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The eHealthTrust™ Path to Implementing Health Information Infrastructure

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Outline

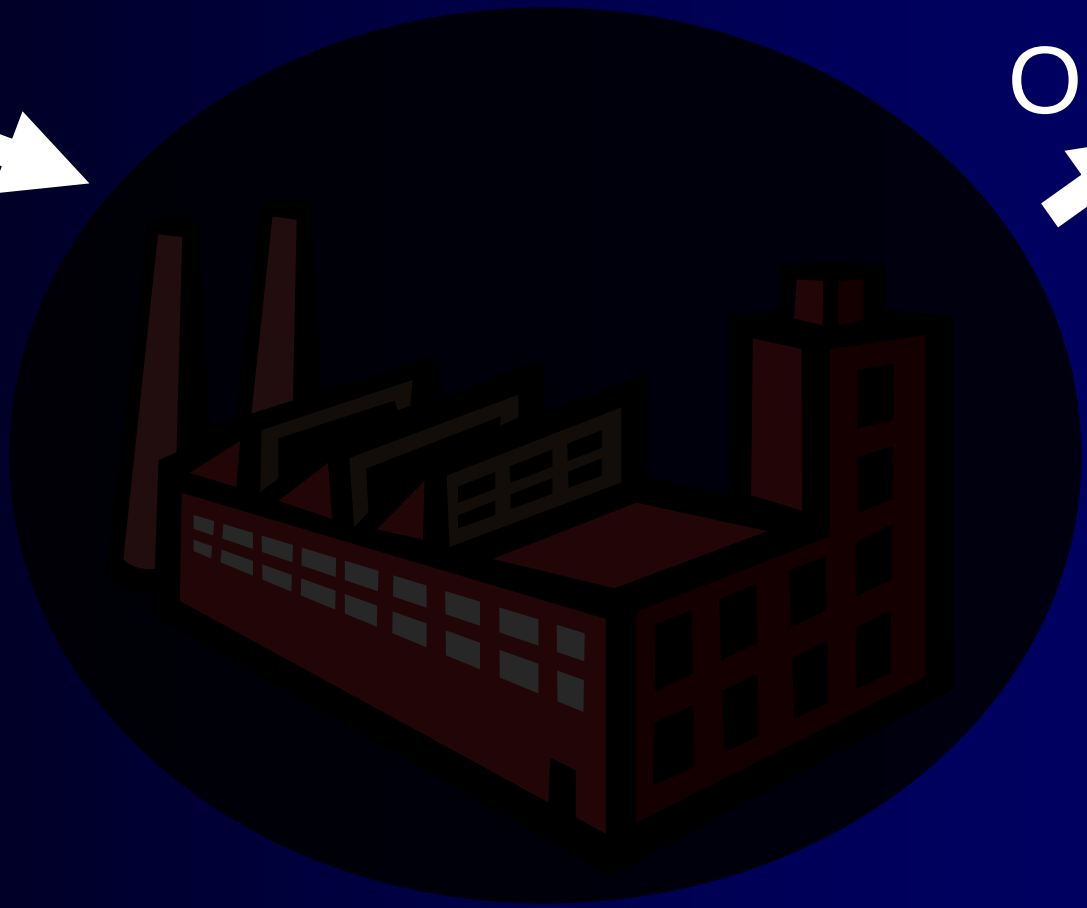
I. Where did the National Health Information Infrastructure (NHII) idea come from?
II. What is the NHII?
III. How does the NHII help address current health care problems?
IV. How can we organize the creation of the NHII?
V. What is the path to HII in communities?

I. Where did the National Health Information Infrastructure (NHII) idea come from?

“Current practice depends upon the clinical decision making capacity and reliability of autonomous individual practitioners, for classes of problems that routinely exceed the bounds of unaided human cognition”

-- Dan Masys, MD
IOM Annual Meeting (2001)

Managing a Factory …



… without internal details …

… is like health care!

Health Care System Challenges

- Error rates are too high
- Quality is inconsistent
- Research results are not rapidly used
- Costs are escalating
- New technologies continue to drive up costs
- Demographics of baby boomers will greatly increase demand
- Capacity for early detection of bioterrorism is minimal

National Expert Panel Reports

IOM	1991 1997	Computer-Based Patient Record
IOM	2000	To Err is Human
NRC/ CSTB	2001	Networking Health: Prescriptions for the Internet
IOM	2001	Crossing the Quality Chasm
PITAC	2001	Transforming Health Care Through Information Technology
NCVHS	2001	NHII
IOM	2002	The Future of the Public's Health in the 21st Century
IOM	2002	Fostering Rapid Advances in Health Care: Learning from System Demos

"The committee believes that establishing this information technology infrastructure [NHII] should be the highest priority for all health care stakeholders."

