

5-1-2006

A Healthcare-Delivery System for the Next Generation

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A Healthcare-Delivery System for the Next Generation



**White Paper of the Purdue Healthcare Summit
May 2-3, 2006**

Sponsored by

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Krannert School of Management,
Regenstrief Center for Healthcare Engineering
at Purdue University

White paper published by

The Regenstrief Center for Healthcare Engineering
at Purdue University
on behalf of the summit participants

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Executive Summary

On May 2-3, 2006, Purdue University, BlueCross BlueShield Association, and WellPoint, Inc. hosted 24 CEO-level healthcare executives representing a diverse cross section of the healthcare supply chain to design the U.S. healthcare-delivery system for the next generation. Participants were challenged to envision the ideal system for the future, without regard to the constraints of today's technologies, infrastructure, or financial systems. The Regenstrief Center for Healthcare Engineering at Purdue University was tasked to present the summit discussion in the form of a white paper that represents the view of the summit participants.

The summit discussions led to three distinctive *characteristics* for the design of a healthcare-delivery system:

- 1) Access to “basic” healthcare for all;
- 2) Consumer choice and responsibility; and
- 3) Personalized and coordinated continuum of care.

The design includes a set of *innovations* required to realize these characteristics as well as a set of *enablers* (or actions) to set the stage for the development and implementation of the new system.

This proposed design is based on a specific set of assumptions about the goals of healthcare delivery for the next generation, the attributes of the consumer and economic environment in the next generation. These assumptions may not correspond to the goals and attributes of the current healthcare system.

This design is not a detailed prescription for change—the complex and highly-distributed nature of the healthcare system precludes the successful adoption of such a prescription. Instead, the document identifies necessary elements for the future system and aims to identify forces that can catalyze radical improvements throughout the system. Once initiated, these forces can promote the innovations and actions.



Designing the Healthcare-Delivery System for the Next Generation

The U.S. healthcare system has contributed greatly to advances in life expectancy and quality of life. Despite these advances, the current healthcare-delivery system faces significant challenges in cost, accessibility and quality. Over the past decade, hundreds of conferences and workshops have been convened to identify problems and propose solutions. Many of the proposed solutions have not worked in practice or have been delayed by lack of agreement among stakeholders. Hence, valuable system improvements remain unrealized.

It is not surprising that the healthcare-delivery system is so resistant to change. From the perspective of systems analysis, the current healthcare-delivery system is in *equilibrium*; that is, over time, each of its subsystems has found a way to function within the dysfunction and irrationality of the entire system. Thus, attempts to fix one subsystem inevitably fail because the change is incompatible with other subsystems.

A CEO-level summit was held at Purdue University on May 2-3, 2006 to define a new equilibrium for the entire healthcare-delivery system. Instead of considering the current healthcare system and its particular subsystems, the participants were challenged to take a system-wide view and propose innovations and enablers that will provide traction for system-wide redesign, without confinement to today's technologies, infrastructure, or financial systems.

The discussions in the summit were based on some assumptions about the goals of healthcare delivery in the next generation, the attributes of the consumer and economic environment in the next generation. These assumptions may not correspond to the goals and attributes of the current healthcare system. Further, the "designers" are executives in the healthcare supply chain, whose perspectives may not represent all healthcare stakeholders.

Assumptions

To provide a framework for discussions, summit organizers suggested several assumptions about healthcare in the next generation. Derived from current trends, these assumptions describe the goals of healthcare delivery and the attributes of the consumer and economic environment. Although not unanimously endorsed, participants agreed that the assumptions were reasonable starting points.

Attributes of delivery

Summit discussions were anchored by the goals established by the Institute of Medicine (2001) that healthcare delivery should be:

- 1) *Safe—avoiding injuries to patients from the care that is intended to help them.*
- 2) *Effective—providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding under-use and overuse, respectively).*
- 3) *Patient-centered—providing care that is respectful of and responsive to individual patient preferences, needs and values and ensuring that patient values guide all clinical decisions.*
- 4) *Timely—reducing waits and sometimes harmful delays for both those who receive and those who give care.*



- 5) *Efficient—avoiding waste, including waste of equipment, supplies, and energy.*
- 6) *Equitable—providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic and socioeconomic status.*

It was also assumed that healthcare delivery should be based on the application of state-of-the-art engineering, scientific, and business principles, as advocated in several recent studies (e.g., *Building a Better Delivery System*, NAE/IOM, 2005).

The next-generation consumer

Consumers will be increasingly influential decision-makers and gain widespread access to healthcare information, resources and options. As information becomes more readily accessible and easily understandable, and as responsibility is directed at the individual consumer, they will become more engaged with navigating the healthcare system. Based upon these current trends, the following assumptions about next-generation consumers were made:

- 1) *Consumers will be more knowledgeable about managing healthcare;*
- 2) *Consumers will be better informed, at the point of care, of benefits, risks, costs and alternatives for treatments;*
- 3) *Consumers will be more technologically savvy; and*
- 4) *Consumers will be more engaged in decision-making with providers.*

The next-generation environment

Economic, political, and societal trends will also have a tremendous impact on healthcare in the next generation. There are increased opportunities for collective action and knowledge development. In turn, limited resources are already motivating organizations across the nation to partner in the delivery of services.

