VITALERTER

A vital leap to quality patient care

AI-powered Health Monitoring and Preventive Alerting System

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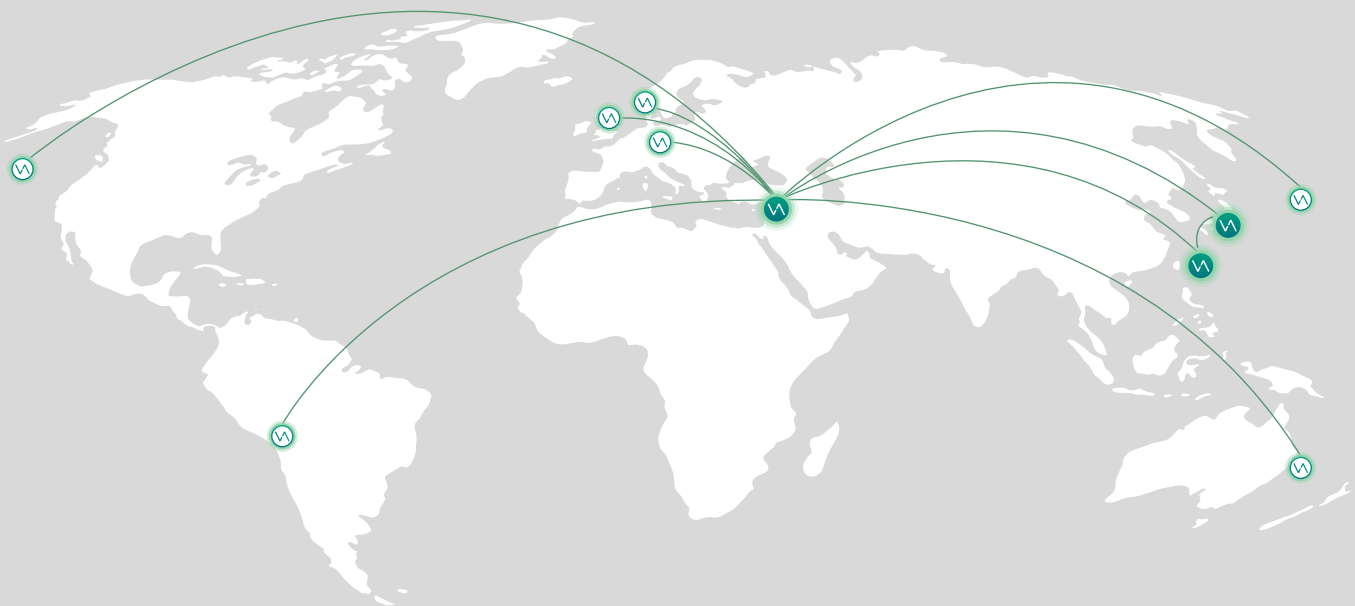
Re-inventing Elderly Care and Patient Safety



About VITALERTER

VITALERTER is a digital health company established in Israel in 2016 with the vision to become a leading provider of advanced continuous patient monitoring and preventive solutions.

Company's AI driven and IoT based contact-free sensing solution has monitored thousands of patients in long-term care facilities, hospitals, home and post-acute settings across the globe. VITALERTER currently operates in Europe, America, and Australia and in 2019 opened its first international commercial office in Guangzhou, China. The company is committed to develop and deliver most advanced and comprehensive monitoring solutions for better care and patient safety.

VITALERTER Intelligent Health Cloud Protection System promotional video

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VITALERTER Continuous Proactive Monitoring for Better Patient Protection

Protection

Early Warning

Analysis

Remote Management

Patented Algorithms

AI/ML

IOT Biosensors

VITALS Contact-Free Sensor

- Heart Rate Trend
- Heart Rate Variability
- Respiratory Rate Trend
- Body Movement
- In-bed/out-of-bed status
- Room Air Quality
- In-bed continuous monitoring
- Sleep Quality

Bio-Patch Sensor

- Continuous Monitoring in/out of bed
- Indoor Localization (wandering)
- PPG
- Core body temperature
- Continuous ECG
- Blood Oxygen Saturation (SPo2)
- Body Posture

* under development

Advantages of Vitalerter Proactive Protection

With a continuous monitoring of vital signs and body motion, VITALERTER's biosensors - detects at early stage, vitals deterioration - prevents falls and pressure ulcers, sepsis empowering medical teams to improve quality of care and patient safety, avoiding hospital readmission, optimizing and improving care team's and management's efficiency and helping healthcare facilities in making important savings.

