

# Use of Common Technology(Fitbit) as an Aid to Increase Ambulation Among Pre-heart Transplant Patients

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# Disclosure:

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# Purpose/Objective:

- To explore the experiences of pre-heart transplant patients utilizing Fitbit as an ambulation measuring device.

# Background:

- More than 5.7 million people were diagnosed as having heart failure (HF) in 2014 (Benjamin E. et al., 2017).
- HF is a chronic, debilitating disease that often progresses to end-stage quickly when severe ventricular dysfunction leads to alterations in organ perfusion even at rest.
- Heart transplantation is the definitive treatment.

# Background:

- HF patients are typically **medically managed with Guideline Directed Medical therapy (GDMT)**.
- Patients are prone to **less than optimal mobility** due to **weakness, shortness of breath, etc.**
- When the medical treatment(**GDMT**) becomes **ineffective, mechanical circulatory support**, like the Intraortic Balloon Pump (**IABP**) is used.
- **Inotropic** infusions are started and pulmonary artery catheter(**PA**) inserted
- Patients are then placed on the **heart transplant list**

# Background:

- A **percutaneously placed axillary** intra-aortic balloon pump (IABP) is **routinely** utilized in the Houston Methodist Hospital Cardiac ICU(CICU) .
- Enable the patient's heart to be **mechanically supported** while **waiting for heart transplantation**.
- This **procedure enables** them to **ambulate** instead of being on bedrest with the traditional femoral IABP approach.

# Background:

- From a **previous** ambulatory **IABP study**, we identified the **need** for a **better measuring device** for ambulating pre heart transplant patients.
- We **theorized** that **patients** will want to **walk more** and **increase activity** if they can **see their progress thru the measuring device' display**.
- We theorized that **simplifying the measuring process** will **improve nurses' charting** in the EMR of the distance ambulated by the patients.

# Pre Fitbit

HI TECH MEASURING TOOLS

## How Far Did You Go???

A-Side  $\diamond$  to B-Side  $\diamond$  : 90 ft.

Loop Around Unit : 270 ft.

Loop Around Unit & Cath Lab : 395 ft.

One-Way Calculations (add them up):

A-Side  $\diamond$  - Elevators : 185 ft.

A-Side  $\diamond$  - Middle of Crosswalk : 275 ft.

A-Side  $\diamond$  - D10 Service Elevators  $\diamond$  : 335 ft.

Large Loop Around D10E : 330 ft.

Loop Around D10 Elevators: 210 ft.

Large Loop Around D10W : 495 ft.



$\diamond$  - Diamond Shape Tile Design on Floor

## MEASURING WHEEL FOR USE WHEN WALKING IABP PATIENTS.

-Please Reset counter to 000 by pressing the black button.

-It goes up to 999 feet only, so be aware of how many times the measuring device had reset, i.e. one reset is 1000 feet.

-chart in method vital signs the distance walked under "activity" ( it allows only up to 999, so just make a comment on the actual distance walked). We will try to have it changed so we can chart 4 or 5 digit numbers.



# Background:

- An innovative approach using a Fitbit to accurately measure the number of steps the patient took during their ambulation process was implemented.
- Experiences of these patients were explored using Fitbit as an ambulation measurement device.

# Fitbit One:



- Descriptive phenomenology was used in this **study**.
- Descriptive phenomenology uses direct exploration, analysis, and description of particular phenomena, free from unexamined presuppositions, with an aim of presenting intuition at its maximum (Speciale & Carpenter, 2007).