-- Committee on Data Standards for Patient Safety: "Patient Safety: Achieving a New Standard for Care" Institute of Medicine, November, 2003 (Executive Summary)

II. What is the National Health Information Infrastructure (NHII)?

II. What is the NHII?

A. Vision
B. Elements
C. Requirements

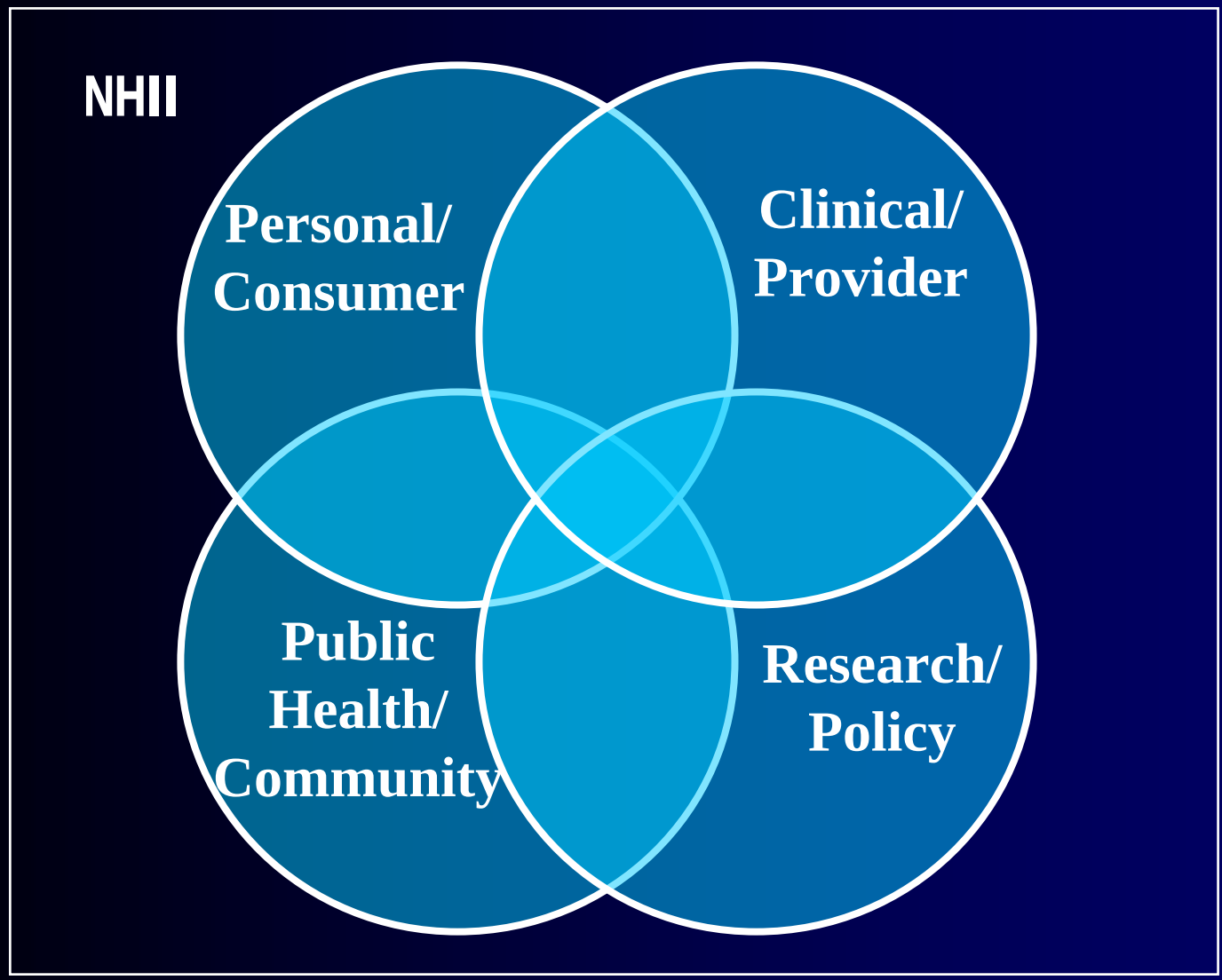
A. NHII Vision

- Comprehensive knowledge-based network of interoperable systems
- Capable of providing information for sound decisions about health when and where needed
- “Anywhere, anytime health care information and decision support”
- NOT a national database of medical records