Thus, it was assumed that two specific trends will significantly influence healthcare in the next generation:

- 1) *Healthcare delivery will be based on strong public and private-sector partnerships; and*
- 2) *Cost and quality pressures combined with universal information portability will create global markets for healthcare providers and consumers.*



The Design Process: A CEO-Level “Summit”

The healthcare-delivery system for the next generation was designed by summit participants representing the stakeholders in healthcare delivery. Martin Jischke, president of Purdue University, Scott Serota, president and CEO of Blue Cross and Blue Shield Association, and Larry Glasscock, president and CEO of Wellpoint, Inc., were the summit hosts. Jeffrey S. Vitter, Frederick L. Hovde dean of the Purdue College of Science and Steven M. Witz, director of the Regenstrief Center of Healthcare Engineering at Purdue University, co-chaired the summit planning group. The planners limited the group size to facilitate active participation of all participants and to ensure reasonable representation by an array of stakeholder groups. The participants and their affiliations are listed in Appendix A. The summit was closed to the public and included no speeches or presentations. The event included breakout sessions that were moderated by facilitators.

Participants were “challenged” to answer three broad questions:

- 1) *What do we want in the future?* How should healthcare be delivered in the next generation?
- 2) *What new ways of doing things will be required?* What innovations will facilitate healthcare delivery in the next-generation design?
- 3) *How will we get there?* What should be done to enable and promote the next-generation design?

See Appendix B for the full list of questions.

Summit Results: Characteristics, Innovations, and Enablers

The proposed design for the next-generation healthcare-delivery system has three distinctive *characteristics*:

- 1) Access to “basic” healthcare for all;
- 2) Consumer choice and responsibility; and
- 3) Personalized and coordinated continuum of care

To realize these characteristics, several *innovations* will be required—technologies, models and regulation in order to facilitate the realization of these characteristics. Many of these innovations are already used in other industries (i.e., financial, retail, manufacturing). Their application to healthcare industry will be transformative.

Each characteristic and innovation is supported by a list of *enablers*; actions that must be taken to promote the development and implementation of the new system.

Together the three characteristics, innovations and enablers provide a general framework for next-generation healthcare design. Additional detail is required to understand fully the potential for these ideas to transform healthcare delivery. In turn, it is crucial to identify the forces of change that must collaborate to accomplish these goals. This will be the focus of next steps, discussed in the section, “Implementing the Next-Generation Design” (pp. 15-18).



The Design: Characteristics, Innovations and Enablers

1 Access to basic healthcare for all

The next-generation healthcare-delivery system will provide access to “basic” or “essential” healthcare services to all. Services beyond basic care will be available to consumers in an information-rich, competitive market. Consumers will be responsible for financing these additional services, which will be provided in a free-market setting.

Innovation: A definition of “basic” healthcare coverage

Basic healthcare coverage, provided by a balance of free-market and government support, will incorporate research and promote safety, quality, and cost-effective care. This definition will be updated as medical practice and therapy regimens evolve.

Enablers:

- Establish consensus among stakeholders for a process resulting in a definition of “basic” healthcare coverage (e.g., pediatrics, obstetrics, vaccination and wellness)
- Explore the market environment to develop and market basic coverage
- Standardize licensing and credentialing of healthcare professionals
- Create repositories of aggregate clinical (e.g., trials) and financial data to support evidence-based healthcare
 - Develop architecture (e.g., level of aggregation, level of security)
 - Determine ownership and financing
 - Design systems for management and oversight

Innovation: New models for healthcare financing

Consumers will require new financing mechanisms to purchase healthcare services. Consumers will be financially rewarded for healthy lifestyles.

Enablers:

- Advance tort reform regarding liability and compensation for economic and non-economic damages
- Engage government/employer groups in design of financing mechanisms
- Determine financing mechanisms for basic level of healthcare, particularly for the economically disadvantaged
- Develop new insurance models
 - Encourage use of defined contribution benefit design
 - Provide individual health insurance options, paid for on a sliding scale
 - Align incentives/disincentives with lifestyle choices
- Re-align tax policy (e.g., allows pre-tax deductions for co-payments and other out-of-pocket cost sharing)



2 “Informed consumerism” – choice and responsibility

Consumers will have a range of choices about the care they receive; they will *not* be passive recipients of healthcare services. Consumers will be responsible for managing their own health through the adoption of healthy lifestyles, use of self-monitoring and self-diagnosing technologies, and/or selection of appropriate care providers.

In light of these consumer expectations, the next generation healthcare system will provide interactive tools to help consumers understand, navigate, and coordinate the healthcare options and information available to them.

a. Consumer choices will include:

- Access to reliable information about their medical conditions;
- Provider, diagnostic testing and treatment options;
- Access to reliable information to arrive at informed decisions about providers and treatments (e.g., information about cost, outcomes and performance); and
- Access to professional services to interpret information and navigate within the system, based on need, health literacy, geography and life stage.

b. Consumer responsibilities will include:

- Personal lifestyle choices that impact health (i.e., diet, exercise, tobacco use);
- Shared financial responsibility for care and participation in an equitable system for distributing the cost of basic care (e.g., subsidies for low-income individuals/families); and
- Ownership of personal medical information.

