Strategic Plan for VUMC Informatics
July 2006 Progress Report
&
Roadmap to 2012

Vanderbilt Pillar Goals

PEOPLE
- Reduce turnover rate
- Elevate retention
- Elevate employee satisfaction
- Evaluate physician satisfaction

SERVICE
- Elevate patient satisfaction
- Service satisfaction
- Medical care
- Would return
- Would recommend

QUALITY
- Achieve lowest mortality rate
- Perform in top 10% of clinical quality measures
- Eliminate medication errors

GROWTH
- Exceed patient volumes
- In-patient admissions
- Out-patient visits
- Surgical operations
- Emergency visits
- Increase sponsored research
- Expand referring physician base

FINANCE
- Increase annual revenue:
  - Hospitals and clinics
  - Vanderbilt Medical Group
- Increase annual net income
- Save 5% of VMC cash flow

July 2006
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## TABLE OF CONTENTS

I. Introduction ...................................................................................................... 3

II. Strategic FY07 Budget Decisions ................................................................. 4

III. Path to a Fully Electronic Outpatient Clinic .............................................. 5

   Cycles of Work and Time-line ....................................................................... 7

   Quick Wins ...................................................................................................... 10

   Transformation and Support Models ............................................................... 11

   Explicit Team Roles and Accountabilities ....................................................... 13

   Display Models for Patient Data ................................................................. 15

   Allergies and Medications ............................................................................. 16

   Architecture and Infrastructure ................................................................... 19

IV. Vanderbilt University Medical Center Vision 2010 .................................. 25

V. Roadmap Update ......................................................................................... 27

Roadmap Glossary, July 2006
I – Introduction

In September 2005, we released the Strategic Plan for VUMC Informatics and Roadmap for 2010 [http://www.mc.vanderbilt.edu/infocntr/IC_Strategic_Plan_05.pdf]. The prolog to the plan presents Vanderbilt’s vision of a new approach to academic medicine for the 21st Century. This vision centers around systems of evidence based individualized care, translational research, and adaptive life-long learning. This vision is not about informatics, yet the vision is impossible without informatics. The body of the plan focuses on Vanderbilt’s informatics strategy. It identifies goals, objectives, and strategies to put in place the critical mass of informatics competencies, techniques, and infrastructures needed to achieve the Medical Center’s vision. The roadmap connects the dots as a guide to execution. It identifies milestones, decisions, project completion points, and interdependencies.

While we expect the vision and Strategic Plan to be fairly constant over the course of several years, the roadmap evolves continuously. In other words, it is an active management dashboard, not a precise prescription for the future. Shifts occur through the annual budget process, successes and failures in early steps, and designs that emerge at major decision points. The current view of the roadmap is accessible at [http://projects/default.aspx], with access restricted to individuals with Vanderbilt ID’s and passwords because this online view includes drill downs into detailed project plans and project management tools.

Under the oversight of the Informatics Strategy and Priority Committee (ISPC), cross enterprise teams meet to review progress and update the overall roadmap semi-annually.

This progress report covers the period from January through June 2006. It begins with an 18 month view of the roadmap developed during the FY07 budget process. This view highlights decisions required to execute on the plan by presenting in red items requiring new program support. Items colored green were already funded through continuation budgets. Items not colored were to be funded through extramural or other “non-shared center” funding. The required new program support was granted through the budget process.

The second section reports the “take home messages” from the February and March design sessions that fleshed out the next twelve months of the “direct care” clinical “swim lane”. Of the several designs and decisions that emerged, the one with immediate impact is the focus in FY07 on medications for the test case of management, reconciliation, and interoperability across the home-outpatient-inpatient continuum. Equally important are cycle of work, transformation and architectural models to accommodate change on this scale.

The third section presents a ‘straw person” vision for 2010 as a touch stone to further guide this work. It will be refined through a focus group process over the course of the summer.

The progress report concludes with an update of the roadmap and glossary. Items in green are complete.
III – Report of March Mini-Mountain Design Shop

Our Path to a Fully Electronic Outpatient Clinic by Q2 2008

Summary Report

A synthesis of design work accomplished during the February and March 2006 Informatics Center DesignSessions.