A. NHII Vision (continued)

- Includes not only systems, but organizing principles, procedures, policies, and standards, e.g.
  - Organization & governance
  - Alignment of financial incentives
  - Operational policies
  - Message & content standards
- Individual provider Electronic Health Record (EHR) systems are only the building blocks, not NHII

Four Domains for NHII



B. Elements of NHII (1 of 3)

- Standards: Messaging & Content
  - Foundation for remainder of NHII
- Electronic Health Record (EHR) Systems
  - Hospital
  - Outpatient
- Consumer Health Information Systems
  - Personal health record
  - Electronic patient-provider communication
  - Support groups
  - Authoritative information

B. Elements of NHII (2 of 3)

- Ancillary health care systems
  - Pharmacy
  - Laboratory
  - Physical therapy
  - Post-acute care
  - Public health reporting
- Communication/networking systems
  - Information moves with patient
  - Integrated information from all types of providers
  - Electronic consultation (telemedicine)

B. Elements of NHII (3 of 3)

- Decision Support & Education
  - Professional
  - Consumer
- Confidentiality protections
  - Information available on need-to-know basis
  - Authentication of all users
  - Encryption of data in transit
  - Audit trails of all usage
  - Penalties for violations

C. NHII Requirements: Functions

- Overall: “Anytime, anywhere health care information and decision support”
- Immediate availability of complete medical record (compiled from all sources) to any point-of-care
