



What the Future Holds

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I submit to you

1. That there is generally a narrow vision of Personalized Medicine which says that there'll be new science but
 - Delivered by the same people in the same settings
 - Roles and institutions will not change
 - Information sources will stay the same
 - Regulation will stay the same
 - The business of health care will stay the same
 - The organizations involved will not change

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2. That people who hold this view are wrong

Change



- At GHS we think that big disruptive changes are happening to the health care system
- These are happening because of a unique combination of major developments all happening at one time
- Let's look at combinations of these factors and see where they take us

Major Factors

- Molecular medicine
- Aging Baby Boomers
- The internet
- Engineering advances allowing quantitation of diagnostics
- Overloaded health care system
- Spiraling health care costs

Molecular medicine

- “And that transformation...is so profound and so radical that I call it a metamorphosis: a **molecular** metamorphosis in which the future of health and healthcare will be no more like the past than a butterfly is like a caterpillar. It is that radical. It is that profound. And it will alter and change not just one thing; it will change **everything.**”

– Andrew C. von Eschenbach, M.D.
FDA Commissioner



Some combinations

Prevention

- Aging, anxious, aware population with disposable income
- Molecular medicine allowing understanding of pre-symptomatic disease potential
- Overloaded symptom-based h.c. system
- Implications
 - New emphasis on prevention, paid for by individuals
 - New players in the market: not pharma, biotech, managed care providers

Patients → Consumers

- Home diagnostic devices producing quantified results
 - Moving to web-enabled Home Dx devices
 - Moving to multi-function kit-based web-enabled home diagnostic devices
- Implications
 - Decline in clinician's role as the intermediary
 - Ability of commercial entities to bypass the traditional health care system

Government

- Aging, anxious, aware (voting) population with disposable income
- Molecular medicine
- The web spreading information about prevention
- Implications
 - Consumer expenditures for prevention will rise rapidly
 - Advocacy groups and vote-counting by those in office will lead to tax relief for individual expenditures on prevention
 - Regulatory changes to match regulatory burden with seriousness of disease state

Diagnostics rule

- Molecular medicine will lead to targeting of therapies via diagnostics
- Pre-symptomatic care will be based on molecular diagnostics
- Consumers will buy Dx on their own
- Implications:
 - Rise in Dx investment, commercial activity, valuations, transactions
 - Companion diagnostics will be common
 - Capacity for a drug to be a blockbuster will be constrained

Cost control

- Courses of therapy are expensive
- Chronic diseases cost more as patients live longer
- Health care costs are seen as a national problem
- Implications:
 - Payers will embrace Dx as a route to cost cutting through accurate targeting
 - Employers and other organizations with health responsibilities (e.g., GM's unions) will be on board

Summary

- The factors mentioned earlier are coming together at one time
- They will lead to profound, radical, fundamental changes in health care
- These changes can and will provide big opportunities for forward-looking entrepreneurs and investors



Thanks!

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