

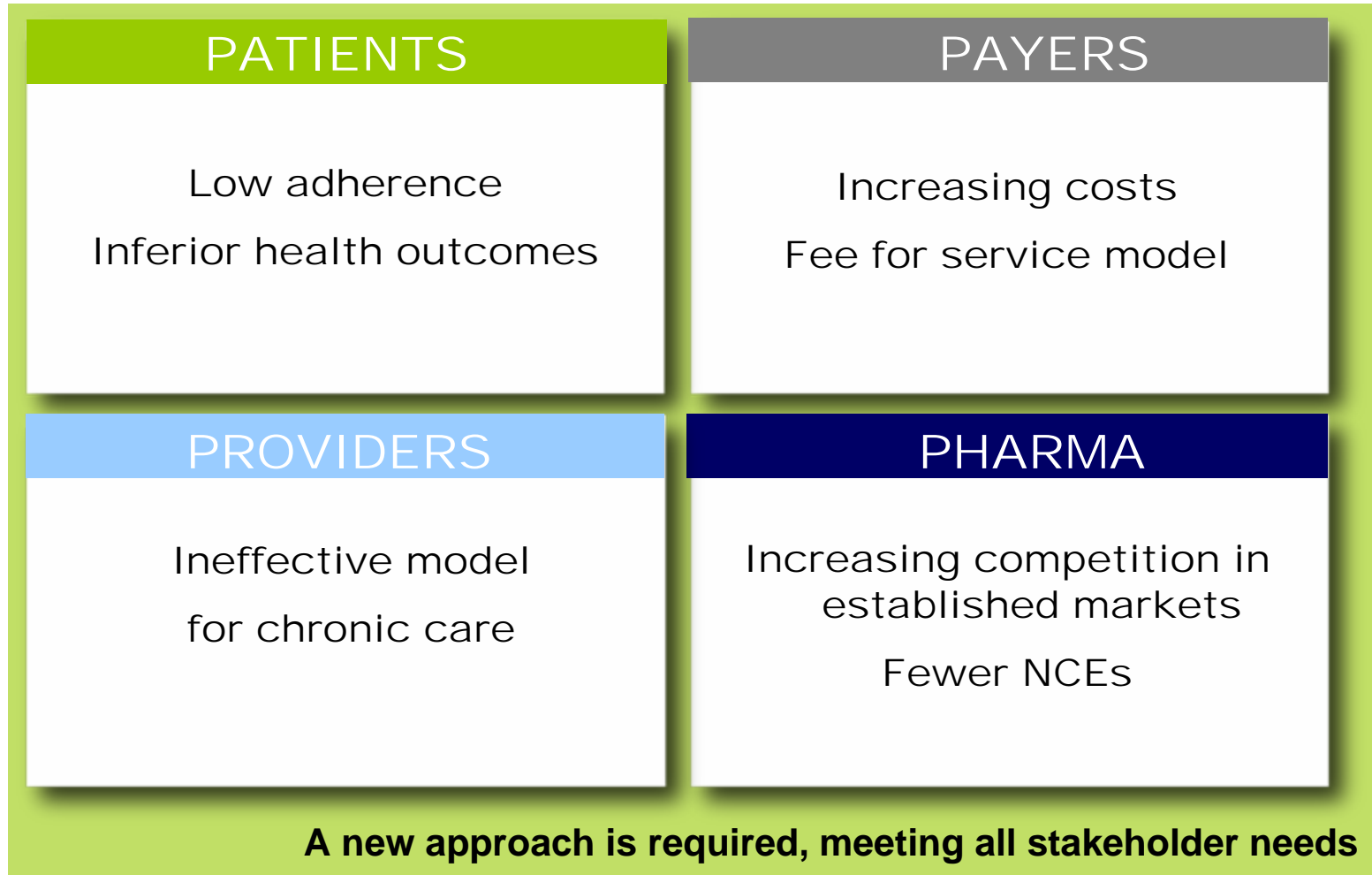
Connected inhalers: Will they improve patient compliance?