- Enable up-to-date decision support at any point of care
- Enable selective reporting (e.g. for public health)
- Enable use of tools to facilitate delivery of care (e.g. e-prescribing)
- Allow patients to control access to their information

C. NHII Requirements: Implementation Strategy

- No national database or identifier
- Alignment of incentives
- Allow each care facility to maintain its own data
- Minimize cost & risk
- Use proven implementation strategies (where possible), e.g. incremental approach
  - Each implementation step benefits all participants
  - Implementation scope coincides with benefits scope

III. How Does the NHII Help Address Current Health Care Problems?

III. How does NHII help address current health care problems?

A. Improving Healthcare Delivery at Point of Care (Improving Quality)
   - Complete patient information
   - Decision support

B. Reducing Costs & Achieving Efficiencies
   - Eliminate duplicate tests & imaging
   - Eliminate duplicate communication channels (labs, x-rays, etc.)

C. Support Public Health Initiatives & Biosurveillance
   - Automated disease reporting
   - Automated syndrome reporting

A.1. Complete Patient Information

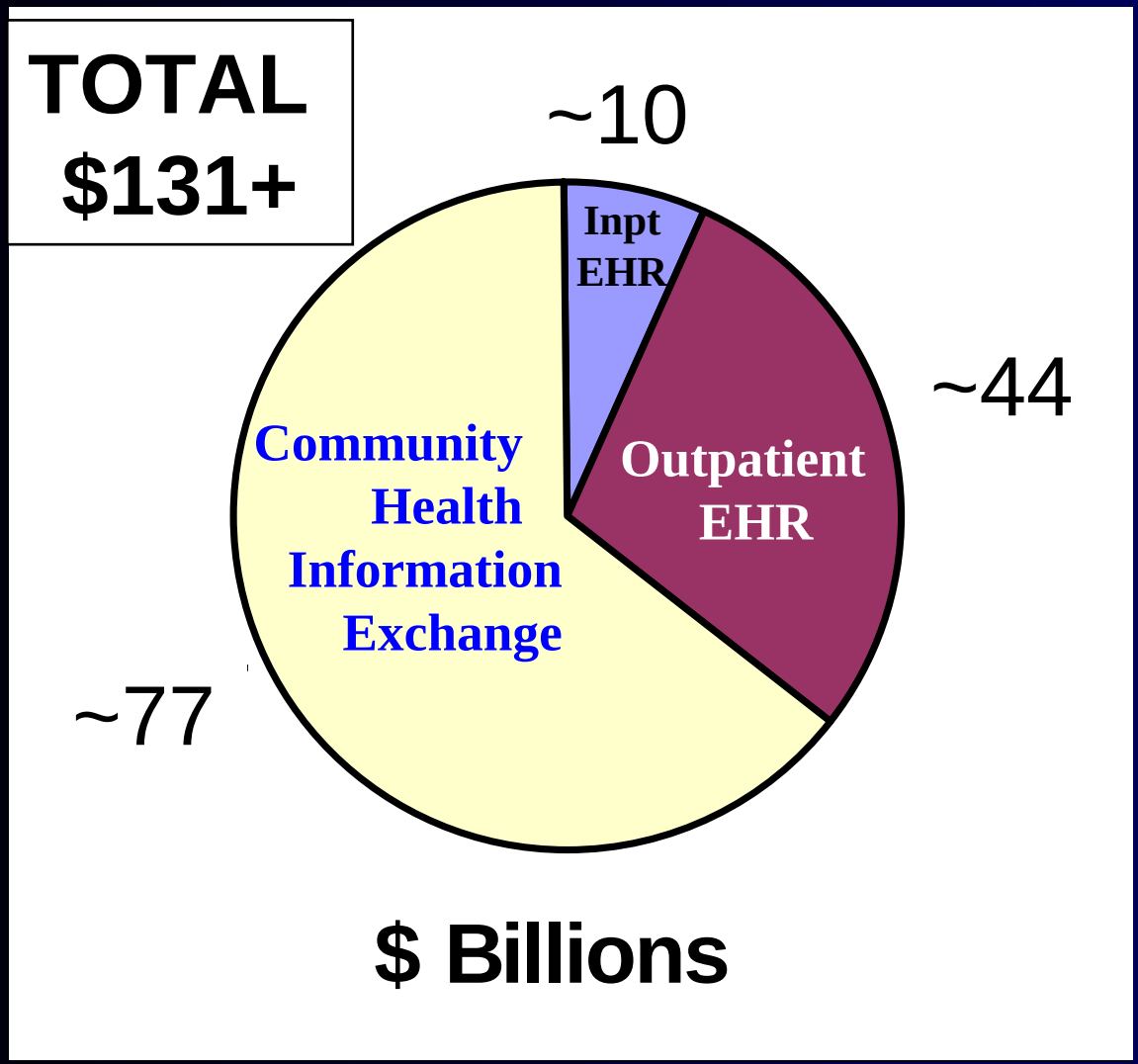
- Patients treated by multiple providers
- Records often unavailable (even within single care organization)
- When available, information in paper records not easily organized for use
- Result: Information for care largely dependent on patient memory
- Outcome: errors, overuse, underuse

