



The Future of Medicine – Implications for HealthCare Delivery

Technology Innovations

Mary Kate Scott

September 2007

Technologies are NOT the only force for change

- Shortage of physicians and nurses
- Medicare changes
- New insurance products
- Generation Y physicians and consumers
- Consumers pay more out of pocket and adopt a DIY attitude to healthcare



Born 1980-1995:

“A civic generation, inner driven within the information revolution, striving to get ahead, belief they can and will change the world.”

Insurance a la Carte

Some companies are starting to let their employees customize their health insurance so that dozens of combinations are possible

DECISION #1 - Deductible

A ☒ \$300
B ☐ \$600
C ☐ \$900
D ☐ \$1,500
E ☐ \$2,500

DECISION #2 - Co-insurance*/out-of-pocket limit

A ☐ 80%/ \$2,200
B ☐ 80%/ \$4,400
C ☐ 70%/ \$5,000
D ☒ 60%/ \$5,000
E ☐ 70%/ \$10,000

DECISION #3 - Prescription-drug access

A ☐ No formulary
B ☒ Formulary

DECISION #4 - Medical access

A ☒ Broad network
B ☐ Select network

*For in-network coverage Source: Hewitt Associates

Agenda

Technologies that shift care settings

Technologies that dramatically improve outcomes

Technologies that drive hospital system efficiencies

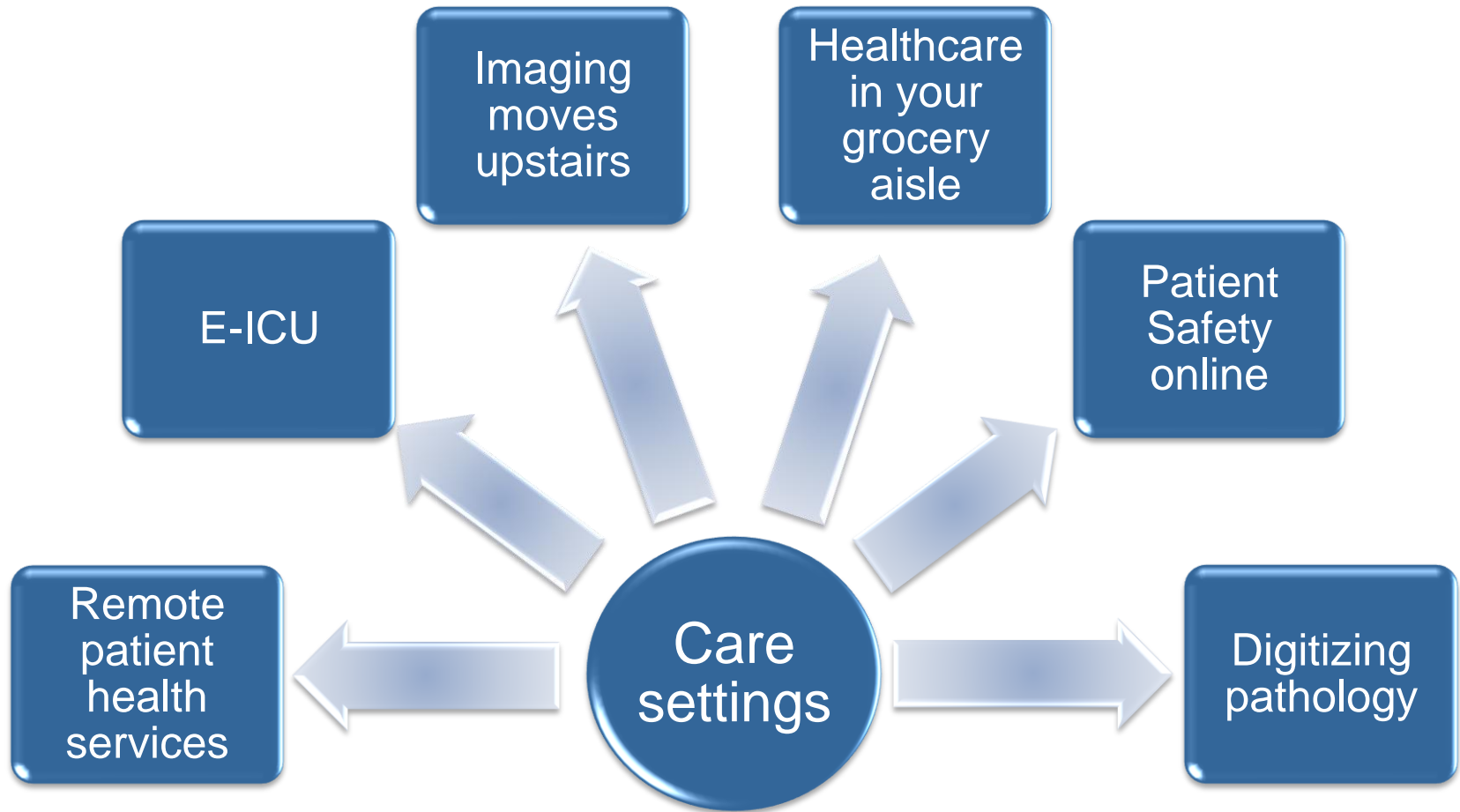
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Technologies that shift care settings