Inhaled Drug Delivery, 12 & 13 November 2009

Dr Michael Dunkley

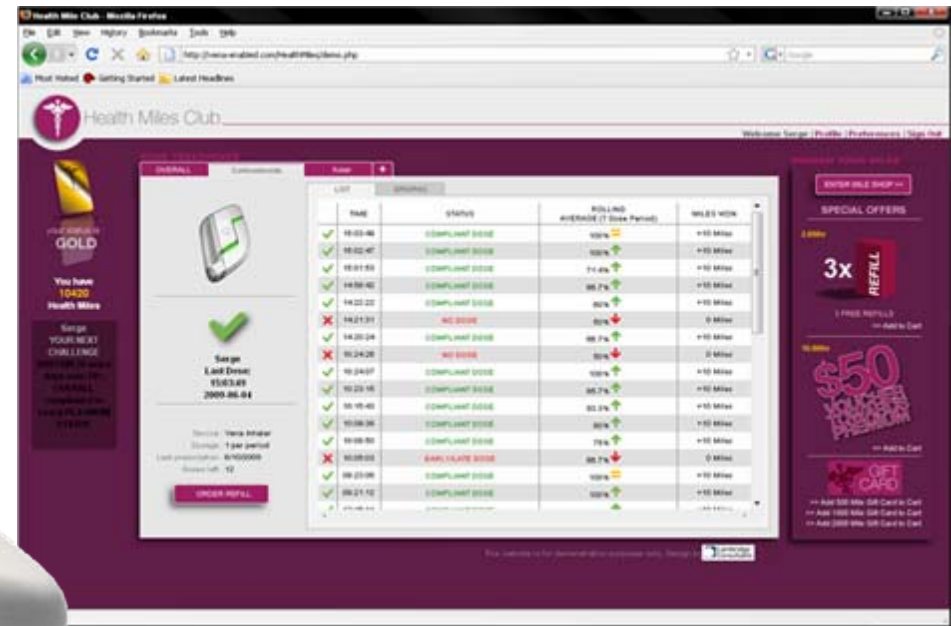
Current Status

The current system of healthcare (drug) delivery is not working for multiple stakeholders



Opportunity for Innovation

There is an opportunity to use low cost technology in an innovative way to meet this multi-dimensional challenge



Change will require both technology innovation AND business model innovation

- 1 Adherence**
- 2 Connected Inhalers**
- 3 Barriers and Opportunities**

“

Medication Adherence is the most important factor determining Medical Outcomes.

-World Health Organization

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Adherence (ād-hīr'əns) n.

the extent to which a person's behavior - taking medication, following a diet and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider.

-World Health Organization, Adherence to long term therapies: evidence for action, 2003.

Adherence



1 in 10

Americans may have COPD. 1 in 15 have Asthma



3rd

leading cause of death in 2020 will be COPD



>50%

chronic asthma patients are non-adherent



45%

of total costs may be due to poor adherence




\$290B

is non-adherence cost


There is a significant health problem; patients are under-served by the current system; pharma is leaving money on the table

Adherence


There is an increasing body of evidence that Connected Health works, accompanied by increasing interest




Pilot program with glucometer, gateway and web interface
HbA1C reduced from 6.8% to 5.8%





Adherence of Diovan increased from 30% to 80%





Providing cell phone based coaching service





Connected pill caps that send text reminders



Challenge for incumbents: how to augment products with service-based offering

- 1 Adherence
- 2 **Connected Inhalers**
- 3 Barriers and Opportunities

We based our product and service concept on key research findings

- Motivation to be healthy is not enough of an incentive by itself
- Technology needs to be simple, customized
- Service must address various feedback loops encompassing multiple stakeholders