A.2. Decision Support

- RAND: only 55% of recommended care delivered
- Widespread application of new medical research results takes average of 17 years
- Clinicians know what needs to be done, but 100% accurate application of knowledge is cognitive impossibility
- When reminded, clinicians demonstrate greatly improved compliance

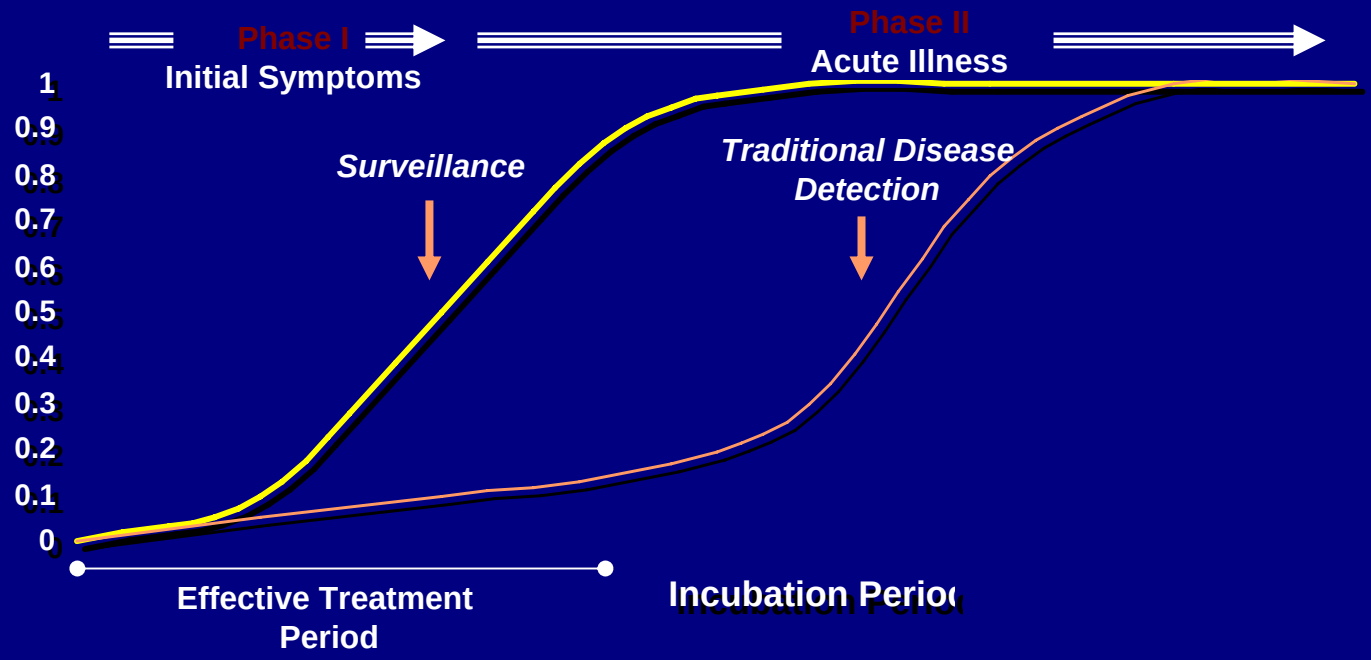
B. Reducing Costs

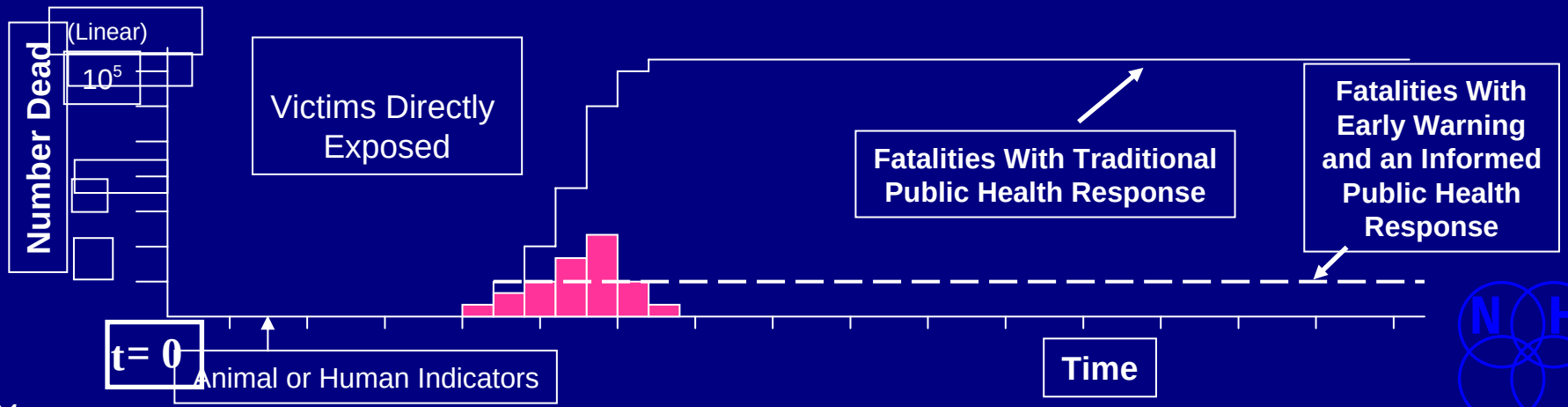
Net National Savings



Source: Center for Information Technology Leadership, Partners Health Care, Harvard (2004)

C. Impact of Surveillance on BT Mortality





Modified from chart developed by Hopkins Bioterrorism Preparedness Center

IV. How Can We Organize the Creation of the NHII?

Community Approach to HII

- Existing HII systems are local
- Health care is local → benefits are local
- Facilitates high level of trust needed
- Easier to align local incentives
- Local scope increases probability of success
- Specific local needs can be addressed
- Can develop a repeatable implementation process
- Parallel implementation → more rapid progress
- Use of standards allows connectivity between community HIIs → NHII