VITALS contact-free bed monitoring sensor

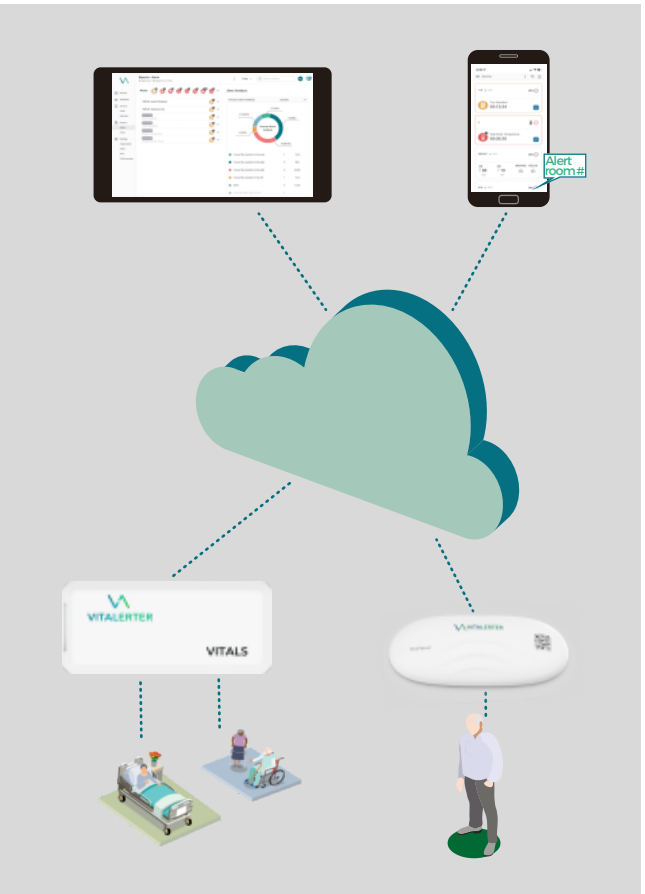
VITALERTER's proactive alert and bed monitoring platform uses AI algorithms and motion sensors to detect bed exits, measure continuously vital signs and analyze body movements precisely without any contact with the patient in bed. In case of adverse events the system alerts automatically and vocally the nurses for an immediate intervention in the room.

How it works ?

By simply placing the Vitals contact-free sensor beneath the frame of the bed or armchair of the elderly, the vital signs such as heart rate, respiratory rate, HR Variability and body movements can be detected and monitored 24/7 and without any contact with the patient.

The sensor sends in every second patient's parameters to the cloud through WIFI connection. In the cloud we have developed an AI engine that builds health profile for each individual, learns and adapts to an individual's unique vitals and patterns day over day as they are monitored and turns into actionable insights that can be displayed in the hand held devices (mobile phones, tablets) and display screens of the care staff on duty.

Vitalerter's "virtual nurse" 24h/7 concept helps the care staff in their daily duties.