Innovation: Competition in the healthcare-delivery market

Consumer-driven healthcare will lead to a system based upon individuals having choices and new employer and insurer models. Providers will compete for consumers; the competition will span the range of basic and additional services.

Enablers:

- Define what types of healthcare are best suited to competition (e.g., primary vs. quaternary)
- Design marketplaces to promote choices, such as “health marts¹” that provide access to goods and services
- Establish safety and quality standards linked to evidence-based practices

¹ One often-cited example is a “health mart,” which would provide basic healthcare services in much the same manner that large national department store chains, and others provide consumer products. The characteristics of health marts include convenient locations, one-stop shopping, access to non-physician providers, and low cost.



The Design: Characteristics, Innovations and Enablers

Innovation: Provider/treatment options at points of care

Consumers will be able to choose from different providers and from different treatment options based on readily available information about provider performance, treatment risks and cost of care. Care delivery will be widely available in different settings including schools, homes, community centers and consolidated "health-mart" settings.

Enablers:

- Create state-of-the-art consumer health information centers that help consumers navigate the network of doctor's offices, outpatient surgical centers, hospitals, etc.
- Provide options for matching providers and treatment with type of care (e.g., primary care, chronic care)
- Promote alternative provider and payer models (e.g., health mart, nurse-managed clinics, large super-specialty clinics, advanced-practice nurses delivering primary care)
- Advance the use of telemedicine and communication technologies
- Define scope of provider authority and liability around new models of care
- Train family members and caregivers to provide care, including the use of home-healthcare technology

Innovation: Consumer access to performance metrics

Data about system and provider performance, efficacy and cost will be readily accessible and easy to understand for consumers at the point of care to make decisions about providers, sites, treatment and payment options.

Enablers:

- Develop and apply metrics to measure performance of providers and facilities (i.e., safety, quality, effectiveness, cost)
- Provide standardized information to enable consumer comparison and choice

Innovation: Consumer decision-support system

Tools and human resources will be required to effectively use available healthcare information and help consumers make informed choices.

Enablers:

- Identify the educational content and models required to enable consumers to effectively manage their healthcare.



The Design: Characteristics, Innovations and Enablers

- Establish new healthcare role (i.e., “healthcare navigator/coach”), accessible in-person, online, or by phone, to help consumers, family members and caregivers interpret healthcare information and navigate the healthcare system (e.g., emerging roles of clinical nurse leader and nurses prepared with the doctorate of nursing practice).
 - Require inter-professional education/credentialing
 - Offer incentives and funding when this service adds value to the system
- Foster ongoing research into how technology can provide further improvements and incorporate communication advances quickly into education
- Educate stakeholders, including consumers, on use of information technology as a tool for making informed consumer choices
- Promote science and health literacy and statistics in schools
- Promote and facilitate web-based consumer guides to help consumers, family members and caregivers interpret healthcare information and navigate the healthcare system
- Promote programs and curricula specific to various life stages (children through end of life)
- Train providers to assist consumers with decisions



3 Personalized and coordinated continuum of care

In the next-generation design, healthcare will:

- a. *be provided along life, provider, and geographical continuums;*
- b. *be evidence-based and outcome-based, taking into account differences in patient characteristics; and*
- c. allow consumers to move seamlessly from one care setting to another.

Innovation: Personalized care technologies

Health management, including diagnosis and treatment will be based on individual patient characteristics (e.g., gender, age, genotype).

Enablers:

- Advance research in genetic and protein mapping (i.e., genomics and proteomics)
- Promote research that accounts for patients' demographic variations, particularly among populations with chronic illness
- Translate and use evidence/research to manage and prevent illness in at-risk patients/populations.

Innovation: Evidence-based clinical practice

Every level of care delivery will be rooted and continually updated through research-based best practices. The system will encourage use of proven diagnostics and therapeutics, on-going learning, outcome reporting and the sharing of knowledge among providers and networks of care.

Enablers:

- Promote consistency and uniformity in care delivery through implementation of evidence-based practice at all points of care
 - Reduce variation by standardizing workflow and equipment, where appropriate
 - Adopt Lean/Six Sigma practices
 - Promote effective communication between patient and provider
- Facilitate information exchange and education about latest evidence-based practices and public-health trends
- Create repositories of aggregate clinical (e.g., trials) and financial data to support evidence-based healthcare
- Facilitate secure exchange of healthcare information between computer applications
- Utilize information available in health records to develop evidence-based diagnosis and treatment



The Design: Characteristics, Innovations and Enablers

Innovation: Systems, protocols and administrative processes to facilitate secure information exchange

Personalized and coordinated care requires secure information-exchange and processing systems. The integrity of such systems depends upon appropriate protocols and administrative processes.

Enablers:

- Educate stakeholders as to benefits of common standards/protocols
- Create secure, private, and standardized electronic health record with universal health language to be accessed by providers and consumers
 - Develop architecture (e.g., level of aggregation, level of security)
 - Determine ownership and financing
 - Design systems for management and oversight
- Develop systems for remote monitoring and asynchronous communication between patients and providers
- Establish standards and develop formal methodology for secure information sharing
- Establish incentives for creation/use of standards for interoperability
- Facilitate collaboration among healthcare and information infrastructure domain experts, standards development organizations and national and international sanctioning bodies
- Involve information technology and healthcare experts in the creation process to ensure that standards meet real-world requirements
- Create regulations to prevent misuse of data and protect privacy

Innovation: New provider business and professional models

In order to provide continuous, coordinated care and enable consumer choice, new provider business models will be required (e.g., health-marts), and new management structures will be required to manage them. In addition, new professional roles will emerge (e.g., healthcare navigator).