Introduction

This report captures the presentation made by Dr’s. Stead and Doulis to the Informatics Center Executive Council (ICEC) on March 27, 2006. This synthesis covers all of the work accomplished from the February Mountain DesignSession through the end of the March Plateau DesignSession.

The text of this report is primarily a transcription of the presentation with images collected from both DesignSessions. The transcript has been edited and embellished to communicate the information in the clearest possible manner for someone who was not present at the meeting.

Transcribed Presentation

Welcome & Overview

This work is being driven by the goals (circles) from the Strategic Plan Timeline (Swim Lanes). The first goal is that we want to be the best in class related to medication safety across the inpatient/outpatient continuum by the end of 2007. One year later we want to have completed the shift from an organization that uses tools that support evidence based medicine to a culture that values systems of evidence based medicine and individualized care.

The specific implementation project (square) from the strategic timeline that drove the February Mountain is in the second quarter of 2008 and focused on achieving a fully electronic outpatient clinic. We broke this step up and looked at it from three different overlapping perspectives.

1. What is our vision of ambulatory care in 2010?
2. How will we achieve electronic physician documentation across the care continuum?
3. How will we capture outpatient orders electronically?

**February Mountain Synthesis**

We brought together 80 people for the February session, two thirds of whom were from outside informatics. We asked each of the three tracks what their solution would look like to the end user. We also asked how we would accomplish it at a high level—not technically. In other words, this session started with a vision and worked down to approach.

At the end of the two days we reported out each track’s detail. It is available in the web journal for that session: [http://www.mc.vanderbilt.edu/vcbh/ds/0602_febmtn](http://www.mc.vanderbilt.edu/vcbh/ds/0602_febmtn) After that session the sponsor team worked to synthesize the content and the following list emerged.

**February Mountain Key Ideas**

- **Opportunities for near term benefit**
  - Revenue capture improvements (Rounds 1 & 2)
  - Voice input (Dragon)
- **Support model to improve use of what is in place and increase roll-out capacity**
- **Identifying and addressing adoption gaps**
- **Explicit care team roles**
- **Family of “click through” display options (patient centered, provider & team views)**
- **Balanced scoreboard to bring four axes of information (personalization, evidence, payer, and capability) together at decision moment**
- **Event model & information architecture to support the plan→order→documentation life cycle**
- **Core Data: Access to a core set of patient data – part of which is interoperable and part of which is browsable**
- **Function and data interoperability for medications, allergies, problems**
- **Mechanism to proactively manage response time**
- **Address security barriers to workflow**

We also worked to synthesize the timelines and develop a common timeline to achieve a fully electronic outpatient clinic by 7/1/2008. The high level version of this timeline shows several key milestones that we need to achieve to stay on track. These milestones relate to the budget cycle and the development cycles for key concepts we need to put in place.
We must operate within our financial constraints. The FY2007 budget is final so we have to live within that budget while moving toward our goal. In the fall, we will have an opportunity to identify FY2008 priorities which should identify what we will need to complete development and roll-out.

When we put together the 1995 strategic plan, we came up with a list of over 1,000 things people wanted. We would never have been able to implement 1,000 individual items. We stepped back and looked at the key reusable technologies and practices that would allow people to do those 1,000 things on their own, and then built or bought those enablers. We need a similar approach to achieve an electronic outpatient clinic.

One strategy is to have a common model for how we will move through cycles of work. The idea being each cycle of work will take an idea closer to a fully operational capability while further informing the plan.

There are several key capabilities that we will need to work with to achieve our goals. One is related to McKesson and their development path. We are about to complete the back install of Horizon Expert Orders bringing all of WizOrder’s functionality into the Horizon Clinical’s architecture. McKesson ER10 Horizon Clinical architecture will be generally available this summer. It is moving toward a common interoperable core
database underpinning HEO, HED, Horizon Med Manager and AdminRx. If they’re successful with their long term development plan, it will ultimately allow us to turn off MediPac and EPIC without replacing them. The way things work inside the McKesson Suite will change as we continue knitting together their systems. Outside McKesson, we will continue to use the envelope of StarChart for information aggregation and StarPanel for workflow communication.

