# HEALTH SYSTEM HIT INVESTMENTS:
# Building on a Core Foundation

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**Chief Medical Officer**

**Catholic Healthcare West**

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- Faith-based, not-for-profit system in California, Arizona, and Nevada

- 42 hospitals with continuum care elements, integrated physician groups

- 365,221 hospital admissions

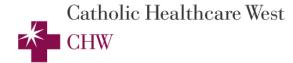- $5.3 billion revenues with $431 million in operating cash flow (8.1% margin)

- Payer mix: Medicare to capitation to indemnity

Fiscal Year ending
June 30, 2004

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- $5.3 billion revenues with $431 million in operating cash flow (8.1% margin)

- FY05: $483 million in capital expenditures

- FY05-14: over $4.8 billion

- IT investments: over $612 million

- Principles: buy not build, integrated, open architecture, common standards, production proven

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$200M in near-term for Key Information System Projects Linked to CHW's Operating Strategy

- Enterprise Clinical Information System (ECIS) to improve care quality and patient safety

- Consolidated Financial and Administrative System to provide consistent, standardized information across CHW

- Significant infrastructure / applications investments across the system

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| Strategic Area | Description |
|---|---|
| **Enterprise Clinical Information System (ECIS)** *CareConnect* | Enterprise wide standard clinical system with a single consolidated database. |
| **Picture Archiving and Communication System** | Enterprise archiving for facility-based, standard PACS installations. |
| **Consolidated Financial and Administrative System (CFAS)** | ERP implementation; also, applicant tracking system, central time and attendance, and productivity reporting |
| **Health Information Management (HIM)** | Medical records and document imaging systems. |
| **Patient Revenue Cycle** | Bolt-ons to current systems; standard centralized patient revenue cycle system that is CBO-oriented and has a single consolidated database. |
| **Human Resources** | Education-focused; learning management system; eLearning. |
| **Supply Chain Management** | Automation and related information systems |
| **Decision Support** | Data Warehousing and Data Marts; Data Mining; Financial and Clinical system-wide reporting. |
| **Web Portal** | Consumer, employee, physician and business-to-business portal "views" to centralize, standardize and brand CHW's Internet, intranet and extranet presence. |
| **Integration Infrastructure Migration** | Message-broker based infrastructure; foundation for Web Services, composite applications, and actionable information company-wide. |
| **Infrastructure Architecture Implementation** | Enterprise technical architecture including security, user provisioning, consolidation, standardization and simplification. |

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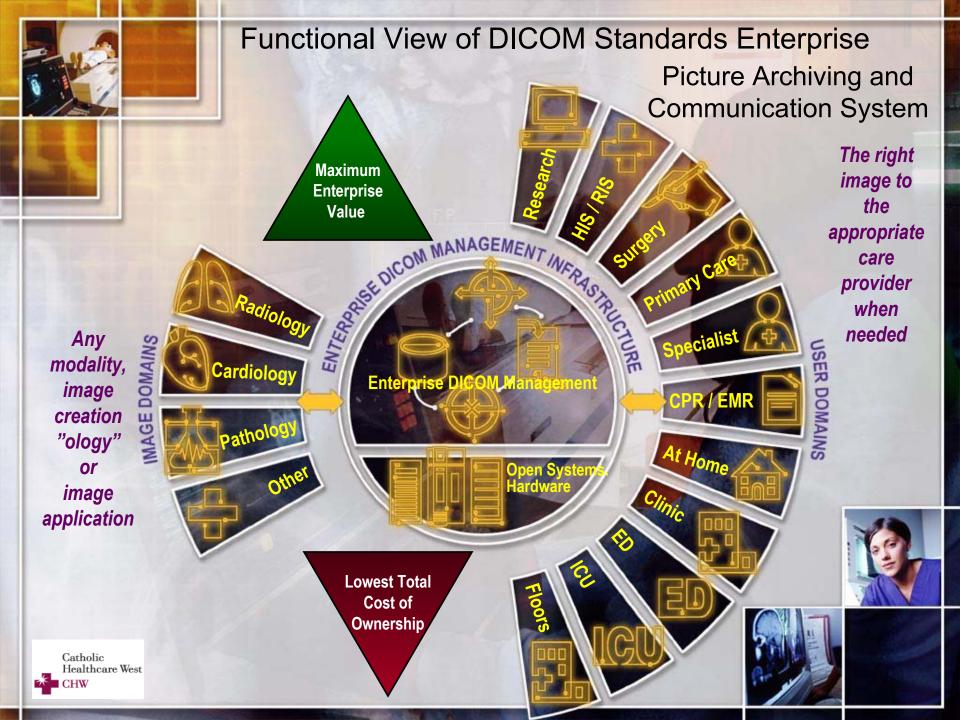
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- # CaseFinder Report
  - ## A report generated for nurse managers that identifies patients at risk for clinical deterioration
    - **IF** Heart Rate is > 110
    - **OR** Respiratory Rate is > 24
    - **OR** SaO2 is < 90%
    - **THEN** Print those patients and room numbers, and provide a complete set of vital signs, the last two sets of blood gases, FIO2, WBC, H&H, and Net fluid balance for the past 24 hours.
    - Generated every 12 hours

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## Respiratory Alert Report — 10/26/01 10:29 am