Community

Hospital Record

Laboratory Results

Specialist Record

Pointer to Encounter Data Added to Index

Requests for Records

Records Returned

Clinician EHR System

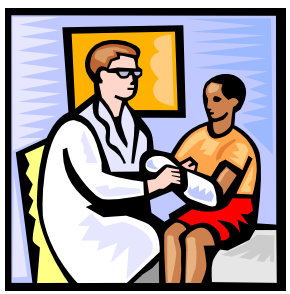
Encounter Data Stored in EHR

Patient Authorized Inquiry

Index of where patients have records

Temporary Aggregate Patient History

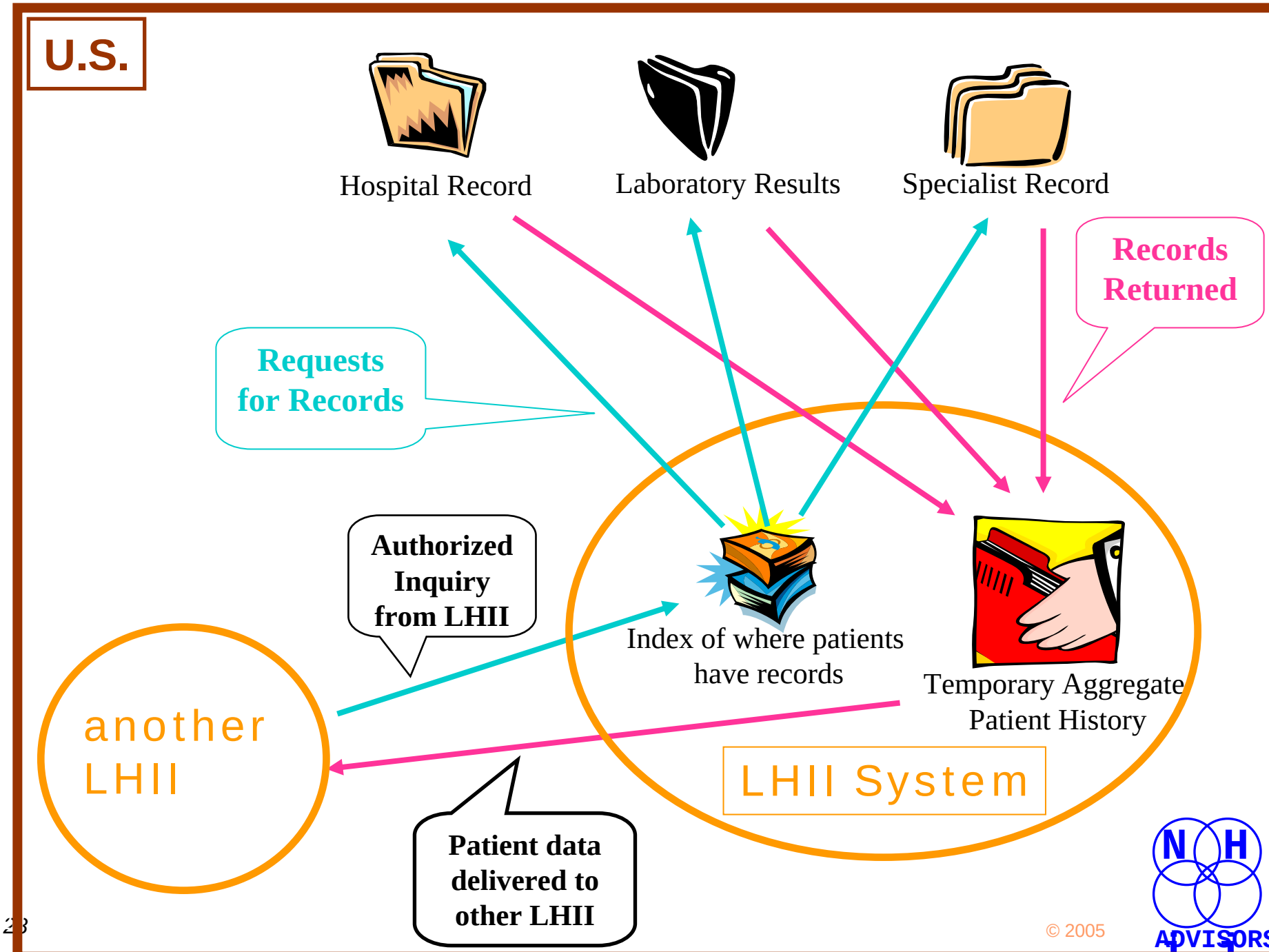
LHII System



Clinical Encounter

Patient data delivered to Physician

NH ADVISORS



Problems with indexed, distributed community HII

- All health information systems must have query capability [who pays?]
  - Organizational cooperation challenge (esp. for physicians)
  - Maintaining 24/7/365 availability with rapid response time will be operationally challenging (& costly)
- Searching HII repository is sequential (e.g. for research & public health)
- Where is financial alignment & sustainability?

Examples of Community HII

Name	Data Storage	Financially sustainable?
Spokane, WA	Central	YES
South Bend, IN	Central	YES
Indianapolis, IN	Central	Not yet

Number of operational community HII systems using indexed model: NONE

V. What is the Path to HII in Communities?

V. What is the path to HII in communities?

A. Key issues in developing a Health Information Infrastructure (HII)
B. Strategic principles to guide HII development
C. A path for successful HII implementation: eHealthTrust™

A. Key issues in developing a community Health Information Infrastructure (HII)

1. Buy- In
2. Governance
3. Ownership of Information
4. Finance
5. Technology

A. Key issues in developing a community Health Information Infrastructure (HII)

1. **Buy- In**
   - Include all stakeholders
   - Understand stated and unstated interests
   - Positive and negative persuasion
     - Positive: self-interest, community interest
     - Negative: public perception of non-cooperation

A. Key issues in developing a community Health Information Infrastructure (HII)

2. Governance
   - New organization often needed
   - All stakeholders represented
   - Consensus decision-making
   - Separate privacy oversight board