Enablers:

- Establish credentialing/licensing requirements for new providers
- Promote business innovation through incentives and technology
- Require inter-professional education, including quality management, leadership, technology, communication and workforce development
- Infuse management expertise into current management systems
- Link payment to quality outcomes (e.g., encouraging wellness and prevention; providing navigation to receive the most appropriate care at the most appropriate time, in the most appropriate setting).
- Identify centers of excellence for acute and chronic conditions



Implementing the Next-Generation Design

The following implementation plan serves as a starting point to accomplishing the desired characteristics of the next-generation design for healthcare delivery. Enablers were analyzed to identify common themes and sequences for implementation, considering an individual enabler's impact on future enablers. The themes and enablers below represent those which require initial attention.

It is important to note that these initial plans do not include all of the enablers required to realize the next-generation healthcare system. It is assumed that enablers may evolve based upon initial implementation; thus, subsequent phases will be developed as implementation progresses.

Payment Reform

Enabler

Establish consensus among stakeholders for a process resulting in a definition of “basic” healthcare coverage (p. 7, Innovation: A definition of “basic” healthcare).

Initial steps for development

- Convene a working group to develop an initial operating definition of “basic healthcare.”
- Examine existing definitions; refine and enhance definitions through email discussion and deliberation.
- Explore how impact of definition may be measured and evaluated.

Enabler

Determine financing mechanisms for basic level of healthcare (p. 7, Innovation: New models for healthcare financing).

Initial steps for development

- Promote the use of new analytic methodologies (e.g., agent-based simulation) to simultaneously assess the comprehensive impact of healthcare cost, quality and access.
- Make modeling results available to a collaborative group of insurance, business and provider representatives to establish funding practices.

Informed Consumerism

Enabler

Identify the educational content and models required to enable consumers to effectively manage their healthcare (p. 7, Innovation: Consumer decision-support system).

Initial steps for development

- Determine the elements of consumer responsibility in the next-generation healthcare system – what decisions will consumers be held responsible for?



Implementing the Next-Generation Design

- Identify consumers' informational needs and desires – what types of information will they need or want to fulfill their responsibilities as healthcare consumers?
- Connect interdisciplinary expertise and experience to develop healthcare consumer education models.

Clinical and Business Intelligence

Enabler

Facilitate exchange of healthcare information between computer applications while preserving meaning and security (p. 11, Innovation: Evidence-based clinical practice).

Initial steps for development

- Convene a group of researchers and other experts to identify state-of-the-art healthcare data security.
- Assess data security progress from other industries.
- Build collaboration opportunities for groups (healthcare and non-healthcare) working to define data security needs and address them.
- Develop operational guidelines.

Efficiency and Effectiveness of Care

Enabler

Promote alternative provider models (p. 9, Innovation: Provider/treatment options at point of care).

Initial steps for development

- Objectively identify priorities for alternative models of care – current (e.g., open access scheduling), emerging (e.g., nurse-managed clinics), and future (e.g., health-marts).
- Establish protocols to evaluate alternative models; create demonstration projects of future models.

Personalized Healthcare Delivery

Enabler

Advance research in genetic and protein mapping (p. 11, Innovation: Personalized care technologies).

Initial steps for development

- Establish consistent measurement protocols for accurate diagnosis and effective treatment decisions.
- Decrease cost of testing and enable provider use at point of care.



Implementing the Next-Generation Design

Evidence-Based Continuum of Care

Enabler

Promote consistency and uniformity in care delivery through implementation of evidence-based practice at all points of care (p. 11, Evidence-based clinical practice).

Initial steps for development

- Identify and evaluate findings from early pay-for-performance trials.
- Identify best practices and create new pilot project to evaluate integration practices.
- Assist pilot hospitals with integration through training or consulting services.



References

Institute of Medicine. 2001. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, D.C.: National Academies Press.

National Academy of Engineering/Institute of Medicine. 2005. *Building a Better Delivery System: A New Engineering/Health Care Partnership*. Washington, D.C.: National Academies Press.



Appendix A: List of Summit Participants

Research and education

- Dr. Rita Colwell*, Distinguished University Professor, University of Maryland College Park, Johns Hopkins University Bloomberg School of Public Health; former Director, National Science Foundation
- Dr. Bernadine Healy, M.D.*, Health Editor and medical columnist, *U.S. News and World Report*; former Director, National Institutes of Health; and former President & CEO, American Red Cross
- Dr. Martin C. Jischke*, President, Purdue University

Funding organizations

- Mr. Leonard J. Betley*, President and CEO, Regenstrief Foundation

Government

- Dr. Judy Monroe, M.D.*, State Health Commissioner, Indiana Dept. of Health

Technology

- Dr. Craig Barrett*, Chairman of the Board, Intel
- Dr. Wayne T. Hockmeyer*, Chairman of the Board, MedImmune, Inc. and President MedImmune Ventures
- Dr. Thomas S. Inui, M.D.*, President & CEO, Regenstrief Institute for Health Care, Inc.
- Mr. Jonathan D. Linkous*, Executive Director, American Telemedicine Association