# Methodology – Setting:

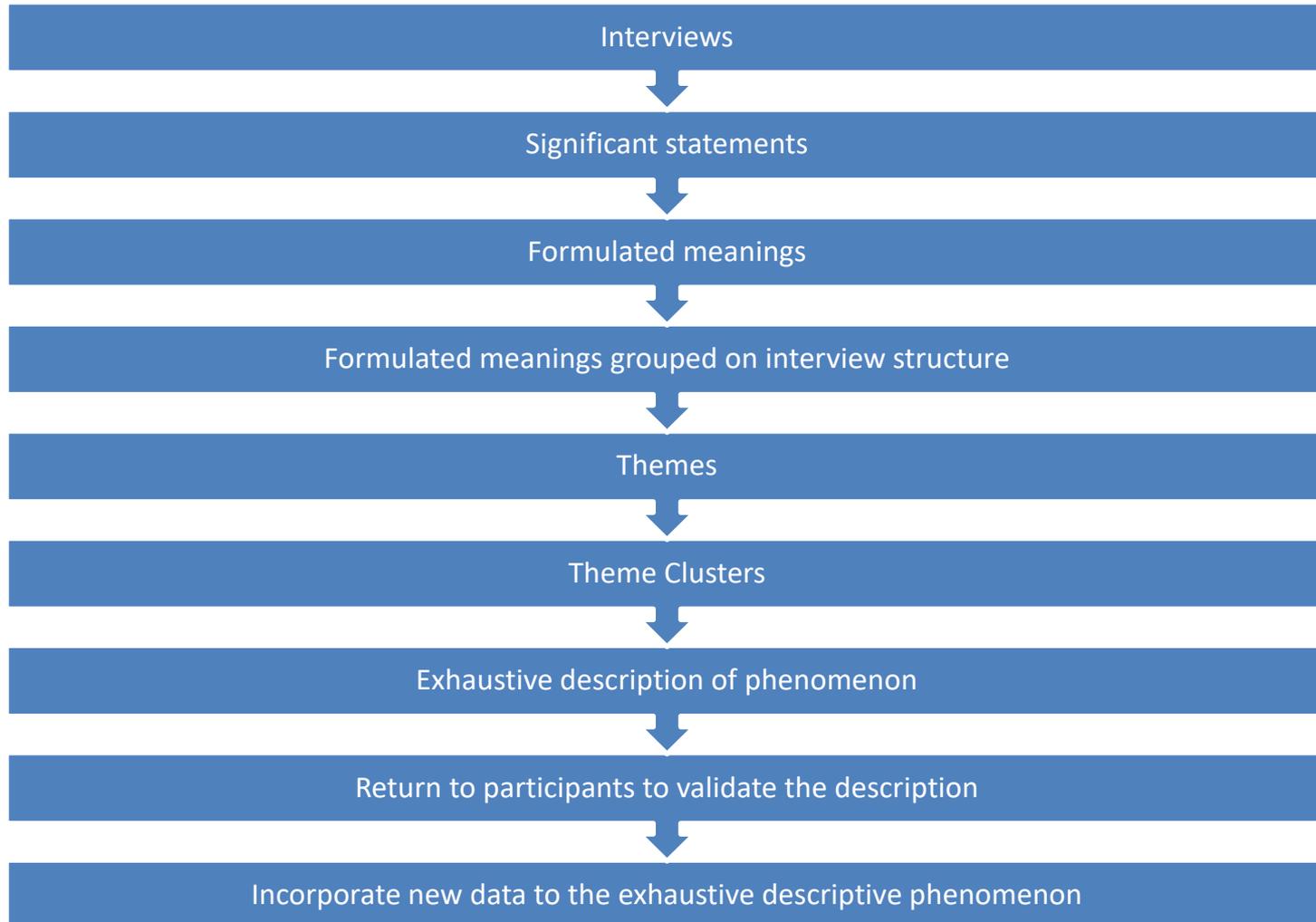
- This study was conducted in the Houston Methodist Hospital CICU where HF patients were waiting for a heart transplant.
- The study participants: had either a Swan-Ganz(**PA**) **catheter** and **inotropic drips**; an **axillary IABP** and have doctors' orders to ambulate.

# Methodology - Interview Guide:

## Appendix A

1. Tell me about your feelings when they gave you a Fitbit?
  - a. Have you previously heard about Fitbit, or any other activity tracker?
  - b. Do you know what the Fitbit is used for?
  - c. Describe your reaction when the nurse provided you with the Fitbit?
2. What are some of your feelings when you walked using the Fitbit?
  - a. Did you feel any changes in your body?
    - i. (physical, emotional or other changes...)
  - b. How is your sleep at night?
3. What kind of activities do you do with the Fitbit while in the hospital?
4. Tell me about your ability to be active at home before you were admitted to the hospital?
  - a. Did you have a regular exercise routine at home, despite your heart failure?
  - b. Did you use any activity tracker, such as Fitbit?
    - i. If so... how was it working for you?
5. Why do you think it is important to be active even though you have heart failure?
6. What do you think of the Fitbit as a measuring device for walking?
  - a. In your own words...what is the benefit of Fitbit to you?

# Data Analysis - Colaizzi's Method:



# Results Continued:

- Cluster of themes:
  - Happy
  - Motivator
  - Beneficial
  - Future Potential

# Cluster of Themes: Happy

“I was **excited** about it, I never had one and I was really excited about it. It made me **feel like I am accomplishing something**. I felt pretty confident with myself with the Fitbit. **I felt I had a challenge.**”

“I know it’s a great tool in keeping up with your activity. I am **glad to get it because I wanted to track my steps** every day.”