Another key capability relates to Medications. We decided to look at orders and documentation separately during the February session for the purpose of creating competing designs. It is clear that care planning, through orders, and finally documentation is all one continuum. We think the way to better understand this continuum is to begin with medications and learn how to handle them across the continuum. This important 1st step will provide immediate quality wins.

The other capability that will really change the game is for people to see and feel what it means to have explicitly defined roles in the care team.

The draft timeline showing the milestones, major completion steps and decision/design step was refined through the course of the March Plateau. It is accessible at https://www.mc.vanderbilt.edu/vcbh/ds/0603_marchmtn/
March Mini-Mountain Outcomes

With all of this pre-work completed, we brought together a group of 40 participants that was two thirds informatics plus a subset of the non-informatics participants to address its synthesized outcomes. We refer to this session as the March Plateau or the Mini-Mountain. During this session, we worked up from existing tools and process to design how we might support the desired approaches.

At the end of the session we invited back anyone who had participated in the February session to hear how we are going to get them what they said they would need. We ended up very focused on the following topics:

1. Quick Wins
2. Our Support and Work Transformation Models
3. Explicit Team Accountabilities
4. Display
5. Allergies/Medications as a stepping stone to orders
6. Infrastructure

1. Quick Wins – Susan Conner

There are three topics that fell into our Quick Wins categorization. They include:

- Voice Recognition,
- Medication Reconciliation Discovery List,
- Revenue Enhancement.

Voice Recognition - The voice recognition is specifically focused on the use of “Dragon” by a test set of 100 users at VUMC. We’re not looking to accomplish the golden grail of using voice to capture structured data. Instead, we are looking for opportunities to eliminate some high volume transcription. This would save us money and hopefully fund more of the things we want to do.

We want to get to a go/no go decision by April 20. An important note is that this decision is not about constraining the early adopters. The question is whether there is something we should do as an institution regarding voice recognition. Long term, this is likely not the right answer because that answer will include heavy reuse of information to drastically reduce what needs to be captured. We do not want to get in the way of the people who are using and want to use voice recognition. The go/no go is regarding institutional support only.
**Medication Reconciliation Discovery List** – The second quick win is part of the larger topic of Allergies and Medications as a stepping stone to Orders. The reason reconciliation is a potential quick win is because we believe we can have the necessary Wiz/HEO functionality in place by June of this year. If we set up an intelligent interaction between a human, the medication discovery list, and the patient, we will jump ahead of anyone else in the country.

**Revenue Enhancement** – This is one of the areas where we did not have enough of the right people in the room to get specific results. We are going to work to identify some Round 1 revenue capture opportunities that will drive benefit in the 4th Quarter. Then we can choose a Round 2 benefit for the following year. Fully electronic outpatient orders would close remaining holes in 2008. Nancy Lorenzi has a list of the people who need to be involved in this work.

**2. Our Support and Work Transformation Models – Nancy Lorenzi**

The first model here is a new way of looking at the intersection of people, process and technology with quality, organizational learning, and informatics. That is a concept possibly worth publishing. It is called the FUSED model.

Another model developed by the team is the Work Transformation model that shows the relationship between our Vision, Work, Tools, and Support.

One thing to notice is that Work Transformation and Support & Training need to be equal peers of tools at this stage. Some of the tools that we can use to build out our Work Centric Model could include different improvement approaches like Lean, CQI-PDSA, and Six Sigma.
We need to build the capacity to pull these methods together as a set of work redesign capabilities at VUMC. This is not just about understanding what each technique gives us, but more importantly understanding when to apply which techniques to solve a given issue.

The immediate next step for this work is scheduling a Work Transformation Day. The purpose of this session will be to focus on how we move this model forward within

the larger organization to support rapid transformation.

Besides building out our Work Transformation Model, we are going to keep moving forward with the progress we are making on the Support Model. The basics of this model include the concepts listed on the Support tile (below).

Each of these concepts will be part of the new model. Some of the concepts will be the next generation of concepts we already have. For example, when we are talking about a “super user,” we are not talking about the model of the past where an individual who is very good at something helps others in addition to their regular work without compensation. What we’re talking about is embedding a person who helps others learn to do their work better with the use of technology. They need to be credentialed and provided with some sort of additional compensation to reflect their additional responsibility.