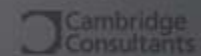
DEMO

<http://www.vena-enabled.com>

enabling connected health with:

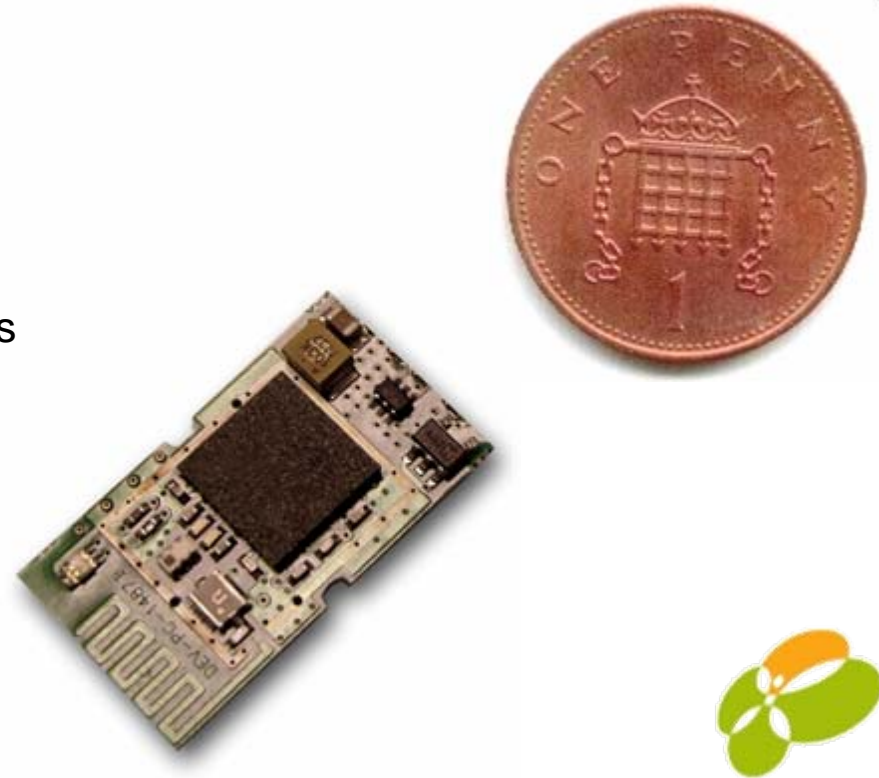


by



Our connected inhaler is based on Cambridge Consultants Vena IP

- Hardware and software solution
- Uses single chip BlueTooth for low cost
- Includes battery manager and simple UI for complete device functionality
- Compliance with Continua standards for wireless health communication
 - IEEE 11073 Personal Health Data
 - Bluetooth Health Device Profile (HDP)
- Allows for interoperability with ecosystem of connected devices and applications



- 1 Adherence
- 2 Connected Inhalers
- 3 **Barriers and Opportunities**

Barriers and Opportunities

There remain significant barriers to the widespread adoption of connected inhalers

- Technology adoption
 - 80% of people with internet access have searched for health information online
 - 64% of doctors use smart-phones