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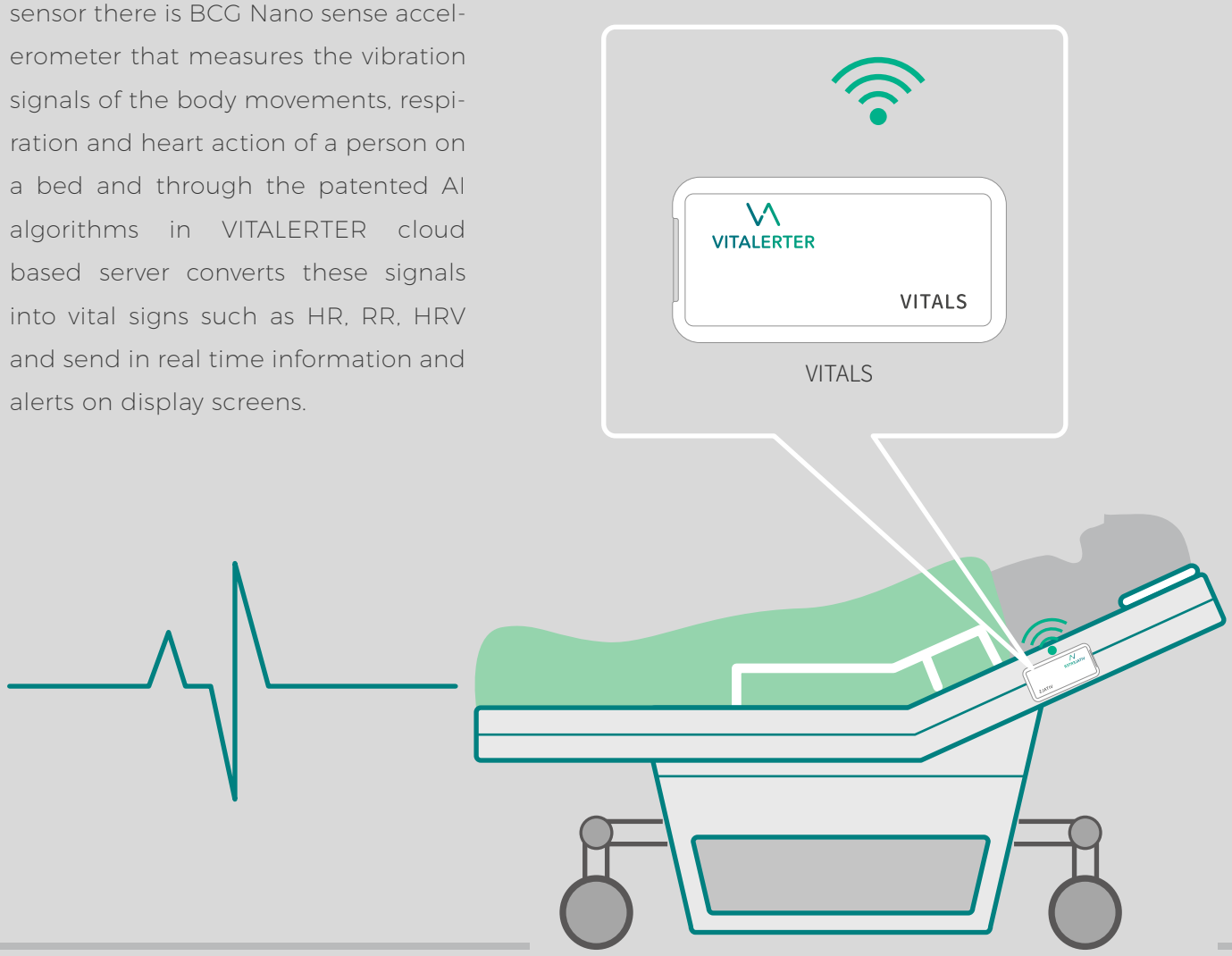
Sensing Principles

Vitals sensor works on the principles of the ballisto-cardiagrophy known as BCG, a non-invasive method based on the measurement of the body motion generated by the ejection of the blood at each cardiac cycle. Inside the sensor there is BCG Nano sense accel-erometer that measures the vibration signals of the body movements, respi-ration and heart action of a person on a bed and through the patented AI algorithms in VITALERTER cloud based server converts these signals into vital signs such as HR, RR, HRV and send in real time information and alerts on display screens.



VITALERTER's Certifications

SEAL OF EXCELLENCE

European Commission

Certificate delivered by the European Commission,
as the institution managing Horizon 2020,
the EU Framework Programme for Research and Innovation 2014-2020

The project proposal
966303, Vitals
A breakthrough health monitoring platform for elderly patients with personalised, context specific, preventive alerts.

submitted under the Horizon 2020's **SME Instrument (grant only and blended finance)** call **H2020-EIC-SMEInst-2018-2020 (H2020-EIC-SMEInst-2018-2020-3)** of **7 October 2020** in the area of **EIC-SMEInst-2018-2020**

SME instrument

by
VITALERTER
Yitzhak street 2
60850 Airport City
Israel

following evaluation by an international panel of independent experts

WAS SCORED AS A HIGH-QUALITY PROJECT PROPOSAL IN A HIGHLY COMPETITIVE EVALUATION PROCESS*

This proposal is recommended for funding by other sources, since Horizon 2020 resources available for this specific Call were already allocated following a competitive ranking.