We hope to use a rapid cycle process to gain traction on key priorities while learning what works best. The first thing we need to do is build a support model proof of concept. We need to do an exercise to make sure it will work. Then we need the Work Transformation Day, followed by a pilot to let us test it in an operational unit. Then we implement whatever we can within current resources. There are over 60 people out there doing this type of work now.
At one end of the spectrum the team needs generalists who know how to bring all informatics tools to bear as appropriate in user workflow. Others need to know how to use systems tools to develop solutions for specific purposes. Others build new system tools. We need to learn how to assemble a team with this combination of depth and breadth. We also need to learn how to manage the collective resource close to the action for responsiveness.

3. Explicit Team Accountabilities – George McCullough

The next area of progress during the March session was Explicit Team Accountabilities. We must have a robust team doing support. Everyone involved in the care of a patient needs to be able to see who is accountable for each decision that needs to be made or task that needs to be completed.

Currently, we are assigning patients to specific individuals based on their role as is shown in this image. Their responsibilities are implicit in the role with variables across the enterprise.

We need to change how this assignment happens so that patients are assigned to teams or roles within teams. The mapping of responsibility to team or role must become explicit. Then we can assign people to each team role. We can then swap people in and out without changing the team architecture.
To move to explicit responsibilities as to which team or team role is responsible for specific tasks or duties, we must first manage intelligently designed lists. Most of this information is now defined by the person responsible for a function, rather than someone looking across the set of functions and deciding on the correct model for the information.

Quite a bit of work is ongoing on this topic already so we think we are on the correct path. We highlight Explicit Teams on the synthesized timeline map for the March Session. They will represent a major step up in understanding that should provide
insights into the difference between planned and reactive care. This is one part of the model that is essential for us to get to zero defect handoffs.

4. Display – Bill Stead (handing off to John Doulis in near future)

The fourth main area of progress was in how information will be displayed for the many different personnel who utilize our tools. As we do a better and better job of aggregating information together, we create information overload. We are constantly trying to figure out how to get all the trees in the forest and then how to see the forest for the trees. Everyone wants the single view that will get them just what they want. We need to define what pieces are most important and show them in the clearest possible fashion at the appropriate time.

Letting physicians configure their own views is probably the wrong model, especially as we move more toward evidence based medicine and workgroup based practices. Displays need to be based on best practice with an opportunity to drill down as desired.

Something that came out of this last session is a merger of some of the ideas that have been built into our quality and process control dashboards.

We already have a clinical team process in place to develop evidence based order sets. We can reuse that team structure by asking two questions as we build order sets:

1. What do you need to see before you make decisions?
2. What do you need to see in follow up?
Team threads will also be critical to creating informative displays. Tracking what care team members do, e.g. placing orders and informing them about what actually occurs downstream, can be treated as one communication thread and not disparate care events.

Communication threads will be important too, particularly with MyHealth@Vandy. Such a thread begins with an initial message and includes all subsequent messages related to that message.

Summaries built on data mining algorithms are another important concept which needs testing. Such displays would start from the aggregate patient record and highlight information that appears important.

5. Allergies/Medications as a stepping stone to orders – John Doulis

This is about the “4 Alls” all the medications, all the allergies, in all the systems, all of the time.

As the team looked at our approach for how to tackle orders, we believed the best path to take was by starting with the med reconciliation discovery list as a proof of concept, then piloting with Allergies. We believe we can get Allergies done by summer. We will then apply what we have learned as we move into medications as the next step. Finally, we will move into non-medication orders. This path will allow us to move from a well defined area of lower complexity into ever increasing complexity, and each step will inform how we will need to move forward.

To give you an indication of the complexity of managing medications across the Inpatient/Outpatient Boundary, we actually need six different medication lists to accomplish this end-to-end reconciliation. This task is not about homogenizing
everything into a single record. If we combined everything into one list, it would lose much of the meaning.

