**1st Stage**

**Assist Hill-Rom in identifying a low cost camera module that is sensitive enough in the near infrared range, and that would enable pulse rate (PR) and respiratory rate (RR) monitoring through CHI:**

* Select the adequate optical components
* Select the adequate lighting equipment
* Select the appropriate camera module
* Determine appropriate camera location to enable proper CHI analysis

Hill-Rom to send video records of simulated subject in bed to Alex’s team.

Alex’s team to run CHI algorithm on video files to determine the adequacy of the tested components.

Alex’s team to advise on camera technology and optical components during image quality optimization.

**This stage to be completed by end of November 2016.**

**1st Milestone: $10K**

**2nd Stage**

**Development of algorithm to track PR and RR via NIR-sensitive camera:**

* Design image processing technique to extract waveform from relevant pixels.
* Determine approach to extract RR from PR data
* Determine PR and RR measurements accuracy

**This stage to be completed by end of March 2016.**

**2nd Milestone: $10K**

**3rd Stage**

**Test and implementation of patient monitoring algorithm:**

* Test measurement technique on simulated subjects
* Determine limitations of technological approach
* Assist in implementation of algorithm in Video Sensing Prototype

**This stage to be completed by end of August (Depending on advancement of prototype).**

**3rd Milestone: $10K**