* This means passing all stringent Horizon 2020 assessment thresholds for the 3 award criteria (excellence, impact, quality and efficiency of implementation) required to receive funding from the EU budget Horizon 2020.

Elisa Ferreira,
Commissioner for Cohesion and Reforms

Mariya Gabriel,
Commissioner for Innovation, Research, Culture, Education and Youth

Brussels, 25/11/2020

Excellence for the EU Horizon 2020 project

第九届中国老年福祉产品
创意创新创业大赛
创新产品组
金奖

The 9th China Elderly Welfare Products Competition 2021 Hosted by the Shanghai Civil Affairs Bureau

CE IEC ISO FC

Preventive Care Monitoring

Early prediction of health deterioration and events:

By Leveraging advanced machine learning and artificial intelligence technology, VITALERTER's preventive care analysis server can predict health deterioration and clinical events before they become an expensive problem.

Artificial intelligence + machine learning

User/Management Platform:

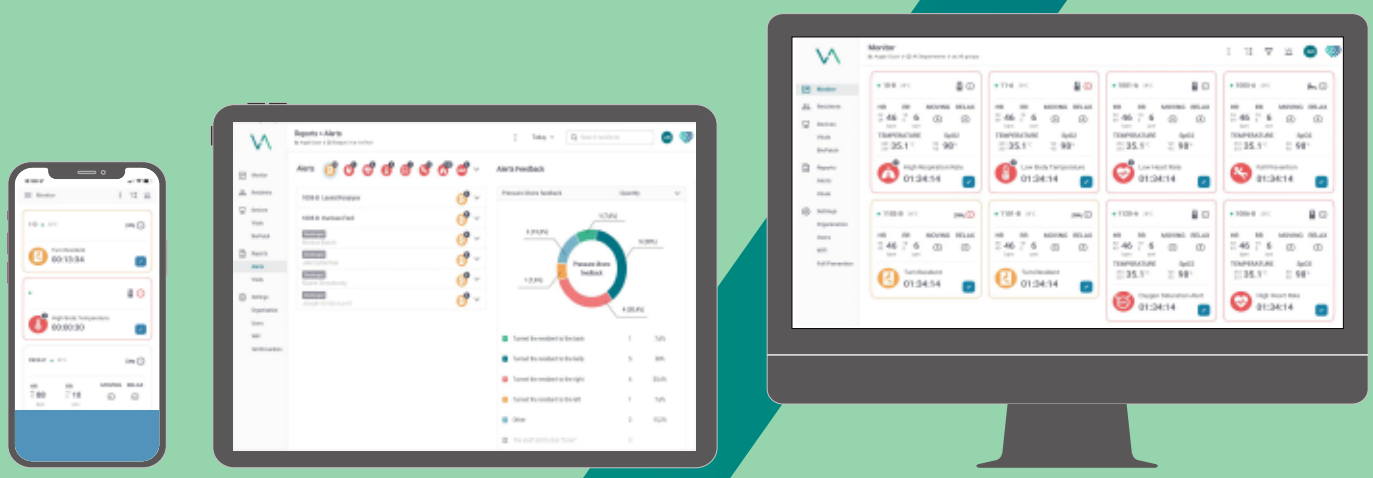
The system platform enables caregivers to view the user's health status in real time anytime, anywhere and provides staff the ability to customize how alerts are prioritized and presented, including risk settings, delayed alarms, latching and escalation protocols. Customizable monitoring dashboards enable real-time view of residents' state and the management and tracking of care protocols.

The VITALERTER platform provides staff the ability to customize how alerts are prioritized and presented, including risk settings, delayed alarms, latching and escalation protocols. Customizable monitoring dashboards enable real-time view of residents' state and the management and tracking of care protocols. VITALERTER monitors alerts and resident conditions in real-time, collects alert and response data, then creates metrics for measuring and analyzing performance outcomes.