The six lists we will need include:

- Current medications – VU and non VU outpatient medications, provider verified, frozen throughout admission
- Outpatient prescription set (managed by RxStar)
- Discovery list (created on admission by intelligent interaction with a human and the patient. It is maintained as the current best information during their stay)
- Active inpatient medicines (managed by Wiz or HEO, archived by discharge)
- Past medications (intelligent synthesis of all the above)
- Medications from other sources (discharge summary, notes, PBM, RHIO, etc.)
At the same time we’re trying to nail medications, we need to do some of the predecessor work to increase our understanding of things regarding orders (particularly planned and future orders) that we currently are not doing in a robust fashion.

We also still need to work on a balanced view of decision support that will bring together the four axes of information related to the Patient’s Condition, the Patient’s Payer Plan Information, the EBM, and the VUMC Capability to support the patient at that particular moment in time.

To achieve a fully electronic outpatient clinic, we need to deal with documentation and orders (though those are a continuum of processes). What we decided was that to create a completely new application wouldn’t make sense. We felt like medication and allergies were doable and important to tackle first.
6. Infrastructure

Four models emerged or were refined to organize our thinking about a component approach to infrastructure:

- Decision Moment Model
- VUMC Information Architecture
- VUMC Event Model,
- Terminology Management Model,

**Decision Moment Model** – The clinical decision processes may be thought of as a series of decision moments chained together. Each begins with either a reactive or proactive information input. It results in an action output that may well be either a reactive or proactive input to a downstream decision moment.

The importance of this model is that if we can understand how to support it we don’t need to support all of the combinations.

**VUMC Information Architecture & Event Model** – These models are 2006 updates of the ’91 architecture. They reflect major step functions in how the pieces of our system are put together.

**VUMC Information Architecture** - The Information Architecture model shows we have a tiered system. We can bring things together in a building block approach. The service tier provides service across all the layers. The database tier houses things such as enterprise decisions, controlled vocabulary, etc.

Both of these models are color coded so that as you walk through the Event Model you see where you are in the Information Architecture. You can also see how the event model relates to the Decision Moment Model.
VUMC Information Architecture

VUMC Information Model
03/14/06

A monolithic app system provides a full solution across all the tiers. It interacts with the environment through the EIS layer only.

Components in the client tier are used directly by end users. These components interact with the other tiers on behalf of the user.

Examples include:
- Thick apps like Quill, HIt
- Web browsers like IE
- Query tools like Crystal Reports

Components in the application tier are application systems that solve a specific business problem.

Examples include:
- R/3
- SAP R/3
- Web services
- Service Data

Components in the service tier provide shared, general services for components in the application tier.

Examples include:
- Authorization service
- Census service
- Vocabulary service (semantic data)
- Rules engine

Components in the EIS tier provide services for both the application/service tiers and for monolithic application systems.

Examples include:
- EIS
- GE transactional services like census
- ODS

Components in the database tier provide data storage services for the other tiers.

Examples include:
- Application Data for specific app systems
- Service Data used by general services
- Enterprise Data keeps the data important to the enterprise, e.g., controlled vocabulary
- Decision Support Data is used for reporting

User

Web Browser

Web Server

App System

Component App System

Gen Service

Interface Engine

Transaction Processor

Application Data

Service Data

Enterprise Data

Operational Data

Data Transformer
VUMC Event Model

VUMC Event Model Flow
03/16/2006

: Act Generator
- May be in any tier
  1: send act
  2: store data consult services

: Interface Engine
  3: gather into
  4: send act
  5: consult services

: Act Rules Processor
  6: trigger alert if necessary
  7: schedule event if necessary
  8: get pt. data
  9: present alert to user
  10: schedule decision moment
  11: consult services

: Alerting System
  12: gather/update info
  13: send act

: Scheduler
  14: consult services

: Personal Context
  Examples include:
  - Patient's medical record
  - Plan of care

: Enterprise Resources
  Examples include:
  - Semantic standard
  - Rules services
  - Clinical knowledgebase
  - Roles

: Decision Moment Application
Terminology Management Model — Dr. Steve Brown shared the model the VA uses to manage terminologies. The model decouples the problem into three things we’re trying to do: manage the reference terms to avoid ambiguity and redundancy, map the reference terms to interface terminology to translate to specific systems, and create a user interface and support process to make it easy to request and manage new reference terms.