A. Key issues in developing a community Health Information Infrastructure (HII)

3. **Ownership of Information**
   - Endless battle - no winners
   - Transform to “access”
     - Patient information needs to be available for care
     - Use of available information is well-established principle
     - Withholding needed patient information untenable

A. Key issues in developing a community Health Information Infrastructure (HII)

4. Finance
   - Grants may impair sustainability
   - "Stakeholders" must have a real "stake" (by contributing $$)
   - Payments for operations should come from those who benefit

A. Key issues in developing a community Health Information Infrastructure (HII)

5. Technology
   - Should not drive initiative
   - Don’t put technologists in charge
   - Use proven products and techniques (“Does it work?”)
   - Test and train
   - Overcommunicate

B. Strategic principles to guide HII development

1. Learn from others
2. Build consensus
3. Implement incrementally
4. Do easy projects first
5. Make each step self-sustaining
6. Gradual implementation of comprehensive system

C. A Path for Successful HII Implementation: eHealthTrust™

1. Roadblocks in Community HII
2. Overcoming the Roadblocks
3. eHealthTrust™ Advantages
4. Strategy for Initial eHealthTrust™ Funding

1. Roadblocks in Community Health Information Infrastructure

1. Outpatient Electronic Health Record (EHR) use
   - Information not electronic
   - Financial incentives needed
2. Financial sustainability
   - Hospitals/Labs will only pay for distribution of their own data
   - No funding for sharing outpatient information
3. Patient access & control
   - Absent

2. Overcoming the Roadblocks

- All information for a patient (from all sources) stored in single eHealthTrust™ "account" controlled by that patient
- Charge $50-100/year/patient (< $9/mo)
  - Paid by patient, payer, or purchaser
- All data sources contribute at patient request (per HIPAA)
- Operating Cost < $10/year/patient
- Payments to clinicians for submitting standard electronic clinical info provides incentives for EHR* acquisition (~$2-4/encounter)**

*electronic health record

**patent pending

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eHealthTrust™

Clinician's Bank

Encounter Data sent to eHealthTrust ™

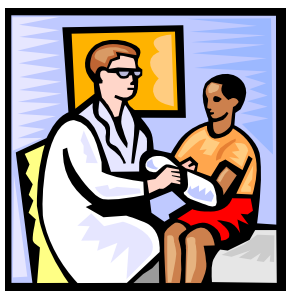
Patient data delivered to Clinician

SECURE PATIENT HEALTH DATA FILES

$2 payment

Clinician EHR System

Encounter Data Entered in EHR



Clinical Encounter

YES

Patient Permission?

NO

DATA NOT SENT

eHealthTrust™

Clinician Inquiry

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Health Information Infrastructure Roadblocks Removed

1. Outpatient EHR* use
   - Financial incentives provided
   - 20 pts/day --> $10-20,000/year
   - Rapid EHR* adoption
2. Financial sustainability
   - Low cost to purchasers/patients
     - Simplicity --> low cost
   - Real benefits
3. Patient access & control
   - Total

*electronic health record

3. eHealthTrust™ Advantages

- Rapid Response Time
  - All patient information in one place
- Works Regardless of Patient Location
  - Internet access: secure web portal
  - Patient has “ATM-like” mechanism that directs any provider to the complete record
- No Complex Interfaces to Other Communities or eHealthTrusts™
- Easily Integrated with
  - Patient-entered information
  - Patient education information
  - Patient reminders
  - Patient-provider electronic communication
- Provides for Public Health and Research
  - Selective reporting to public health when new information received
  - Searchable database (with patient permission) for research

eHealthTrust™ Advantages (cont.)

- Cooperation Assured
  - Unifying; HIPAA mandates information on patient request
- Complexity Minimized
  - Each information holder relates only to eHealthTrust™
  - Interoperability problems greatly reduced
- Privacy/Confidentiality Addressed
  - Patient controls all access to his/her info
- Complete Financial Model Defined
  - Source of funding clear
  - Low cost (1% of health care costs)

eHealthTrust™ Advantages (cont.)