Hospitals, health systems and healthcare associations

- Dr. Geraldine (Polly) Bednash*, Executive Director, American Association of Colleges of Nursing
- Mr. Vincent C. Caponi*, CEO, St. Vincent Health
- Ms. Nancy A. Dickenson-Hazard*, R.N., M.S.N., F.A.A.N., CEO to the Honor Society of Nursing, Sigma Theta Tau International
- Mr. Anthony B. Lennen*, President and CEO, Major Hospital
- Dr. Floyd D. Loop, M.D.*, Former CEO & Chairman, Cleveland Clinic Foundation
- Dr. Vinod K. Sahney*, Chairman, Institute for Healthcare Improvement
- Mr. Ken Stella*, President & CEO, Indiana Hospital&Health Association
- Dr. Anthony R. Tersigni*, President & CEO, Ascension Health
- Dr. John Tooker, M.D.*, Executive Vice President & CEO, American College of Physicians
- Dr. Karen Wolk Feinstein*, President & CEO, Jewish Healthcare Foundation



Appendix A: List of Summit Participants

Insurance providers

Mr. Larry Glasscock, Chairman, President, & CEO, WellPoint, Inc.

Mr. Scott Serota, President & CEO, Blue Cross and Blue Shield Association

Pharmaceutical companies and/or manufacturer of healthcare products

Mr. Robert J. Darretta, Vice Chairman & CFO, Johnson & Johnson

Mr. Sidney Taurel, Chairman & CEO, Eli Lilly and Company

Moderator

Mr. Gerry Dick, President & Managing Editor, Grow Indiana Media Ventures, LLC



Appendix B: Summit Focus Questions

I. How Should Healthcare be Delivered in the Next Generation?

- Who/what (i.e., people/technology) delivers healthcare in the next-generation design?
- Where will care be delivered in the next-generation design?
- When will care be delivered in the next-generation design; i.e., what are the roles of prevention, detection, and treatment?
- Who/what are the consumers of healthcare in the next-generation design; what are their needs and demands?
- What is the role of the patient/consumer in delivering healthcare in the next-generation design?
- What medical and business principles should be adopted in the next-generation design?

II. What Innovations will Facilitate Healthcare Delivery in the Next-Generation Design?

- What innovations will facilitate patient/consumer learning and decision-making in the next-generation design?
- What innovations will facilitate collaborative decision-making in the next-generation design?
- What innovations will facilitate healthcare-delivery that is truly consumer-centric in the next-generation design?
- What innovations will facilitate medical record-keeping and communication in the next-generation design?
- What innovations will facilitate the use of evidence-based decisions in the next-generation design?
- What innovations will facilitate wellness and early diagnosis in the next-generation design?
- What innovations will facilitate consistency and high quality service across different providers in the next-generation design?
- What business-process innovations will facilitate the next-generation design?

III. What Should be Done to Enable and Promote the Next-Generation Design?

a. Educational Enablers/Promoters

- What/how should healthcare providers be educated to enable/promote the next-generation design?
- What/how should healthcare consumers/patients be educated to enable/promote the next generation design?
- What is the role of primary and secondary education in enabling/promoting the next-generation design?
- What is the role of Universities (e.g., in training future medical personnel) to enable/promote the next-generation design?



Appendix B: Summit Focus Questions

b. Policy and Regulatory Enablers/Promoters

- What types of quality and performance measurements should be implemented in the next-generation design?
- What is the best way to enable/promote the best use of information-technology in all facets of healthcare, including electronic medical records, e-prescribing, etc. in the next-generation design?
- What policies will enable/promote privacy and information-security in the next-generation design?
- What policies will enable/promote technology development and adoption to support the next-generation design?
- What policies will enable/promote sustainability of the next-generation design?
- What policies will enable/promote new medical advances, from gene therapy to human genomics, in the next-generation design?
- Same for pharmaceuticals and new medical technologies?
- What is the best way to get policymakers to favor truly enabling legislation, regulation and policy for the next-generation design?
- What is the best way to craft a national healthcare policy that assures access for all in the next-generation design?
- How policies will enable/promote a healthcare-delivery system that values primary care and rewards it appropriately in the next-generation design?
- Should federal and state governments develop healthcare data standards and provide technical and financial support for public-private partnerships?

c. Technology and Infrastructural Enablers/Promoters

- How will providers and patients communicate and share information in the next-generation design?
- What interoperability standards will enable/promote the next-generation design? How are they going to be developed?
- What clinical infrastructure will enable/promote the next-generation design?
- What is the best way to achieve interoperability—where all stakeholders have easy 24X7 access to information in common formats?
- What technologies will enable/promote collaboration among all stakeholders?



