Five academic hospitals seek innovative partners to deliver cutting edge health care solutions for wireless monitoring of high risk patients, both in hospital and at home.
nightingale-h2020.eu

Patient case study

Understanding the challenge

There is a huge unfulfilled need for better monitoring of vital signs in high-risk patients both in general hospital wards and at home.

Read more

Our vision

Meet the team


Open "www.nightingale-h2020.eu/understanding-challenge" in a new tab behind the current one.
the public need:

You can deteriorate - even die - unnoticed, in a hospital bed
The public need:

‘Early hospital discharge’ is a good thing, but a ‘safety’ net is necessary.
The problem: *‘Failure to rescue’*: undetected acute deterioration on the hospital ward or early after discharge home

- **cardiac arrest** in hospital is often preceded by hours of abnormal vital signs
- vital signs are measured infrequently
- goal of **Emergency Medical Teams**:
  - early recognition (‘Early Warning’ Scores)
  - rapid and correct treatment
  - if necessary transfer to an Intensive Care unit
- EMTs mandatory in the Netherlands since 2007, but:
  - EMT must be called in time
  - Nurses must recognize deterioration in time!
A study in 188,212 patients undergoing elective major surgery at 124 VA hospitals operations performed on Fridays were associated with a higher 30-day mortality rate than those performed on Mondays through Wednesdays: 2.94% vs. 2.18%; Odds ratio, 1.36; 95% CI, 1.24–1.49)
A sad real life patient story

• Jim, a 57 year old previously healthy accountant, has pancreatic cancer
• he is operated, and the procedure is a success: after a week he is discharged home in good condition
• three days later, Saturday 8:30 AM: Jim does not feel well.
• Elaine, Jim’s wife is very concerned, but she does not (yet) want to call the General Practitioner or the hospital
• 4:50 PM: Jim is now lethargic; a little while later he is unresponsive.
• the ambulance is called and he is immediately taken to the hospital.
• 6:05 PM: emergency surgical procedure: the surgeons find a large abdominal bleeding,
• 8:25 PM: Jim dies from the effects of prolonged and severe blood loss.
Accelerating development of ‘wearable’ technology
Our challenge to the European MedTech and IT industry:

• Can you develop innovative, wireless, wearable technology that can be coupled with intelligent analysis software to monitor patients in the ward and at home?

• Five academic hospitals have received over €5 million to challenge industry to help reduce death and disability from undetected deterioration and are keen to hear from you...
We plan to collect and analyse data sent through the system to improve understanding of different patient groups and risk factors so that treatments can be appropriately individualised; and to enable learning that allows healthcare teams to work as effectively as possible.
We plan to use wireless technology to collect vital signs such as respiratory rate, pulse and blood pressure and integrate these data with blood test results, individual patient details and patients’ own inputs to identify specific risk factors and ensure rapid detection of any deterioration.
We plan to develop long term relationships with industry partners to develop, test and refine useful and user-friendly technology – working with patients, carers and entire healthcare teams to ensure the systems developed meet patients and clinicians’ needs.
the business case for wireless vital signs monitoring

• adverse events in 1:10 surgeries
• safely avoiding unnecessary hospitalization
• potential savings from reduced avoidable harm:
  – reduced mortality and permanent disability
  – reduced ‘Length of Hospital Stay’ (LOS)
  – reduced readmission rates

• the business case for one large academic hospital: (assuming the total cost of monitoring to be € 120,- per patient):
  – High risk patients only: 11,000/yr: 1.3 mio
  – all admitted patients (33,000/yr): 3.9 mio
  – Benefits (conservative estimates):
    mortality reduction -5%, LOS -5%, readmission rate – 5%:
    € 8 million; annual savings > € 4 million
Smart Wearables: reflection and orientation paper by the European Commission

- Smart Wearables offer unprecedented opportunities for tackling pressing societal challenges by providing solutions in the areas of:
  - healthy ageing, patient monitoring,
  - emergency management, safety at work, productivity enhancement,
  - energy management of homes and others

- A major opportunity for Europe to regain competitiveness in ICT devices manufacturing and textiles & clothing,
  - to rebuild and consolidate a crucial part of the digital technology value chain for future products

- Wearables are not (yet) dominated by established players (unlike the computer or mobile industries)
**Nightingale FAQ page:**

We are a medical device company, why should we join Nightingale?

- You will work with highly motivated and experienced professionals from prestigious European academic centers. They will advise and help to improve your product.
- Your final product is more likely to be accepted in the medical community.
- Your products will have undergone validation in extensive bench testing and tests in human volunteers and patients.
- The European Commission subsidizes your innovative product development via the consortium under the **Pre-commercial Procurement (PCP) scheme**.
Open market consultation
Market sounding with online questionnaire
Market consultation with workshops in Brussels and Munich

Start tender process
Tender publication

Phase 1
Solution design
Supplier A
Supplier B
Supplier C
Supplier D
€150k industry budget
6 suppliers
Jan-Mar 2018

Phase 2
Prototype development
Supplier B
Supplier C
Supplier D
€2.4m industry budget
4 suppliers
June 2018-Jan 2019

Phase 3
Original development and testing of limited volume of first test products/services
Supplier B
Supplier D
€1.2m industry budget
2 suppliers
May 2019-Jan 2020

Pre-Commercial Procurement:
Nightingale timeline

Karolinska University Hospital
University College London Hospitals
NHS Foundation Trust
UMC Utrecht
UNIKLINIK RWTH AACHEN
UZ Leuven
Innovation Procurement:

PCP + PPI complement each other

- **PCP**: steer the development of solutions towards concrete public sector needs, comparing/validating alternatives from vendors
- **PPI**: to act as launching customer / early adopter / first buyer of innovative commercial end-solutions newly arriving on the market
I WANT YOU

Nightingale
Smart monitoring, safer care

www.nightingale-h2020.eu