- Promotes Gradual Standards Adoption
  - Initial standard enforced through patent
  - Reimbursement policy can improve standard over time (e.g. to increase coding)
- Provides Transition from Paper Records
  - Fax images of paper records stored
  - Metadata facilitates some indexing
- Simple IT Design
  - Greatly reduces costs
  - No new technology
- Immediate Realization of Benefits
  - Each eHealthTrust™ member gets immediate benefit from complete records
  - Benefits not contingent on critical mass (except EHR incentives)

4. Strategy for Initial eHealthTrust™ Funding

- Delay paying physician incentives until second year
- Reduces cost to ~$1/member/month
- Engage patients, payers, purchasers to finance low start-up costs
  - Affinity credit card as patient ID & payment source
  - Obtain payer commitment for ~$5/member/month in year 2 if system demonstrates value
- Demonstrate effectiveness of system in first year

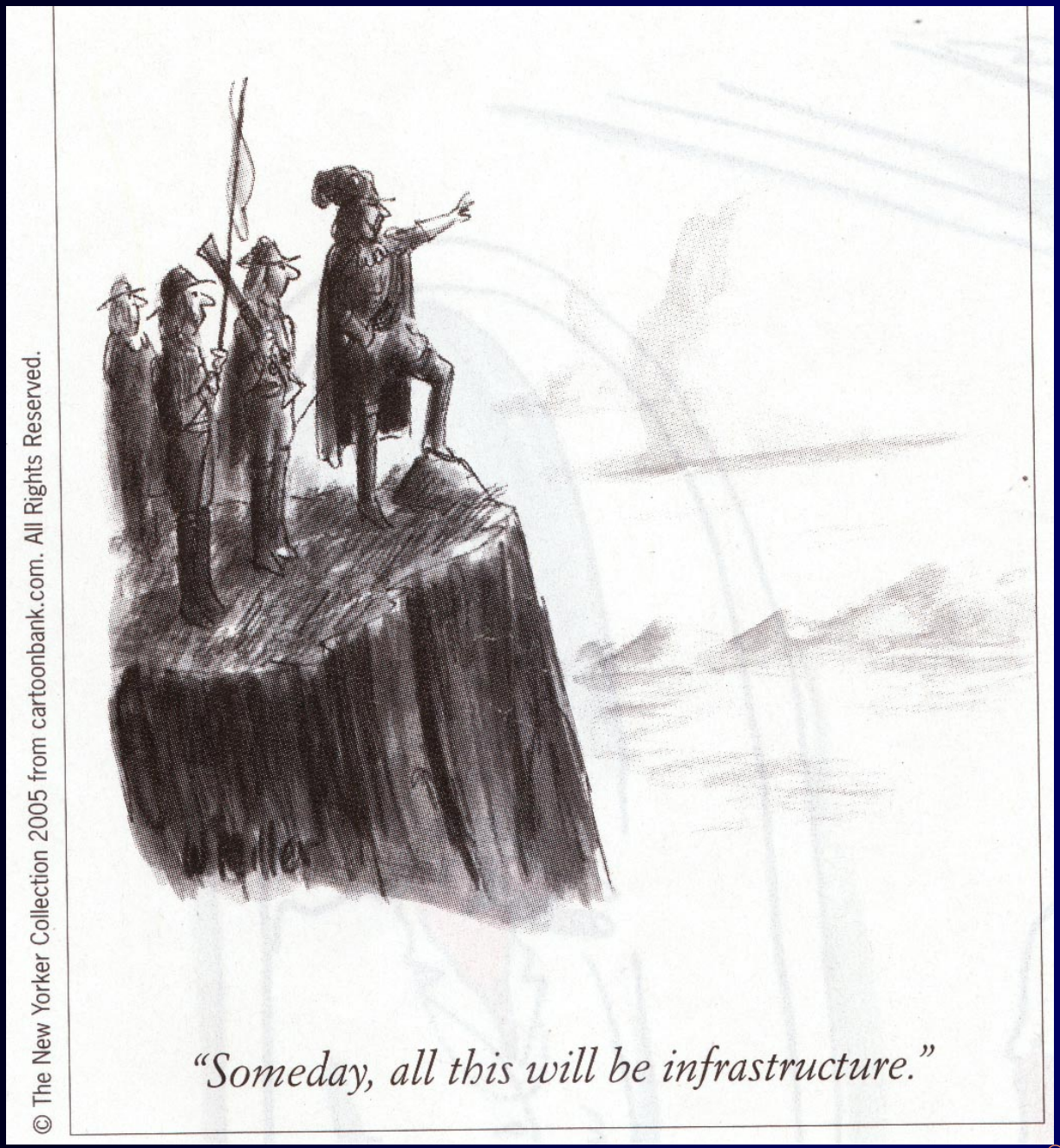
SUMMARY
The eHealthTrust™ Path for Implementing Information Infrastructure

I. Central Community Repository

II. Paid for and Controlled by Patients

III. Solves Key Problems

- Privacy Assurance for Consumers
- EHR incentives for physicians
- Financial Sustainability
- Cooperation by health care institutions
- Adoption and Gradual Improvement of Standards



"Someday, all this will be infrastructure."

Questions?

For more information:

www.ehealthtrust.com

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