Appendix B: Summit Focus Questions

d. Financial Enablers/Promoters

- How will healthcare be delivered to the uninsured in the next-generation design?
- Which parties will provide the dollars to “detail” the next-generation design?
- Which parties will provide the dollars to implement the next-generation design?
- Which parties will provide the dollars to maintain and improve the next-generation design?
- What role will the healthcare-financing and insurance industries play in the next-generation design?
- What new product designs and new health plan models are on the horizon that can make a meaningful impact?
- What is the Medicaid role in the new system?
- What is the Medicare role in the new system?
- How will funding be distributed across different payers?
- What type of funding for education programs need to be in place?
- What are the respective roles of Federal and State roles regarding funding, interoperability, social initiatives, etc.?
- What is the best way reap the benefits from prevention and wellness care across all populations?

e. Management/Human-Resource Enablers/Promoters

- What changes in expertise are required and how can they be enabled?
- How can top management enable/promote the next-generation design?
- How should healthcare-delivery organizations be redesigned to enable/promote the next-generation design?
- How should healthcare-provider roles be redefined in the next-generation design?



Appendix C: Additional Comments and References

This white paper is intended to represent, as accurately as possible, the characteristics, innovations and enablers for the healthcare-delivery system for the next generation as discussed during the Summit on May 2-3, 2006.

During the drafting/revision process following the Summit, several participants suggested clarifications, references, and/or additional comments. These suggestions were incorporated into the revised drafts when they directly reflected discussions that took place during the Summit. In some instances, clarifications, references and/or additional comments were *appropriate to* the discussion, but were *not part of* the discussion during the Summit. These have been provided below.

Comments

“Basic Care” Definition (p. 7)

Definition of “basic” healthcare is going to be difficult. The authors are talking about primary care which includes pediatrics, OB, and preventive medicine. What about diagnostic aids such as imaging, laboratory medicine, genetic screening, etc. Where do you draw the line? Is minor surgery part of basic healthcare? Where is the line between basic and specialty care?

Healthcare Financing (p. 7)

A significant problem is the number of state mandates that govern employer-based insurance (particularly for independent/small marketplaces). We need to let consumer choice drive the marketplace.

We already have, in today's environment, persons making poor lifestyle choices who have no or little financial benefit. Reducing "financial benefit" to these folks would not make their health care needs disappear. So...how would the new model change financing for the indigent overweight smoker with diabetes and lung cancer who did not choose to avail himself of basic care? Does the model suggest denial of care to those making poor choices?

Will premiums vary based on patient characteristics?

If we wish to provide basic care to everyone, we have to start with a mechanism for financing. The government is not going to do it unless there is universal health care which would not work as it hasn't in the countries who have tried it. If 15% or more percent of people are uninsured, probably a third of them could afford it or would be enrolled in Medicaid. This leaves about 10 percent or so of the population that is truly disadvantaged. If the government funds access to basic healthcare, primary care, who funds the next step when patients require further diagnostic testing and treatment?

Consumer Education (p. 9)

Consumer education will require a wide array of efforts by a wide array of professionals. The need for access to a very sophisticated information system with data on these issues is only part of the solution here. An enormous amount of consumer education will be necessary, if we want consumers to take more responsibility and ownership of their decisions. Decisions require information and



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access to readily available information that is accurate, user friendly, and available in a real time fashion.

Inter-Professional Education (p. 10)

Who's going to require inter-professional education, and how would it be administered?

Evidence-Based Practice (p. 11)

Evidence-based medicine can be applied only to narrow areas of complex diseases. See B. Healy column on evidence-based medicine (below).

Electronic Health Records (p. 12)

Payers should have access to EHR.

General Comments

Perfecting practice at the point of care is the starting point for a value-driven healthcare system. Application of quality engineering techniques that are embedded in a culture of 'zero tolerance' for errors, inefficiency, waste and substandard practice are central. Care teams must be fully functional and as error-free as in aviation, nuclear power or even automobile manufacturing.

The patient's role as the primary customer must be established and supported by management practices and payment mechanisms. Radical changes in what the new system compensates should ensure the future of best practice care teams, creating value in a healthcare system whose costs often are 30 percent to 50 percent attributable to waste.

It's estimated that it often takes as long as 17 years—nearly a generation—for evidence-based practices to find their way broadly into clinical care. My concern is that best practices move slowly, if at all, largely because the incentives are stacked against them. Meanwhile, practices that are at best ineffective or inefficient persist because we pay for them. For example, as much as experience suggests that the best care for chronic illnesses emphasizes disease management, the current reimbursement system continues to favor acute interventions that often come only when a patient's condition becomes life-threatening.

Healthcare-acquired infections may prove to be another case in point. Preliminary findings at the Pittsburgh Regional Health Initiative (PRHI) suggest that the only "business case" for combating nosocomial infections is for those who finance care, not for those who deliver it. We must compensate fully the cost of infection control, rather than remediation of preventable events.

Other instances of perverse incentives abound. Some compelling examples have been illuminated recently at Seattle's Virginia Mason Medical Center. In one, expensive MRIs and neurological consults that once led Virginia Mason's protocol for treating lower back pain were replaced by less costly—but more effective—physical therapy when healthcare stakeholders worked together to adequately compensate that care. We need more such fortunate changes where everyone wins.



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This convergence of interests underscores an even larger point: any reform of the current health system will inevitably serve everyone best if it begins in the right place. To our partners at PRHI, that place is at the point of care, from which all value derives.

Toward that end, our own agenda calls for a number of investigations that authors of this report might consider as pilots for expansion.