Download
VITALERTER APP

Top 5 reasons to choose VITALERTER

- Helps nurses prioritize tasks and save precious time during their daily duties with practical alerts, reminders and operation reports
- Allows nursing staff to provide timely and better care with real-time monitoring, proactive alerts and response system
- Predicts and prevents adverse events by monitoring elderly's vital signs trends, body motion and presence in bed
- Improves the safety and quality of life of the elderly with 24/7 continuous and contact-free health monitoring and alert system
- Helps facilities make important savings by minimizing the risk of adverse events and hospital re-admissions

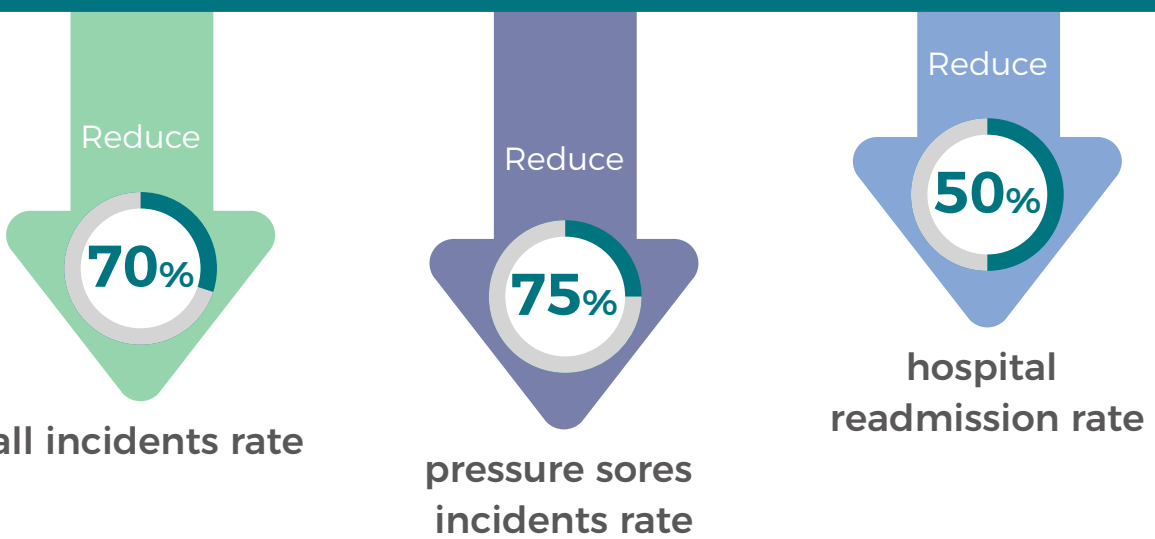


Benefits of VITALERTER Continuous Proactive Monitoring and Protection

- Real-time monitoring and early warning alerts for timely intervention to prevent adverse events
- Improves care management efficiency
- Empowers facility managers and clinicians with rich analytic reports and analysis tools to track and improve care plans
- Empowers care teams to predict health deterioration and improve patients' quality of life with AI powered software
- Reduces elderly's hospital admissions and associated costs

Remote Health Monitoring Solution

Designed for elderly long term care institutions, geriatric hospitals, community health centers, and home care



Who Can Benefit from Vitalerter?

Nursing Homes

- Provides 24x7 active monitoring to improve resident safety and care
- Reduces Resident Falls, Pressure ulcers and Elopements
- Provides Real-time vital signs monitoring and early warning alerts in case of deterioration for an immediate intervention of a nurse in the nursing home to prevent adverse events
- Reduces readmissions to hospitals
- Helps nurses prioritize tasks, provide timely care and save precious time during their daily duties with real-time monitoring, proactive alerts and response system
- Creates metrics and BI reports for facility managers by measuring and analyzing caregiver-to-resident interactions performance
- Providing Peace of Mind to families and recognition to the facility

Home Care

- Remote monitoring of elderly at home
- Continuous Vital Sign Monitoring service
- Medical Alerts and fast intervention
- Providing Peace of Mind to families
- Gives better quality of care

