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HST.939 Designing and Sustaining Technology Innovation for Global Health Practice  
Spring 2008

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**HST.939 Designing and Sustaining Technology Innovation for Global Health Practice  
Spring 2008** **Notes taken for OCW by student**

Lecture 8: 3/25/08                      Medical Device Development: Medtronic  
Speaker: Trevor Gunn, director of international relations for Medtronic

*Introduction by Prof. Regis*

Medtronic is world's largest medical technology company  
Began in a garage in 1949 by Earl Bakken.

*Lecture by Trevor Gunn*

He has no medical training, but does have a background in foreign relations and understands foreign governments. He's the only person at Medtronic who does what he does on a full-time basis.

Medtronic works closely with other medtech companies

- Much of what's true for Medtronic is also true for GE and Johnson&Johnson, etc.

Trevor's personal interest is in the non-developed world, though Medtronic serves countries all over the world including the developed world.

[Trevor shows a map of what Medtronic makes...]

- "brain pace maker" for Alzheimer's; implanted in a similar location to a normal pacemaker, with leads into the brain – controls Parkinsonian tremors within 10 seconds of being turned on.
- Microelectronics
- Defibrillators
- Batteries for medical devices
- Deep brain stimulator

Question: How do you organize all this? Is there central coordination or do these projects operate similar to independent companies?

Answer: These devices are developed pretty separately; there's no attempt to hard-coordinate the different projects. These operations are pretty close to being separate companies.

Medtronic has acquired many companies.

Works with doctors on innovations; about 2/3 of revenues come from products developed within the last 2 years. Device lifetimes of about 18 months.

Does most of its manufacturing in the U.S.; 31/35 manufacturing facilities are located in the U.S.

72,000 suppliers (compare with Boeing and its 10,000 suppliers).

450 distributors in just the emerging markets.

95% of products come from interactions with doctors.

(More quick statistics about Medtronic.)

What about disposables? Disposables are necessary and expensive over time.

- Can we force the (free/cheap) inclusion of X years of disposables with the purchase of some pricey piece of equipment that requires them?

Trends for discussion

- Chronic disease (vs. infection) is growing
- Massive confusion abroad about medtech vs. pharma
  - o The pharma industry is highly regulated, for example, while often the medtech industry is not, which can be dangerous.
- emerging markets are rising as % of revenues
- large decision makers are being forced to create holistic solutions
- high degree of control is being wrested from the traditional masters (doctors) by institutions, globally.

Closing by Prof. Regis

- Technology doesn't solve human problems; humans solve human problems, with good policies.