Among them are:

- Work with clinicians and like-minded coalitions to analyze costs of specific interventions that improve care delivery and result in measurably better outcomes, including those that may not currently be reimbursed. Much of our cost-analysis to date has been focused on infection control. But we also are looking at other promising areas of inquiry; including new models of providing care for diabetes that are among our clinical demonstrations.
- Care for elderly patients with multiple chronic conditions, during hospital stays, in long-term care and at end of life that could potentially be improved or made more efficient in the hands of geriatricians. A group of geriatricians who we recently convened discussed at length the reimbursement obstacles inherent in this field of medicine.
- Ongoing demonstrations of the value achieved through quality engineering in care for diabetes, cardiac disease and addictions.
- Work with pathology teams to demonstrate how quality engineering can transform a medical specialty

PRHI was formed because its stakeholders believed that federal policy changes and technology were not alone solutions to transforming healthcare. We are committed to the idea that value begins by perfecting patient care through the elimination of waste and error. We need financial incentives to reward—not punish—good outcomes that stem from best practices and efficiency and we need to support the cost of quality and efficiency implementations, including the necessary training, supplies, equipment and human capital.

Additional References

Consumer-Driven Healthcare

Rubenstein, Sarah, 2006. "New Premium: When Employees Pay for Health Care, the Boss Pays Too." *Wall Street Journal*, September 25.

Last year Russ Moore Transmission Inc. adopted a health-insurance plan in tune with the "consumer driven" philosophy President Bush has been touting. The plan requires employees to pay as much as \$5,250 a year in medical costs out of their own money before insurance kicks in, with the goal of turning them into savvy shoppers for doctors and drugs.

The new strategy has motivated some workers to research what they are paying for medical care. One found an over-the-counter replacement for a more expensive brand-name heartburn drug. That is good news for Nick Bond, who runs the business and had suspected some employees were overusing medical care because they didn't have to pay for much of it themselves.

The bad news: The employees' research often consists of going to Mr. Bond and asking for his help, even after they have had 19 months to get familiar with the plan. At one point, he and his office manager had to hole themselves up in their offices for about two weeks developing a spreadsheet with price information on 32 drugs.



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Mr. Bond's experience suggests that although information about the price and quality of health care remains sketchy, the president's push to make the health-care market more like the market for other services can change consumers' behavior. However, some managers have to turn themselves into instant experts both on health care and on the law. Mr. Bond knows about a transmission rebuilder's heartburn, a technician's blood-pressure medication and a visit to the emergency room by a mechanic's daughter. If he uses health information in firing or demoting an employee -- or is perceived to do so -- he might be in for a lawsuit.

Evidence-Based Medicine

Healy, Bernadine, 2006. "Who Says What's Best?" *U.S. News and World Report*. Posted September 3, 2006 at <http://www.usnews.com/usnews/health/articles/060903/11healy.htm>.

By anointing only a small sliver of research as best evidence and discarding or devaluing physician judgment and more than 90 percent of the medical literature, patients are forced into a one-size-fits-all straitjacket. Ironically, this comes at a time when both human genomics and informed patients are demanding more tailored and personal prescriptions for care. EBM has its merits, but let's make it just what it claims to be: a system to gather and synthesize evidence and disseminate it widely in order to enhance medical decision making. Do so using the full range of relevant medical knowledge and science and the foremost thinking of its experts, without political or ideological bias. This "best" EBM should be integrated into medicine, not at odds with it."

Healthcare Policy – Consumer Perspective

Citizens' Health Care Working Group, Summer 2006. *Health Care That Works for All Americans: Recommendations of the Citizens' Health care Working Group*. Available at <http://www.citizenshealthcare.gov/recommendations/finalrecs.php>.

While Americans recognize that health care costs are a major problem for businesses, industry, and government as well as families, many believe that the tremendous amount of resources now being spent on health care should be enough to ensure access to quality care for everyone, if these resources were allocated more efficiently.

At the same time, people consistently emphasized the importance of shared responsibility and fairness – a clear willingness to pay a fair share, to try to do a better job of taking care of themselves, and to accept limits on coverage if based on good medical evidence. Many believe that health coverage should be comprehensive enough to ensure people can get the care they need, when they need it, without having to negotiate or hurdle complicated administrative barriers. They told us they want health care to be available where people need it, in their communities. Finally, people told us that they want interactions with health providers to be based on mutual trust and respect.

The Working Group heard a variety of preferences regarding how a national system of health care should be organized -- from support for an entirely federal system with no private health insurance at all, to state-based single payer systems, to private sector participation in a system with established standards for benefits, coverage, and cost with minimum government involvement in day-to-day operations, to entirely free-market approaches. There was, however, overwhelming support for a plan that covered all Americans. In addition, there was considerable discussion at many meetings about interim reforms that could increase coverage until comprehensive changes could be made. Opinions about incremental reforms were sharply divided and varied considerably from community to community. The overriding message, however, was consistent across every venue:

Americans should have a health care system where everyone participates, regardless of their financial resources or health status, with benefits that are sufficiently comprehensive to ensure access to appropriate, high-quality care without endangering individual or family financial security.



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Information Transparency

Healthcare Financial Management Association, Summer 2006. *Consumerism in Health Care: An Initiative of the PATIENT FRIENDLY BILLING® Project*. Available at <http://www.hfma.org/library/revenue/PatientFriendlyBilling/Consumerism2006rpt.htm>.