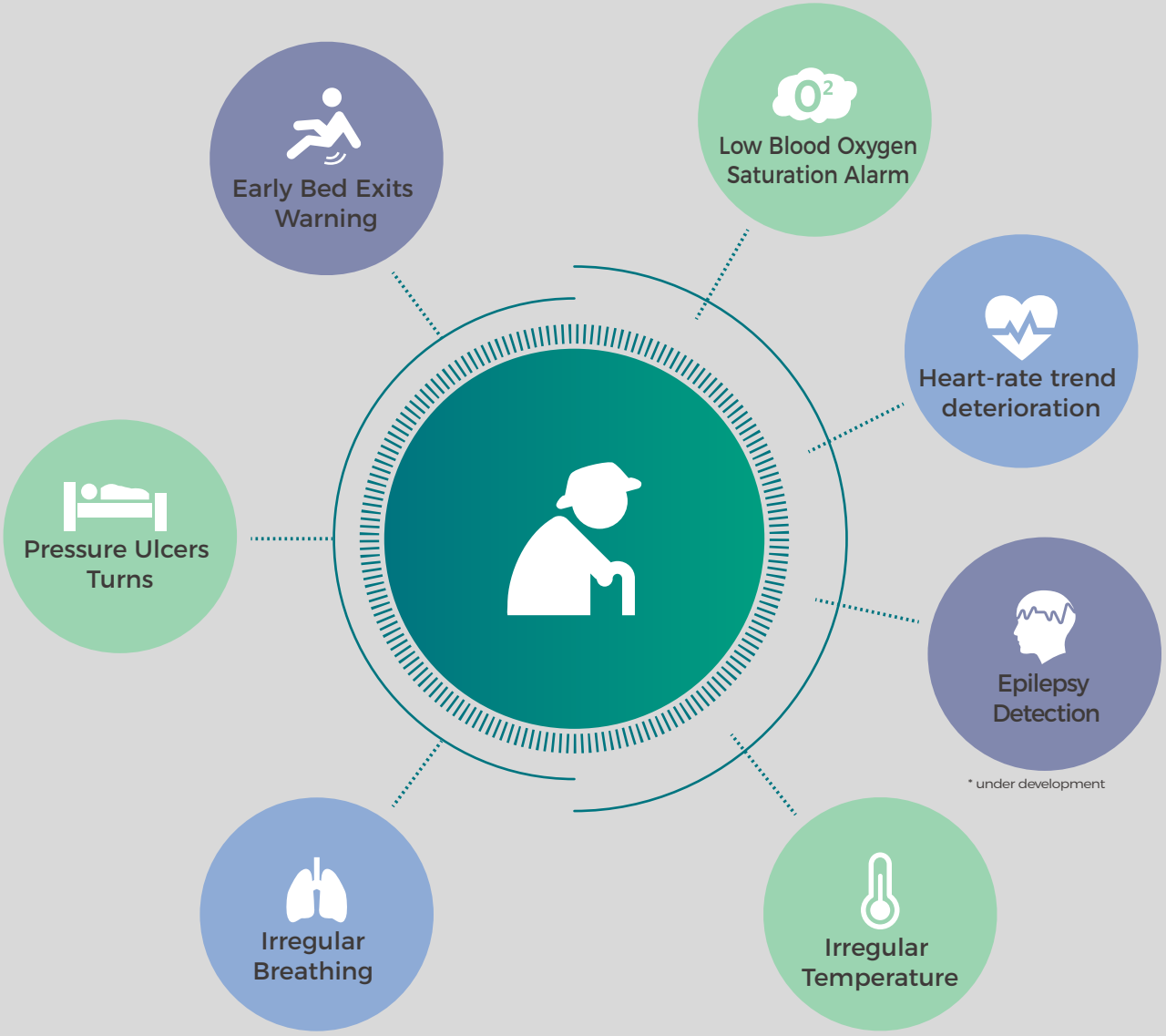
Post-Acute Care Settings

- 24x7 continuous and contact-free monitoring of patients at Non-ICU Wards
- Reduce ICU Days, Code Blue Events
- Reduce vitals signs checking time
- Provide patient health reports at any time anywhere to improve management and operation efficiency

Geriatric and Rehabilitation Hospitals

- Efficient management of depended and semi-depended (Demented/ disabled) elderly patients
- Efficient analyses of real-time sleep data, heart rate, heart rate variability, and abnormal breathing to learn elderly's day and night mental state
- Provide continuous data basis for medical recuperation and rehabilitation
- Speed up the recovery of the physical condition of the elderly.