- Privacy and data security
 - Adoption of HIPAA regulations

- Product cost
 - Consumer technology is becoming a commodity

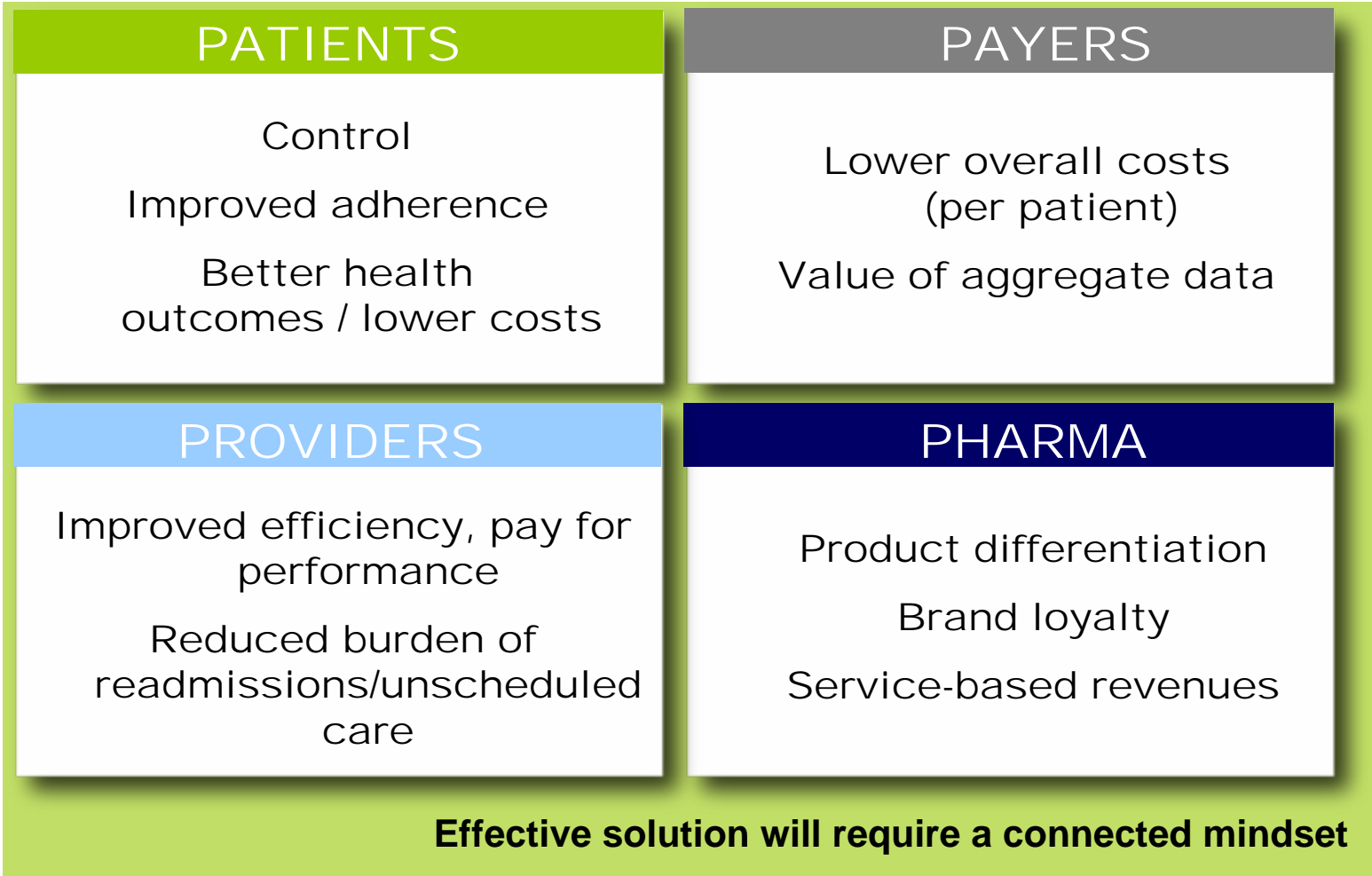
- Cost of ownership
 - Other industries have made this transition

- Vested interests in the status quo
 - Doctors respond to evidence
 - Policy moving towards payment for outcomes

- Need for greater evidence
 - Clinical trials

These barriers can be navigated with the right approach

With the right implementation, the opportunities for all stakeholders are significant



Summary

- Current approach not working
- Consumer communication technology provides opportunity for innovation
- Increasing evidence that Connected Health can work
- Barriers exist which can be navigated
- Success will require technological and business model innovation
- Opportunities are significant for those who succeed

The question is not

WILL this happen?

The question is

WHEN will this happen?



THANK YOU

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