CardioHelp Data Application

This application has its roots in my observation that a CardioHelp-i machine has a USB port. I noticed this when I was checking up on my patients in the ICU and after some inquiries I found out that the CardioHelp-i machine can record 54 variables every 5 minutes. The USB port is used at the end of the perfusion run to get these data out. These data can be processed by proprietary software from Getinge that produces a big comma separated file. Mostly however the data is not processed by the user and is lost.
I think this is a shame, I have a keen interest in aviation and I am aware of the telemetry sent by aircraft engines during the flight. This has big benefits in the aircraft industry and I am convinced that we can do something similar in healthcare. So I developed this webapplication which will initially store the comma separated file in a cloud based database.

At a later point in time we can always go back to the data when we think of another research question.

Some thoughts on improving the flow:

It would be better to directly upload the raw file from the USB stick and have any transformation done on the server.

Eventually it is even better to use live telemetry, analogous to the kind of telemetry done with the rolls-royce Trent engine.

https://www.rolls-royce.com/media/press-releases/2018/06-02-2018-rr-intelligentengine-driven-by-data.aspx

Features:

Cloud based application and storage.

No patient specific data, no privacy concerns. The unique identifier in the application is the cassette number.

No on-premises computer hardware.

Standards and evidence based design.

Walk thru the application

CardioHelp® registry

Statistics
Registries

Home Registries Statistics (under construction) About Login

Login

Username Name

Password PWD

Login

Home Registries Statistics (under construction) About Logout

CardioHelp registries found ...

Search on cassette # ? Find

Id	Cassette	Indication	
1	3124134	Cardiac	Details

« ‹ 1 › »

Registry details

General | Patient data | Hemodynamics | Device complications | Patient complications | Outcome

Registry ID: 1

Cassette ID: 3124134

Indication for use: Cardiac

CardioHelp start: 2020/05/26

CardioHelp stop: 0001/01/01

Type support: VA

Site:	Percutaneous:	Size (Fr):	Length (cm):
LCCA	☐		
Choose	☐		
Choose	☐		

Registry details

General | Patient data | Hemodynamics | Device complications | Patient complications | Outcome

Age:	56
Gender:	Male
Height:	166
Weight:	67
Patient transferred from other center:	No
Intubated:	No
Pre-ELCS cardiac arrest:	No
Bridge to transplant:	

Registry details

General | Patient data | Hemodynamics | Device complications | Patient complications | Outcome

There is already a hemodynamics file

‹ Remove › Graphs

Save

Hemodynamics file

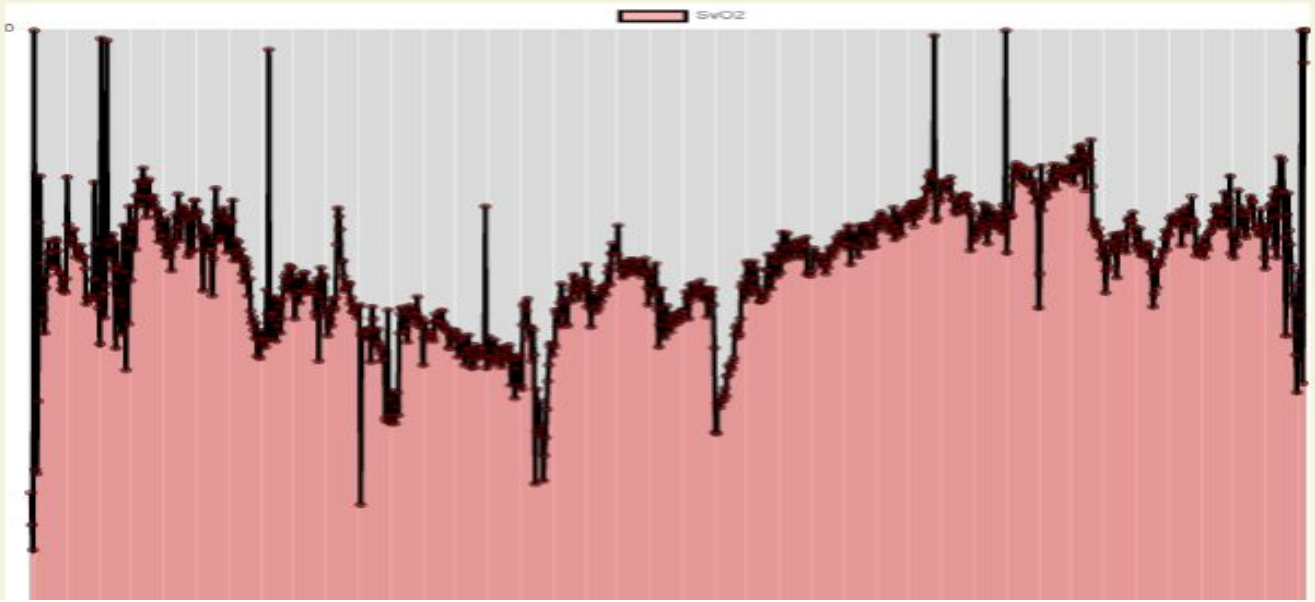
The hemodynamics file is produced by the CardioHelp machine during the ECLS run. Every 5 minutes 54 variables are stored in the CardioHelp machine. After stopping the CardioHelp machine the hemodynamics file is downloaded on a USB drive and translated in a comma separated file . This comma separated file can be uploaded to the CardioHelp Registry website and is used used to automatically produce graphs. The hemodynamics file is stored with the other procedure data, so it needs to be uploaded only once. For example the next slide shows the SvO2 data on 5 min intervals during a 3 day ECLS run with the CardioHelp machine in 2014.

Registry details

General Patient data Hemodynamics Device complications Patient complications Outcome

CardioHelp hemodynamics

SvO2
P art
P int
Temp



Registry details

- [ ] Oxygenator failure
- [ ] Connector cracks
- [ ] Heat exch. malfunction
- [ ] Air in circuit
- [ ] Tubing rupture
- [ ] Clots
- [ ] Cannula problems
- [ ] Pump malfunction

Save

Registry details

General | Patient data | Hemodynamics | Device complications | Patient complications | Outcome

- [ ] Hemorrhagic complications
- [ ] Neurologic complications
- [ ] Renal complications
- [ ] Pulmonary complications
- [ ] Cardiopulmonary complications
- [ ] Infectious complications
- [ ] Metabolic complications

Save

Registry details

General | Patient data | Hemodynamics | Device complications | Patient complications | Outcome

- [ ] Hemorrhagic complications
- [x] Neurologic complications
  - [ ] Clinical brain death
  - [ ] Infarction (US or CT)
  - [ ] Hemorrhage (US or CT)
  - [ ] Clinical seizures
  - [ ] EEG seizures
- [ ] Renal complications
- [ ] Pulmonary complications
- [ ] Cardiopulmonary complications
- [ ] Infectious complications
- [ ] Metabolic complications

Save

Registry details

Reason for discontinuing ECLS:

Choose

Save

In Conclusion

The goal of this application is to store the procedure and operational data of the CardioHelp machine. Especially the hemodynamics data which are produced by the CardioHelp machine, are difficult to store without a dedicated application.

Once these data are safely stored in an online location they can be used for other registries, or used for local outcomes data. The higher goal here is to further establish the indication and usefulness of the use of the CardioHelp in different clinical settings.

Try for yourself: http://77.173.53.32:8047

Username: marcel Password: password