Applications



Benefits


Multi-terminal viewing
Ready to install
Analytics support
IT
No additional IT investment is required
Personal data customization
Health and safety protection
Personalize cloud services
Risk warnings
Cost-effective
Rational allocation of nursing resources

VITALERTER's Worldwide Traction

Vitalerter and Deloitte won the bidding for the national intelligent renovation project of the elderly home

Vitalerter in collaboration with Deloitte Israel was selected in 2020 by the Ministry of health of Israel to equip over 20,000 beds in 300 geriatric centers and nursing homes in Israel to improve care, safety and experience of elderly residents

VITALERTER case |
Geriatric Hospital of the National Ministry of Health of Israel

VITALERTER case |
MEDE Hospital Italy

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VITALERTER case |
Pacifica Hospital Panama

Sweep to Watch Video

Wigan Heathside Case Study | UK

Kellie Birkbeck - Wigan, Heathside Residential

We initially identified ten residents that we felt would benefit from being on the Vitalerter system for different reasons. We selected residents that met one or all of the following criteria: They were at a high risk of falls, had irregular heartbeats, at risk of pressure area breakdown or suffered from vacant episodes The key message is that the technology has stopped the need of hourly checks on residents throughout the night or when resting on their bed during the day. The equipment is more often than not accurate in predicting and alerting us if a resident is likely to get out of bed.

The system informs us if someone has turned in bed and reduces the need to wake people up to do an intrusive turn as part of reducing the risks of pressure sores following an assessment. We have found that the residents that are at risk of skin integrity break down have had no issues in regards to breaks in skin, red areas or sores. This has meant less involvement for them from the district nurse team which in turn means less prescriptions being made for creams and dressings etc and less distress caused for the resident.
As a result of this, residents are experiencing a better night's sleep due to not being disturbed unnecessarily and consequently they are having a much better day as they are not as tired.

With a combination of reduced observations and reduced turns this gives more opportunity to support people who do not sleep during the night, these residents are benefitting from more one-to-one time with staff at a time when they are possibly more at risk of falls due to being tired. The system is able to run reports on individuals' sleep patterns which gives us additional insights into residents that appear unwell or not their usual self. By doing this it means that we are not requesting unnecessary G.P visits and in the long term it is hoped it can be used when reviewing sleep medication.

The system monitors individuals' respiratory rates and heart rates and we recently took advantage of this when an individual was presenting as poorly during the day. We were able to support him back to bed and utilise vital-signs monitoring prior to the G.P visit. It meant that this gentleman was able to be made comfortable whilst remaining in a safe environment that was accurately monitored without placing him in any danger.

To provide a comparative analysis of the data from falls for the ten residents that are currently on the Vitalerter system we have taken data from the six months before

installation to the present date. This can be seen the following chart:

Room number	Falls prior to installation	Falls after installation	Reduced falls	Reason resident was selected for Vitalerter
Room 8	0	0	o	Irregular heartbeat, skin integrity
Room 14	0	0	0	Vacant episode's, skin integrity
Room 16	4	3	1	Risk of falls, skin integrity decline in health
Room 19	2	0	2	Risk of falls, general health detrition
Room 20	1	0	1	Skin integrity, general health detrition
Room 22	0	0	0	Vacant episode's
Room 23	1	0	1	Skin integrity general health detrition
Room 26	3	2	1	Risk of falls, skin integrity
Room 27	1	0	1	Risk of falls, skin integrity general health needs
Room 29	3	0	3	Risk of falls
TOTAL	15	5	10	

In order to accurately assess the impact on pressure turns, a sample of 15 nights turn data was collated for the six selected residents. Prior to the introduction of the system the residents were turned every 2 hours.

