Health Professional Market:

Targets:

* + - Wearable medical device manufacturers
    - Public and private physicians
    - Healthcare institutions (medical data centers)
    - Research & clinical laboratories
    - Distributors and suppliers of wearable medical devices
    - Health insurance payers
    - Market research and consulting firms
    - Venture capitalists

This may be considered a rehabilitation device

Numbers:

- 31 million experience back pain at any given time

- 80% of the population will experience it somewhere in their lifetime

<https://www.acatoday.org/Patients/Health-Wellness-Information/Back-Pain-> Facts-and-Statistics

- The most common type of wearables are health based, and health based wearables are the fastest growing type

<https://www.dr-hempel-network.com/growth-of-digital-health-market/digital-> health-wearables-market-hype/

wearables for healthcare professionals

- Medical Wearable devices market projected to reach 12.1 billion by 2021

“medical wearables will be successfully implemented in everyday healthcare when they provide medically relevant data within a structure that pays for more services and makes it easier for providers to both facilitate and bill for them”. The data can be analyzed for a number of different reasons and objectives, and a medical infrastructure can provide data between multiple patients to store and cross reference as well as study. The shoe implant can be billed as a purchase and the continued medical analysis of the data can come with a type of professional healthcare subscription.

<https://hitconsultant.net/2018/01/24/medical-wearables-devices/>

- Global Rehabilitation equipment and devices was values at 10.5 billion in 2016

- Rehabilitation devices consist of mainly exercise and mobility equipment, mobility at 37.1% of market, 3.9 billion

https://www.grandviewresearch.com/industry-analysis/rehabilitation-products-market

Relevant Existing Products:

In Sole GPS - https://outdoorchimp.com/products/gps-smartsole-hidden-wearable-tracker-in-shoe-for-monitoring-wanderers?gclid=CjwKCAjwrNjcBRA3EiwAIIOvq02U4pgqQiShEd7L5YI\_PnfPQ3RpEc1AZzS3mzXfrnISCTktTIXQ5hoCUEwQAvD\_BwE

Running Shoe Lifetime Tracker - <https://www.amazon.com/mino-Shoe-Life-Tracker-Size/dp/B00DALWG6C>

Wireless Step Tracker - <https://www.ebay.com/p/Pyle-PSBTFS40-Bluetooth-Footpod-Fitness-Training-Sensor/1434198996?iid=261978081179&chn=ps>

Pressure Sensor Bluetooth Capable Shoe Implant (NOT CURRENTLY A PRODUCT) - <https://www.researchgate.net/publication/49628248/download>

Pressure Sensor for Clinical Trials -

<https://www.tekscan.com/product-group/medical/in-shoe>

<https://www.tekscan.com/product-group/embedded-sensing/custom-solutions>

- Company provides pressure mapping SDK for getting, recording, and reading data

- Not wireless

- Resistive based sensors (requires power)

<https://www.tekscan.com/products-solutions/systems/f-scan-system>

- Mainly for research and clinicians

- Requires custom transmitter/receiver

- Company also offers OEM sensors - https://www.tekscan.com/force-sensors

Relevant Research Paper - <https://ac.els-cdn.com/S2212017315001978/1-s2.0-S2212017315001978-main.pdf?_tid=5009eb1f-c0e2-4df6-8f5f-222a159fd6d8&acdnat=1536641502_74dd7b37d23cd97e149aa52a1d7e4790>

- wireless

- real time

Bluetooth Pressure Sensor - <http://novel.de/novelcontent/pedar>

- not wireless

- sd card storage

Conclusions:

There are already insole products that monitor, record, and send high accuracy bluetooth data. There does not seem to be any current product that does this with a passive power system however, and these products are generally marketed for clinical in house studies. The problem with in house studies is that they are not you in your daily life, being able to record data from your daily life will provide much more relevant data to how you balance the majority of the time. In addition, a passive power system allows the user to set and forget the device, then return the data to a healthcare professional at a later time or view their daily activity status whenever they would like. A cost effective, minimum maintenance, self useable/maintianable device should be our goal in terms of healthcare.