Personal Health Platforms

Chronic Disease Management for the Masses
Intel’s Digital Health Focus Areas

Chronic Disease Management

Independent Living

Connected Healthcare

Research & Innovation
Policy & Standards
Explore how people deal with specific healthcare problems

Design prototypes of new technology solutions

Field-test prototypes in everyday settings, everyday lives

Turn prototypes into new platforms that meet people’s needs

Intel social science fieldwork in more than 1000 homes, 100 clinics, 20 countries, 12 pilots
Studying People and Practices Worldwide

**Ethnographic**
Understand needs, motivations and experiences through anthropological fieldwork by living with, interviewing and observing everyday lives of people.

Studies done in the home, in the hospital, and in the community

Examples:
- Alzheimer’s Study
- Nurse Study
- New Orleans’s Health Fair
- Global Ageing Experience

**Evidence-Based**
Deploy and test prototypes in real settings—not in a lab; drive long-term product roadmap and publish.

Intel researchers are currently testing the effectiveness of various proactive health technologies with seniors in their own homes.

Examples:
- Context Aware Meds Prompting
- Social Health Monitoring

**Ecosystem**
Drive industry-academic collaboration and funding of health tech R&D; promote sharing of research platforms and data.

Intel co-funds consortium’s to drive awareness and advancement of “ageing-in-place” technologies.

Examples:
- ETAC*, CAST*, ORCATECH*
- BAIC*, TRIL*

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Intel Collaborations

Technology Research for Independent Living Centre (TRIL*)
A collaboration with the Industrial Development Agency of Ireland and Irish Universities which will bring resources and attention to the field of Social Connection, Cognitive Function and Falls Prevention research.

Center for Aging Services Technologies (CAST*)
Researching new technologies to give seniors more quality, choice, dignity, independence and personal responsibility for their care.

Everyday Technologies for Alzheimer’s Care (ETAC*)
A unique consortium to address the needs of the millions of people worldwide who are living with Alzheimer’s disease.

Behavioral Assessment and Intervention Commons (BAIC*)
An academic-industrial collaboration with the Oregon Health & Science University that constructs a research commons—a shared pool of tools, technology & thinking—around behavioral markers & health outcomes.

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Driving Standards

Intel works with a number of medical standards organizations to promote open, standards-based healthcare solutions that will make possible new models of care:

**Bluetooth SIG Medical Devices Working Group**
Intel chairs the Bluetooth SIG Medical Devices Working Group, which will create a profile to ensure optimized interoperability between health-related devices and personal consumer electronics products, such as mobile phones, PCs and PDAs.

**Continua**
A non-profit, open industry alliance of the finest healthcare and technology companies in the world joining together in collaboration to improve the quality of personal healthcare. Continua’s mission is to establish an eco-system of interoperable personal health systems that empower people & organizations to better manage their health and wellness.

**Dossia**
Employers are creating the Dossia Network to provide consumers with an important new health benefit: a lifelong personal health record that they own and control. Founding members are Applied Materials, BP, Cardinal Health, Intel, Pitney-Bowes and Wal-mart with more to come.

**Health Level Seven**
Focuses on specifying international standards that enable disparate healthcare applications to exchange keys sets of clinical and administrative data. Our solution architects help lead a number of committees, and Charles Jaffe, MD, PhD, of Intel’s Digital Health Group, is HL7’s CEO.

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Why Focus on Chronic Conditions?

As of 2001, patients with chronic conditions accounted for:

- 83% of US healthcare spending
- 81% of inpatient stays
- 91% of prescriptions
- 76% of physician visits
- 98% of home healthcare visits

Global Nursing Shortage is Worsening

- Shortage of nurses is expected to reach 340,000 by 2020 in the US.¹
- In 2004, 28% of the nurses were over 50 years old.²
- In 2003, the annual outflow of Filipino nurses was three times greater than the annual production of licensed nurses of 6,500 to 7,000 year.³
- Sub-Saharan African countries have a shortfall of more than 600,000 nurses needed to meet the Millennium Development Goals.⁴