Technologies for remote patient health

Sensors for independent living

- Medication adherence
- Motion

Remote disease monitoring

- Asthma
- Diabetes
- Blood pressure

Remote device monitoring

- Cardiac
- Artificial joints



**Bio-Sensor
Embedded into
The cellular Phone**



BIO-SENSORS
- GLUCOSE METER
- PEDIOMETER
- BODY FAT MONITOR
- EKG SENSOR
- STRESS METER
- SKIN CARE



eICU enables leverage of an expensive and critical resource

- Monitoring system using sophisticated telemedicine technology, early warning software and electronic monitoring
- Connects an off-site critical care team of specially trained, board-certified intensivists and critical care nurses directly to ICU patients



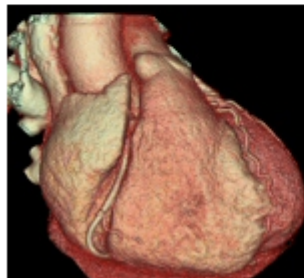
Imaging moves upstairs

- Portable Ultrasound
- 64 Slice in ED

New Use of 64-Slice CT Scan to be Studied at HUP to Help Diagnose Coronary Artery Disease in the Emergency Department

The New Utilization of This Radiology Technology Could Save Thousands of Dollars and Hours on Unnecessary Testing and Hospital Stays

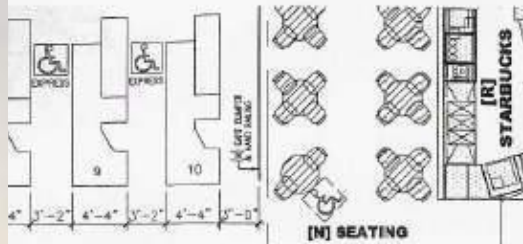
(Philadelphia, PA) - The **Hospital of the University of Pennsylvania (HUP)** is now utilizing a new high-tech tool to quickly and efficiently screen for coronary disease when patients complaining of chest pain come into the emergency room. It's a move that could save lots of time and money, reducing unnecessary testing and hospital stays.



The 64-slice CT scanner at HUP is now being used by the emergency department (ED) and could prove to be an effective tool in giving quick results to physicians - so they can identify the 15% of patients whose chest pain is being caused by heart disease (and, conversely, weed out



Healthcare in your grocery aisle

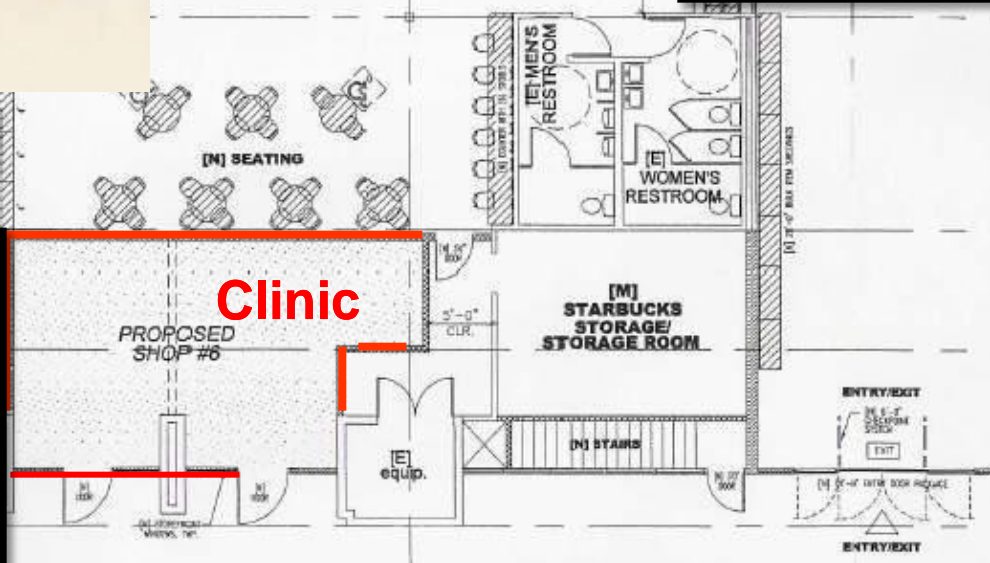


CHOLESTECH LDX® SYSTEM

Cholestech
LDX

VIEW DEMO >

CLIA-waived

The image shows the Cholestech LDX system, which includes a cholesterol analyzer and a printer. The text "VIEW DEMO >" is a link to a demonstration. The text "CLIA-waived" indicates that the device is approved for use in clinical laboratories.

