Male
 Age: 34
 Weight: 65
 Height: 165

Baseline Vitals
 Pulse: 63 bpm
 Blood Pressure: 120/75 mmHg

ABPM Report Summary

Average 24 hours measurements:
 Systolic blood pressure: 124
 Diastolic blood pressure: 77
 Pulse rate: 65
 Cardiac output: 5
 Systemic vascular resistance: 1290

Day-time blood pressure:
 Average systolic blood pressure: 126
 Average diastolic blood pressure: 78
 Systolic BP above 135mmHg: 27.8% (of daily measurements)
 Diastolic BP above 85: 27.8% (of daily measurements)

Night-time blood pressure:
 Average systolic blood pressure: 117
 Average diastolic blood pressure: 74
 Systolic BP above 120mmHg: 34.8% (of daily measurements)
 Diastolic BP above 70: 36.3% (of daily measurements)

Dipping (nighttime average / daytime average):
 Nocturnal systolic dipping: 7% - non-dipper (≤ 10%)
 Nocturnal diastolic dipping: 6% - non-dipper (≤ 10%)

Dipping index:
 extreme dipper (above 20%) / dipper (10-20%) / non-dipper (≤ 10%) / riser (≥ 10%)

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Blood Pressure Statistics

24 hours vitals

| | | |
|--|--|---|
| Systolic Blood Pressure Average: 124 Minimum: 112 Maximum: 151 | Diastolic Blood Pressure Average: 77 Minimum: 64 Maximum: 88 | Heart Rate Average: 65 Minimum: 43 Maximum: 109 |
|--|--|---|

Systolic Blood Pressure by time frame

| | | | |
|--|---|--|--|
| Morning Average: 138 Minimum: 112 Maximum: 151 | Noon Average: 123 Minimum: 112 Maximum: 148 | Evening Average: 127 Minimum: 119 Maximum: 141 | Night Average: 117 Minimum: 112 Maximum: 132 |
|--|---|--|--|

Diastolic Blood Pressure by time frame

| | | | |
|---|--|---|---|
| Morning Average: 78 Minimum: 68 Maximum: 87 | Noon Average: 75 Minimum: 64 Maximum: 86 | Evening Average: 82 Minimum: 76 Maximum: 96 | Night Average: 74 Minimum: 66 Maximum: 84 |
|---|--|---|---|

Day/Night Blood Pressure Statistics

| | |
|---|---|
| Daytime (06:00 - 00:00) Systolic Average: 126 Diastolic Average: 76 % above 135: 27.8 | Nighttime (00:00 - 06:00) Systolic Average: 117 Diastolic Average: 74 % above 120: 34.8 |
|---|---|

CO / SVR

Cardiac Output / Systemic Vascular Resistance

| | |
|---|--|
| Systemic Vascular Resistance Average: 1290 Minimum: 153 Maximum: 1842 | Cardiac Output Average: 5 Minimum: 3 Maximum: 11 |
|---|--|

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Percentage Histograms

Systolic Blood Pressure

| | |
|---------|-------|
| 160-180 | 0% |
| 135-160 | 25.8% |
| 120-135 | 32.5% |
| 100-120 | 41.7% |
| 80-100 | 0% |

Diastolic Blood Pressure

| | |
|---------|-------|
| 120-140 | 0% |
| 100-120 | 0% |
| 85-100 | 28.9% |
| 80-85 | 74.5% |
| 40-60 | 0% |

Mean Arterial Pressure

| | |
|---------|-------|
| 100-110 | 15.1% |
| 90-100 | 48% |
| 75-90 | 35.9% |
| 60-75 | 0% |
| 45-60 | 0% |

Cardiac Output

| | |
|----------|-------|
| Above 15 | 0% |
| 12-15 | 0% |
| 9-12 | 11.4% |
| 6-9 | 97.2% |
| 3-6 | 31.2% |
| Below 3 | 0% |

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Heart Rate

| | |
|-----------|-------|
| Above 200 | 0% |
| 190-200 | 0% |
| 180-190 | 0% |
| 170-180 | 0% |
| 160-170 | 0% |
| 150-160 | 0% |
| 140-150 | 0% |
| 130-140 | 0% |
| 120-130 | 0% |
| 110-120 | 0% |
| 100-110 | 0% |
| 90-100 | 1.1% |
| 80-90 | 1.1% |
| 70-80 | 21.7% |
| 60-70 | 27% |
| 50-60 | 28.8% |
| Below 50 | 3.9% |