Sources:
¹ ANSR May 2007 Consensus Document
² HHNMag, November 17, 2005 – Retirement Boom?
³ Inter Press Service News Agency, Nurses’ Exodus Making Health System Sick, May 15, 2003

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The Perfect Storm is Here and Growing

Disruptive Demographics

Disruptive Economies

Disruptive Technologies

New models of care forced to emerge

How do we weather the storm?
The Continuum of Care

Quality of Life

Home Care
- Independent, Healthy Living
- Community Clinic
- Chronic Disease Management
- Doctor’s Office

Residential Care
- Assisted Living
- Skilled Nursing Facility

Acute Care
- Specialty Clinic
- Community Hospital
- ICU
- Emergency Department

Cost of Care / Day

$1 $10 $100 $1,000 $10,000
Overview of the Wagner Chronic Care Model

1. Community
   - Informed, Activated Patient
   - Productive Interactions
   - Prepared, Proactive Practice Team

2. Healthcare System
   - Self Management Support
   - Delivery System Design
   - Decision Support
   - Clinical Information Systems

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Telehealth Technologies Support a Proactive Chronic Care Model

1 Community

2 Healthcare System

3 Self Management Support
4 Delivery System Design
5 Decision Support
6 Clinical Information Systems

Telehealth Technologies help accelerate the productive interactions between patients and healthcare team

Informed, Activated Patient

Prepared, Proactive Practice Team

Productive Interactions

Telehealth Technologies
Features for Success

Telehealth and Telecare Technologies

- Deliver accurate, relevant, and timely information to all members of the care team
- Give patients an intuitive, enjoyable, and educational means of communication with their care team
- Provide self-management tools for patients to take a more active role in their own care
- Offer communication tools that connect the patient's entire care team for better coordination of care

Benefits

- Better information leads to targeted care
- Engaging experience improves compliance
- Patient education leads to positive behavior change
- Easy access to information for all leads to better outcomes

Goals

- Patient Active Involvement
- Improve Chronic Disease Management
- Reduce Costly Complications

Integrated Systems Technologies

1. Refer to speaker notes for references and source.

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Telehealth Technologies Today

Vitals Collection
- Monitors
- Personal Diaries

Educational Content and Tools
- Self Mgmt Tool
- Videos
- Lifestyle Guidance

Communication
- IVR
- Video Conferencing
- Messaging
- Telephone
- Mail
- Fax

Personal Diaries

Self Mgmt Tool

Videos

Lifestyle Guidance
Evolution Toward Personal Health Systems

ISOLATED VITAL COLLECTION AND ONE-WAY COMMUNICATION ISOLATED EDUCATIONAL CONTENT

- Monitor standard vital signs
- Patient communication

Monitor and manage standard vital signs

- Education content and Tools

REAL-TIME TWO-WAY COMMUNICATION, INFORMATION GATHERING AND INTEGRATED EDUCATIONAL TOOLS

- Data-rich health management systems
- Connection to friends and caregivers
- Connection to healthcare advice
- Independence
- Safe and friendly environment
- Friendly check-in mechanisms

Information Sharing

1. Refer to Intended Use – See notes
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Bringing the Best to the Home

**Acute Care**
- Patient monitored 24x7
- Centralized information
- Patient is passive
- Expensive

**Home Care**
- Independent
- Less expensive
- Where patient wants to be
- Patient empowerment
- Proactive
- No real-time feedback
- Compliance drops
The Intel® Health Guide connects patients and their care teams for personalized care management at home.
## Measuring Business Value: Telehealth

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**Impact of technology solutions**

**Develop tangible and intangible metrics**

**ROI of Telehealth**
VA Case Study Summary

Care Coordination/Home Health: The Systematic Implementation of Health Informatics, Home Telehealth, and DM to Support the Care of Veteran Patients w Chronic Conditions


Results:
- 25% reduction in bed days of care
- 19% reduction in hospital admissions
- 86% patient satisfaction score

Conclusion: an enterprise-wide home telehealth implementation is an appropriate & cost-effective way of managing chronic care patients in both urban & rural settings.

The Intel Health Guide was not used in this study.
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