The comparison in turns can be seen in the following charts:

Room No.	Expected Turns	System Prompted Turns	Turns Saved
8	55	14	41
27	53	24	29
20	70	37	33
22	56	12	44
26	62	30	32
29	44	2	42
Total:	**340**	**119**	**221**

SUMMARY

In the six months prior to the system being installed the residents had a total of 15 falls. After installation, over a six-month period we have had a total of 5 falls giving us a total reduction of 10 falls across the ten residents.

This can be calculated as a 66% reduction in falls for the period.

A sample of 6 residents on pressure turn alerts saw an average reduction of 14.7 turns in total per evening (2.45 per resident).

Across a six-month period (182 days), this would equate to a total reduction of 2675 unnecessary turns for the six residents.

VITALERTER case |

The case of a nursing director in Guangzhou

There are 36 elderly people on the first floor of an institution in Guangzhou, half of whom are elderly with high-risk pressure ulcers. According to the "Classification and Evaluation of Elderly Care Institutions" (National Standard) regulations, the calculation is doubled every day

The total number of turn times of the body is 336, and the monthly labor cost for pressure ulcers is converted to 16,800 Yuan. After installing the vitals bed sensor, the system automatically detected the elderly's self-turning point and avoided unnecessary turn protocols by the caregivers and optimized the care.

Before the installation 1 caregiver was turning 3 elderlies and after the installation the number of elderlies being turned by the caregiver doubled from 3 to 6 while the number of caregivers remained 1.

VITALERTER case |

Tel Aviv, Israel - GOLDENCARE Senior Centre

The Effect of Contact-free Continuous Monitoring System on Reducing Falls, Pressure Ulcers in Aged Care Facilities

A. Alon - A. Sela

GOLDENCARE Geriatric center, Tel Aviv, Israel

GoldenCare

מרכזים רפואיים

Introduction

Background: In the skilled nursing facility, acute changes in condition can result in unplanned hospitalizations for the elderly, often due to falls with injury, or as the result of the onset of an acute medical illness. The introduction of new technological solutions that incorporate continuous vital sign monitoring and surveillance of patient activity in bed can be utilized to improve outcomes among the nursing home population.

Objective: To assess the effects of continuous monitoring in reducing hospitalizations of post-acute care residents in a skilled nursing facility. This was studied using Vitalerter, a contactless patient monitoring system that continuously transmits real-time information on pulse, respiratory rate, and level of activity in bed directly to the nursing staff, and instantly alerts when these values fall outside of pre-set parameters.

Methods

This study was conducted at the Goldencare Geriatric Center, a 300-bed facility in Southern Tel-Aviv in Israel.
A 6 months monitoring period was compared to observe before-after outcome information.
Data on patients' falls, bed sores and re-admissions to hospital rates, were collected.

Contactless sensors that monitor patient heart and respiratory rates, and in/out of bed status, were utilized.

All data was provided to caregivers on monitors and at the nursing station. Alerts regarding changes in vital signs or bed exits were transmitted to nurses for further assessment and intervention.

Results & Conclusions

We reviewed 81 patient records for our evaluation vs 81 checked before the test. The falls decreased by 67% and pressure ulcers decreased by 75%.

Goldencare Geriatric Center - Outcome data					
	Before evaluation (without		Evaluation (monitored		Improvement %
# of Residents	81		81		
Men	45	54,4%	42	44.10%	
Women	36	45,6%	39	55.90%	
Age (Avg)	78		79		
Results					
Bed-side Falls	12	14.81%	4	4.94%	-67%
Pressure Ulcers	4	4.94%	1	1.23%	-75%

In this study, the implementation of Vitalerter, a continuous patient monitoring system has demonstrated **a significant decrease in the total number of falls, pressure ulcers and a trend towards reduction in the transfer rate to hospitals**, thus improving the overall quality of care for the elderly.

Vitalerter's Technical support and service

Installation guide and user manual

Remote technical support

Expert 1:1 service

Free

Free software upgrade

Free training

Different focus training can be customized for management and nurses

Hardware warranty

VITALERTER

A vital leap to quality patient care

Start risk-free today

Flexible service models are offered to help grow capabilities by changing needs and pay for what you use.

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