Patient Friendly Billing®, a national project to make healthcare billing clearer to patients, has released its *Consumerism in Health Care* report. The document includes an 11-point call to action for hospitals and physicians to take on the impact of consumerism and help patients better understand the financial aspects of their health services. Through the report, HFMA and other Patient Friendly Billing project partners encourage providers to review and consider on how to successfully transition to a consumer-oriented revenue cycle. The report outlines 11 areas to consider when preparing for consumerism in health care.

We encourage all providers to:

- Embrace the possibilities consumerism presents to help patients better understand and more effectively use health services.
- Work toward transparency in pricing
- Simplify charge and payment systems
- Make your access and scheduling functions seamless, respectful, and convenient
- Upgrade consumer service skills among financial services employees
- Improve communication with patients concerning quality, prices, and payment responsibilities.
- Work with payers to promote healthy lifestyles and during the normal renewal periods, reformulate contracts based on updated pricing that is more easily understood by consumers.
- Collaborate with payers on systems to facilitate real-time, electronic exchange of key information, including patients' benefits, coverage, and status
- Engage with government to develop national standards for comparability of quality.
- Advocate for regulatory revisions in line with the key objectives of consumerism in health care.

Patient Safety

Institute of Medicine, July 2006. *Preventing Medication Errors: Quality Chasm Series*. Available at <http://www.nap.edu/catalog/11623.html>.

At the urging of the Senate Finance Committee, the United States Congress mandated that Centers for Medicare and Medicaid Services sponsor a study by the IOM to address the problem of medication errors.

Preventing Medication Errors puts forward a national agenda for reducing medication errors based on estimates of the incidence and cost of such errors and evidence on the efficacy of various prevention strategies.

The report finds that medication errors are surprisingly common and costly to the nation, and it outlines a comprehensive approach to decreasing the prevalence of these errors. This approach will require changes from doctors, nurses, pharmacists, and others in the health care industry, from the Food and Drug Administration (FDA) and other government agencies, from hospitals and other health-care organizations, and from patients.

Recommendations include:

- Measures should be taken to improve patients' capacities for medication self-management.
- Government agencies should enhance the resources for consumers regarding drugs' information and medication self-management.
- Healthcare organization should make complete patient information and decision-support tools available to clinicians and patients.
- Industry and government should improve methods for labeling drug products and communicating medication information to providers and consumers.
- Industry and government should collaborate to establish standards affecting drug-related health information technologies.



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- Congress should allocate funds so that AHRQ and other federal agencies could coordinate research on medication safety.
- Legislative, regulatory, accreditation and payment mechanism should be used to motivate providers to adopt practices that reduce errors.

Finance Reform

Cogan J. F., R. G. Hubbard, and D. P. Kessler, 2005. Making markets work: Five steps to a better health care system. *Health Affairs* 24(6): 1447-1457.

Although the U.S. health care system has made remarkable advancements, it is costly and wasteful, and it leaves many people without appropriate care. The challenge for public policy is to enable consumers and taxpayers to obtain good value for their health care dollars. Achieving this objective stands the greatest chance of success if health care markets function well. To make markets work, we recommend changes in five areas of public policy: tax reform, insurance reform, improved provision of information, enhanced competition, and malpractice reform. Our policy reforms will improve the productivity of the health care system, make insurance more affordable, reduce rates of uninsurance, and increase tax fairness and progressivity.

Porter, M. E. and E. O. Teisberg, 2004. Redefining competition in health care. *Harvard Business Review* 82(6): 64-76.

This article discusses the United States health care system, and what needs to be done to improve it. The U.S health care system has registered unsatisfactory performance in both costs and quality over many years. While this might be expected in a state-controlled sector, it is nearly unimaginable in a competitive market--and in the United States, health care is largely private and subject to more competition than virtually anyplace else in the world. In healthy competition, relentless improvements in processes and methods drive down costs. Improved health care delivery should be a top priority for corporate managers. Yet most companies continue to depend on government and industry "experts," whose reform efforts during the past decade have failed to create effective competition in health care.

System Reform

Commonwealth Fund, August 2006. *Framework for a High Performance Health System for the United States*. Available at http://www.cmwf.org/publications/publications_show.htm?doc_id=387153.

Despite spending the most on health care, the United States lags behind other industrialized nations on many dimensions of health system performance. Formed in July 2005, The Commonwealth Fund's Commission on a High Performance Health System seeks to chart a course for a U.S. health care system that provides significantly expanded access, higher quality, and greater efficiency for all Americans, especially those who are most vulnerable. In this consensus statement, the Commission defines "high performance" and outlines its vision of a uniquely American, high performance health system. It then identifies the most critical sources of our current system's failures and offers a strategic framework for addressing them through specific actions.



Appendix D: Purdue Hosts

Regenstrief Center for Healthcare Engineering at Purdue University

The Regenstrief Center for Healthcare Engineering at Purdue University was founded in 2005, with start-up funding from the Regenstrief Foundation, to catalyze improvements in healthcare delivery by combining research, partner engagements, and educational experiences for current and future generations of healthcare professionals. The center's mission is to catalyze the transformation of healthcare-delivery systems by applying the principles of engineering, management and science.

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