ICADI Planning Workshop Notes
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These notes were written and organized in roughly chronological order to follow the discussion and presentations at the workshop. In many cases, they are my reaction to what was presented and not necessarily a transcript of the discussion itself.

Needs and Interventions

Needs Assessment
Who are the customers?
What do they want?
How can you tell if they receive the benefits?
Where are the barriers?
What is the product?
How much does it cost, who will pay for it, and is it worthwhile?

International
intergovernmental
interinstitutional
collaborative

Conference value - what is it intended to produce?
identify opportunities
report progress of ongoing work

Dissemination
websites
special magazine issue

Constituencies
Aged and aging
(frail, ill, healthy)

???
clinical trials (multicenter, randomized controlled trials)
shared databases
open source tools
persistent infrastructure
"glue" grants
private investment (and ROI)
DFSS

( 1500 proposals to NSF ITR under review now )

Any direct sharing of projects across UK-EU-USA?
Are needs changing?
Goals not specific to individuals and don't include dates.
What are the milestones and criteria for success?
Entitlements - health care (with drug benefit) for over 65 Y.O. = Medicare, for example
Mass customization
Objective driven research
Exploratory research
Linkage with advocacy groups
Enabler

www.cordis.lu/ist/so/einclusion

standards?
intelligent devices / internet appliances
the conventional internet is not sufficient

Necessary and sufficient
community intervention
Leveraged investments in technology
Where is the ROI?

Faith-based initiative
Acceptance criteria
healthy living: screening, compliance, follow-up (vs. single encounter)
Focus on economic viability; commercialization plans

Access to EQUAL
Don't ask, "I want more Quality of Life"
Is goal to change a rare event or
Personalize message, "Aunt Millie"

Information needs of Occupational Therapists
CDC INPHO - Information Network for Public Health Organizations

Is it public health? Health and human services?

Proportionality: Are needs of aged and disabled more deserving of attention than other groups?

$/QALY

Centers for rehabilitation research in US -- Preferable to independent R01s
Need for multidisciplinary approaches linked to users
Critical mass of investigators
Do Centers collaborate across institutional boundaries?

Life threatening conditions; end of life care
social rules and moral acceptance

Where is the low hanging fruit?

Lunch at Dundee University for Nobel Prize winners, none of whom had ever applied for a research grant

No knowledge of variability - will any solution be sufficiently robust to be useful in actual setting
Hawthorne effect

Unbridgeable gap between need for medical and social care and the tax yield (VAT, income tax, NHI, etc.)

How much of a "smart home" is necessarily useful for elderly?

Innovation in the 21st century will take place not in science and technology, but in the organization of society using "contemporary" technology

Use of surveys? Formal methods for customer needs assessment...

Need for exercise?? Incentives??
Stop smoking. Need for community service.
can it be subverted? is there a threat to privacy?
patient with a fall and broken hip? stroke victim? heart attack?
other life threatening event?

Gloucester smart home "survey" == what is the N??

Sleep monitoring
dementia

Smart sensors with stove; smoke detectors, As an alternative to assised living.

User behaviour -- House reaction (example: night light)

Caesar project - SAE - Engineering anthropometry
Custom orthotics and prosthetics

Prevention is much better than diagnosis and treatment
monitor number of E.R. visits
Pervasive computing lab - smart house - UFL - Gator-Tech Smart House

Create a magic wand

Mobile computing - elder digital assistant
open framework development

Ultrasonic location positioning / tracking system
pilot and beacon

Connect needs with source of disability - such as stroke, dementia (Alzheimer's Disease), ...
Burden of disease; estimate of potential for gain; periodic monitoring of benefits (to give ROI)
Specify targets (Healthy People 2000)

Constituencies
Frail elderly
Medicare recipients
Chronically ill
Stoke victims
Institutionalized
(demented patients, truants, young offenders, prisoners, soldiers in barracks, ...)

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High risk
(dementia, cancer, arthritis, heart disease/stroke, diabetes, depression)
Hospice
Rehabilitation / Recovery
Substance abuse (behavioral intervention)
Mental illness and neurological disorders
(autism, substance abuse, obsessive-compulsive, schizophrenia, anorexia nervosa/bullemia, sleep disorders, phobias, sexual dysfunction, anxiety disorders)
Space travel - Space Station - Interplanetary travel
Submariners
...
Convergence of technologies: telephone, digital camera, cable television,
Point of care systems
Mobile healthcare: EMT, airport, police, firemen, nurses and clinics
Assume that computers are free; sensors are omniscient, noiseless and ubiquitous; networks are 100% reliable and all data is immediately available everywhere. What needs to be done?
Match the interventions to the need
Gain acceptance
Prove that the intervention makes a difference
Show a benefit that is commensurate with the cost
Is "home" enough?
Disruptions are even more serious.
Legacy facilities; retrofitting
Nobody owns the whole process; most is out of control of government; what do the elderly want? what are they willing to accept?
Visible Human Project
Conceived in 3 phases:
1. Collect the data
2. Organize and markup the images
3. Provide tools (software) to solve high level problems
Digital Human concept
Human performance labs (USAF)
Engineering anthropometry
Understand the natural history of chronic disease
Instrument - Monitor - Evaluate - Intervene
Reconcile interventions with life effects; Refine QOL measures
Establish baseline
perform intervention
measure recovery
reduce empiricism
tailor interventions to individual needs
Interventions can be drugs, devices, procedures, ...
What's missing?

no standards for data
MIAME - Minimum information needed to define a microarray experiment
Ontology for representation of information
Information infrastructure
Cyberinfrastructure

Personal security

How can you measure a baseline? Does it vary with genetics? How does it vary with age?


What is normal aging?

Information Technology in Health Care (NIST)
Modeling human behaviors; modifying human behavior

What do customers want? What do they expect? What can be done for them that they don't ask for?

EM and EMC in FDA device regulation?

HDTV station in Texas began and closed down a wireless cardiology clinic due to RFI.
Can you model nomadic wireless computer networks and predict failures?

Passive vs. active systems

User-centered design

Engineering meets behavioral science; nursing;
Variability???

Conceptual model of human environments -- model of human in the environment -- The Sims

Reality TV
Osbornes
12 strangers in same house
Biosphere
Frontier family in Kansas
1900's home in London

We are naturally curious about how humans behave in varying scenarios. For example, people watch reality TV to be Voyeurs and observe the actions of surrogates or counterparts. The same is true in live theater, movies, TV sitcoms, dramas, mysteries, etc...