“I was pretty **happy to participate in the study to assess whether or not to exercise**, if that is the case it will **benefit people with a heart condition such as myself.**”

“I was **pleased** to be a part of the study. I had a Fitbit at home but I stopped using it when my heart was failing. **I didn’t exercise much, but now I enjoy it.**”

“I felt like I won the lotto, **I was happy and I said why not...**”

“I was **excited**, with the purpose of **how I could benefit from it.**”

“It was **good for motivation** and get me to walk. **I was happy and glad to participate.** “

# Cluster of Themes: Motivator

“It made me *feel like I am accomplishing something*. I felt pretty confident with myself with the Fitbit. I felt I had a challenge.”

“When I am walking with the Fitbit, *I make sure that I couple the amount of steps that I want to each day.*”

“Emotionally *I was reaching small goals from the first time being just to walk around the corridors to the last time I walk half a mile walking down various corridors.*”

“I don’t even think about it...*actually I think about it when I get back to the room and I press the button and yayyy I got a bunch of steps*, I was happy about it. I know *it’s counting my steps and the next day I want to count more step than the day before so it has value.*”

“Fitbit doesn’t really change anything...*I know how many steps I have done in one particular point, it allows me to push forward because what I want to do is achieve everyday a little bit further* so the Fitbit *gives me that information every day.*”

“I mean I could hardly tell you got it on. Sleep better I guess. It was the walking that did it, I don’t think Fitbit had anything to do with it. *It’s the walking itself that the Fitbit encouraged me to do.* You know the *walking help me to sleep better.*”

# Cluster of Themes: Beneficial

***“It made me feel like I was accomplishing something. I sleep pretty good considering that we are in the hospital.”***

***I started with 695 steps and I went to 895, you could look at the record and see it, but I’m up to my highest I think is 5000 steps, but I’m going to beat that today.*** This is a motivator you really want to take one more step than you did yesterday.”

***I walk and also I have an exercise bike I use that. Any type of exercises. I have weights that I use periodically so I use that with any type of exercises that I do. I do strengthening exercises and whatever exercises I do in the room, I have the Fitbit on.***

No it didn’t change my feelings about it body wise, ***emotional it did because this is something I wanted to find out.*** I sleep good at night.

You know the ***walking help me to sleep better, the walking itself that the Fitbit encouraged me to do***

I think that the ***exercise does help. It relieves some tension and stress, so I do think that it (Fitbit) helps.***

# Cluster of Themes: Beneficial

Continued

*“It is **important because you want to have strength when you get your heart transplant. I think it will help my recovery 100%.**”*

*“I think it’s **important to have this Fitbit for tracking your steps every day and then it help motivate you to stay strong.**”*

*“Because your **other body parts contribute to the workout and endurance** so that **you don’t have atrophy in legs and arms upper body and lower body.**”*

*“It is **important to be active, I’ve known that for decades.** I mean that **people were designed to move, to walk** back to our origins in Africa and we see the consequences of sedentary lifestyle and poor diet. **My goal was not to live a longer life but to have a higher quality of life and not decline which so many people think are just a part of growing old.**”*

# Cluster of Themes: Future Potential

“I could imagine that *for others it would provide motivation that they don’t intrinsically have or had before getting the Fitbit.*”

“ it will *benefit people with a heart condition such as myself.*”

“My *wife has one and tracks it on her phone and its kinda fun when we compare what we had done.*”

“At the website, *you can see and reference back to others (Fitbit group members);* gives you the *summary of what you have done.*”

# Conclusion:

- The patients had positive response to using the Fitbit as an ambulation measuring device.
- They were happy to receive a Fitbit.
- They believe that it is a motivator and therefore beneficial to them.
- They think that it has potential to help future heart failure patients in the same situation.
- The nurses walking with the patient gets exercise too.
- The results of this study can be a basis for further studies.

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# Fitbit One:

## Product Description

- The Fitbit One Wireless Activity and Sleep Tracker tracks your physical activities and automatically syncs to your computer or smartphone to help you reach your fitness goals.
- Compatible with iPhone 4S or later, iPad (3rd Gen), Mac iOS, Android
- Dimensions: 1.89"H x 0.76"W x 0.38"D, 0.28 lbs.
- Push button control with each push cycles through one of six modes, steps, distance, calories burned, floors climbed, flower, v-lock
- Battery type: Lithium-ion polymer, battery life: 10 - 14 days

- Once informed consent was obtained, the study team scheduled a time for the participant's interview at their convenience in their room.
- Two data collectors assisted with the interviews. The data collectors were trained on how to interview the participants.