**Test Patient** — 4B17-07  4NICU  113-64-85

**RR 28**  10/26/01  3:45 am  |  **HR**  |  **Pulse Ox 88**  10/25/01  7:45 pm

| ABG Time | | pH | PCO$_2$ | PaO$_2$ | SaO$_2$ | HCO$_3$ | FiO$_2$ | O$_2$ % | O$_2$ LPM | O$_2$ Type |
|---|---|---|---|---|---|---|---|---|---|---|
| 10/26/01 | 4:20 am | 7.39 | 75 | 66 | 90.9 | 44.3 | .65 | | | |
| 10/25/01 | 3:25 am | 7.42 | 63 | 62 | 90.7 | 40.3 | .65 | | | |

| 10/26/01 | | Temp | 10/26/01 | | HR | RR | ABP | NBP | | Pulse Ox |
|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 am | | 37.60 | 4:00 am | | 108 | 27 | 133/59 | / | | 93 |

| 10/26/01 | HGB | HCT | 10/26/01 | | WBC | 10/26/01 | MDI/SVN | Dosage | |
|---|---|---|---|---|---|---|---|---|---|
| 2:45 am | 9.0 | 26.4 | 2:45 am | | 9.8 | 3:01 am | Albuterol | 2.5mg | |

**NOTES:**

# Functional View of DICOM Standards Enterprise

## Picture Archiving and Communication System

**Maximum Enterprise Value**

*The right image to the appropriate care provider when needed*

*Any modality, image creation "ology" or image application*

**IMAGE DOMAINS**

- Radiology
- Cardiology
- Pathology
- Other

**ENTERPRISE DICOM MANAGEMENT INFRASTRUCTURE**

Enterprise DICOM Management

Open Systems. Hardware

**USER DOMAINS**

- Research
- HIS / RIS
- Surgery
- Primary Care
- Specialist
- CPR / EMR
- At Home
- Clinic
- ED
- ICU
- Floors
- ED
- ICU

**Lowest Total Cost of Ownership**

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## Functionality

- **Physician Messaging system**

- **Data Repository from electronic source systems in clinic and hospital**

- **Ability to manage physician workflow**

## Patient Care Improvements

- **Ability to message consulting physician and attach pertinent notes**

- **Awaiting action inbox allows physicians to manage daily results arriving and watch for specific items**

- **Electronic access to transcriptions, lab results, and x-rays for appropriate decision making when paper records are not available**

- **Access to immediate partner's patient information when covering**

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- **Care Management programs, such as Diabetic Education, use databases to track and trend patients**

- **Monitor outcomes and success of education, as well as patient goals**

- **Stores data to improve patient outcomes and continually improve programs**

- **Diabetes data will be converted to specialized database to achieve all of the benefits of integrated functionality**

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CHWConnect.com

Expansion from Clinical Communities of Practice to Consumer Education and Interaction

- Migration to web-based IT applications

- Functional and security enhancements to segregate and integrate connectivity with internal and external communities

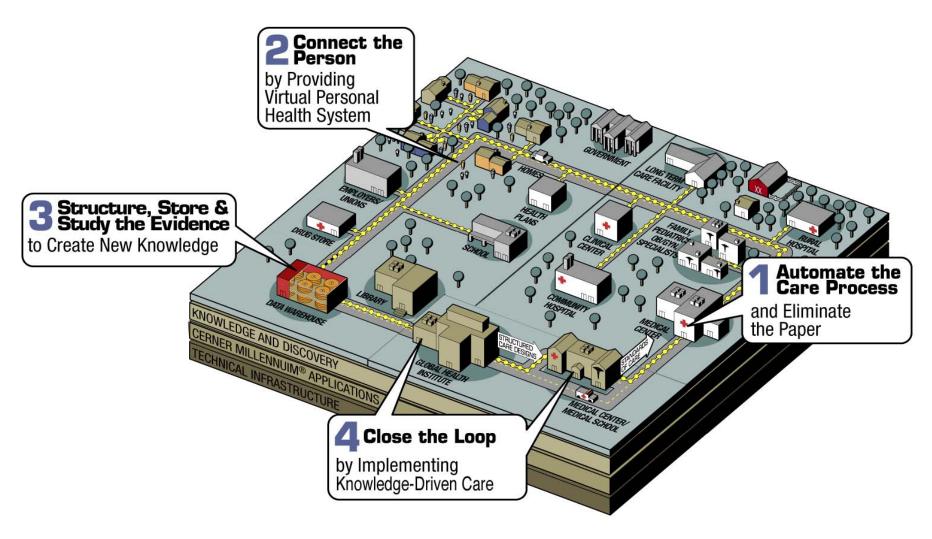- Develop knowledge management through integrated databases

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## Workflow Capabilities

- Domain
- Role
- Common processes
- Business processes
- Executable knowledge

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- Inconsistent data format, coding schemes, and timeliness of information

- Complexity and cost of matching up information about patients across the continuum, sites, and sources

- Incomplete data and lack of integration and interoperability

- Limited functionality in existing disease registries

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- Using Clinical Information Technology in Chronic Disease Care: Expert Workshop Summary. CHCF. August 2004

- Reimbursement models of enforced fragmentation: confounding & conflicting

- Expenses: "unaffordable" for solo and small group physician practices

- Professional autonomy, transparency, and the perceived loss of control

- Change management: jumping from paper to electronic workflow

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- Funding HIT: optional investment awaiting ROI or vital infrastructure

- Designing HIT: strategic context and tactical execution

- Implementing HIT with physician champions: neither propeller heads nor the technologically inert

- Serving HIT: 24X7X365 reliability and help desk service excellence

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