ABP Data

| Time | HR | SBP | DBP | MAP | CO | SVR |
|-------|----|-----|-----|-----|-----|------|
| 13:24 | 64 | 121 | 80 | 94 | 5.7 | 1314 |
| 13:39 | 61 | 122 | 76 | 91 | 5.4 | 1355 |
| 13:54 | 55 | 112 | 71 | 85 | 4.7 | 1450 |
| 14:09 | 66 | 124 | 78 | 93 | 6 | 1249 |
| 14:24 | 61 | 120 | 74 | 89 | 5.4 | 1326 |
| 14:39 | 59 | 113 | 73 | 86 | 5.1 | 1338 |
| 14:54 | 60 | 120 | 77 | 91 | 5.3 | 1365 |
| 15:09 | 65 | 124 | 79 | 94 | 5.8 | 1268 |
| 15:24 | 65 | 119 | 81 | 94 | 5.8 | 1268 |
| 15:39 | 61 | 120 | 78 | 92 | 5.4 | 1370 |
| 15:54 | 51 | 111 | 70 | 84 | 4.2 | 1562 |

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| Time | HR | SBP | DBP | MAP | CO | SVR |
|-------|----|-----|-----|-----|-----|------|
| 16:09 | 75 | 135 | 86 | 102 | 7 | 1158 |
| 16:24 | 49 | 112 | 69 | 83 | 4 | 1647 |
| 16:39 | 59 | 116 | 75 | 89 | 5.1 | 1385 |
| 16:54 | 46 | 112 | 68 | 83 | 3.7 | 1788 |
| 17:09 | 45 | 112 | 62 | 79 | 3.6 | 1751 |
| 17:24 | 44 | 110 | 63 | 79 | 3.5 | 1803 |
| 17:39 | 44 | 114 | 65 | 81 | 3.5 | 1840 |
| 17:54 | 69 | 126 | 85 | 99 | 6.3 | 1254 |
| 18:09 | 70 | 124 | 86 | 99 | 6.4 | 1230 |
| 18:19 | 82 | 141 | 89 | 106 | 7.9 | 1070 |
| 18:34 | 60 | 123 | 78 | 93 | 5.3 | 1416 |
| 18:49 | 65 | 124 | 81 | 95 | 5.8 | 1302 |
| 19:04 | 86 | 145 | 90 | 108 | 8.4 | 1024 |
| 19:19 | 70 | 124 | 84 | 97 | 6.4 | 1206 |
| 19:34 | 65 | 120 | 77 | 91 | 5.8 | 1247 |
| 19:49 | 66 | 120 | 82 | 95 | 6 | 1276 |
| 20:04 | 62 | 120 | 79 | 93 | 5.5 | 1356 |
| 20:19 | 58 | 115 | 75 | 88 | 5 | 1480 |
| 20:34 | 71 | 122 | 81 | 95 | 6.6 | 1150 |
| 20:49 | 61 | 117 | 77 | 90 | 5.4 | 1340 |
| 21:04 | 67 | 125 | 81 | 96 | 6.1 | 1264 |
| 21:19 | 75 | 136 | 86 | 103 | 7 | 1169 |
| 21:34 | 70 | 122 | 82 | 95 | 6.4 | 1181 |
| 21:49 | 72 | 125 | 81 | 96 | 6.7 | 1150 |
| 22:04 | 77 | 140 | 85 | 103 | 7.3 | 1129 |
| 22:19 | 74 | 134 | 81 | 99 | 6.9 | 1144 |
| 22:34 | 82 | 145 | 89 | 108 | 7.9 | 1090 |
| 22:49 | 72 | 127 | 86 | 100 | 6.7 | 1198 |
| 23:04 | 76 | 140 | 84 | 103 | 7.2 | 1149 |
| 23:19 | 78 | 142 | 86 | 105 | 7.4 | 1132 |
| 23:34 | 72 | 126 | 85 | 99 | 6.7 | 1186 |
| 23:49 | 78 | 139 | 87 | 104 | 7.4 | 1121 |
| 00:04 | 73 | 128 | 83 | 98 | 6.8 | 1153 |
| 00:19 | 67 | 121 | 79 | 93 | 6.1 | 1224 |

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Global Clients

Over 50 health organizations

Pharma companies & CRO's



Healthcare providers



Additional clients







Thank you!

For more information contact
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