Patient safety shifts online



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THE INFORMED PATIENT

By LAURA LANDRO

December 14, 2005

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Managing Expectations for Surgery

**New Tools Help Hospitals
Explain Procedures, Risks;
Protection From Malpractice**

Before undergoing knee surgery at the Illinois Bone and Joint Institute, Melissa Klarman spent a half hour watching an interactive computer simulation of the procedure—and listening to the warnings narrated by a soothing female voice about possible complications

Digitizing radiology and **now pathology**



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Cardiology

Orthopedics

ICU


Technologies that drive hospital system efficiencies

Orthopedics continues to innovate with new technologies and procedures

- 1 in 7 Americans has a musculoskeletal impairment and treatments exceed \$215b annually
- Unicompartmental knee replacement is improving outcomes, but reducing overall patient revenues
- MSK ultrasound gaining ground
- Artificial cervical disc gaining traction
- Kyphoplasty gains in popularity and improved outcomes for spinal compression




Charité
ARTIFICIAL DISC



The World's First Artificial Disc

The CHARITÉ® Artificial Disc was originally developed at the CHARITÉ University Hospital in Berlin, Germany in the mid-1980's by Prof. Karin Büttner-Janz, Prof. Kurt Schellnack, leading spine specialists. Further refinements to the design were incorporated with the



UNDERSTANDING BACK PAIN

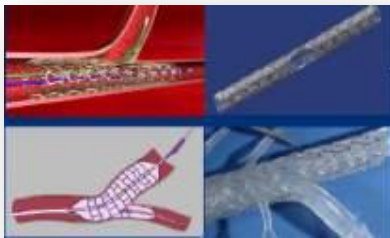
ABOUT THE ARTIFICIAL DISC



Technologies impact cardiology with new stents, VADs, MIS increase and new care for CHF

- Stents – bifurcated, biodegradable
- VADs – next generation VADs
- MIS continues to disrupt CV services
- 20-30% annual increase in EP volumes
- New approaches to CHF


Devax



“Tight and low in the ICU” – effective glucose control through continuous monitoring decreases morbidity

IHI.org : A resource from the Institute for Healthcare Improvement

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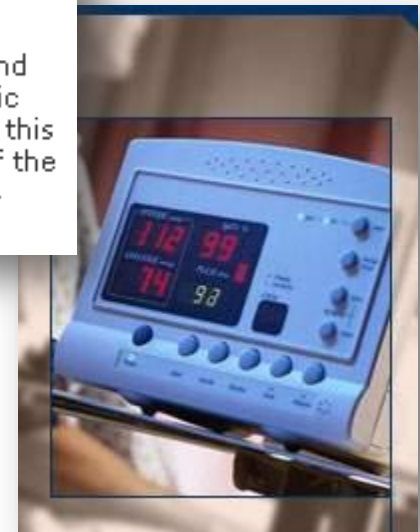


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- ▼ Critical Care
 - Intensive Care

Implement Effective Glucose Control

Effective glucose control in the intensive care unit (ICU) has been shown to decrease morbidity across a large range of conditions and also to decrease mortality. Studies supporting the role of glycemic control have used continuous infusion of insulin and glucose. With this protocol, glucose should be monitored frequently after initiation of the protocol (every 30 to 60 minutes) and on a regular basis (every 4 hours) once the blood glucose concentration has stabilized.



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Visibility, RFID and other tracking device for improved workflows, bed and asset management



Increasing
visibility and
tracking



Managing
people and
payments

Moving supplies



RADIANCE®
Guaranteed Digital Delivery. Secure. Brilliant!

Hospitals are innovating with kiosks to manage check on frequent in patients and payment processes

- Used for patient check in
- Payment processing
- Directories
- Multi language support
- Reduce wait time, provide patient control, information



MediKiosk™ Hardware

The MediKiosk™ solution can be deployed on various hardware platform. Free-standing units. Galvanon has established partnerships with industry suppliers to provide specially equipped devices to meet the unique demands of the healthcare environment. Designed for quick implementation and low maintenance.



Health delivery systems are using 'tugs' to streamline delivery of files, supplies, linens, waste, coffee



Courier robots get traction in hospitals after fits and starts

By Mike Crissey, Associated Press

PITTSBURGH — Near a pair of swinging doors at a local hospital, a cart sits apparently abandoned. Yet at the push of a button, it perks up to say, "thank you" and rolls itself out the door toward the pharmacy.



Aldo Zini shows off his robotic helper named Tug at Magee-Womens Hospital in Pittsburgh.

Mark Genito, AP

The 50-pound machine, which looks like a vacuum cleaner mated to a cabin liners, medical supplies, X-rays, food and other materials.



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