The reason that we think of terminology and management as infrastructure is because these three processes are things we need whether we are managing terminology or teams. In other words, they are key to evolving controlled lists.

One area of importance that we did not tackle during the Mini Mountain directly was the area of Response Time. We worked on this a year ago and Dr. Doulis is going to be presented with the approach we took then and develop our plan for how to move forward on that topic.
Terminology Progress

- Inter-operability of controlled clinical terms (CHSL) between HED, StarNotes, Quill + StarPanel has been demonstrated.
- New HED terms will shortly be routinely entered into, and use, CHSL
- Roles/Teams/Relationships and terms will be constructed using emerging Vocabulary Tools.
Conclusion

All of these items knit together into a very powerful system. We think it’s achievable. We have a first cut at how to sequence these things. We haven’t merged these items into the main Swim Lane Document yet, but we will likely accomplish that at the next Swim lanes Quarterly update meeting.
IV – Vanderbilt University Medical Center Vision 2010

Overview
In 2010, the Vanderbilt University Medical Center (VUMC) is known as one of the most reliable quality-oriented health care systems in the US. It is patient-centric and receives very high patient satisfaction scores. All employees, medical staff and leadership, are publicly accountable for outcomes and organizational effectiveness. Daily operations incorporate maximally efficient work flow designs. Evidence-based medicine and management practices are employed consistently as illustrated by our outcome data. When surveyed, patients and payers rate VUMC as the best value for their medical care.

Clinical
Easy-to-read, electronic records provide ALL information needed for patient care. Inpatient and outpatient clinical processes incorporate evidence based and personalized medicine. System users transition easily between different views of the information, e.g. patient-centric, problem-specific, or team-focused. The time required to enter data about the patient or to retrieve data for clinical decisions and research have been greatly reduced. We have the ability to provide information to and from a patient’s personal health record. Our aggregate problem list brings together updated, comprehensive and accurate information from within and outside of Vanderbilt University Medical Center.

We manage all “hand-offs” whether at the patient’s visit, bedside or surrounding the patient’s interaction with us without error by coordinating with the needed plan of care. This coordination includes medications, allergies, etc., across all Vanderbilt sites and from the referrers. Our core medical record is easily accessible within all technologies we use in the Medical Center.

The products provide real-time clinical decision support. Clinicians access and analyze information to make better clinical decisions. Decision support information reflects a balance of the patient’s record, evidence, payer plan and local capabilities.

Our systems know the make-up of the care team, who is accountable for what and who is available at any point in time. Patient surveys cite this role clarity as one of the top three factors in our market leading customer satisfaction. It is the key to our error free hand-offs.

Our systems, organizational and technological, are integrated and sophisticated. Reflections of this include retrieving data as needed in the workflow; having a comprehensive electronic order entry system for diagnostics, therapeutics, and prescriptions; and having monitoring devices and point of care technology.

We invested heavily in technology and have adequate technological hardware to meet the needs of the organization. Clinicians can easily access ALL information from multiple types of technology (e.g. handheld, tablet, desktop). Privacy and security measures are in place that grant access based upon the explicit role of the care provider to the patient. There is rapid
single sign on to the information systems with biometrics (fingerprint or retinal) as appropriate.

Patients

The People who receive their healthcare at Vanderbilt have the opportunity to become actively engaged in their plan of care. The MyHealthAtVanderbilt patient portal, which won national awards, is one strategy for patient engagement. MyHealthAtVanderbilt comprehensively connects patients and their health care providers. Patients participate in MyHealthAtVanderbilt as much as they need or desire. Through this secure portal, patients can communicate with their physicians, participate in the collection, validation, and management of their personal health information, make appointments, check tests results, access their electronic medical record, add to their personal health records review their bill, make payments, find information related to their health needs, etc. Patients can easily send information from their personal health record to family and friends. This is especially helpful for people with cancer and other major diseases.

MyHealthAtVanderbilt includes comparative information about the cost, value and outcome statistics for health care choices. This comparison is based on our publicly known balanced scorecard of outcomes related to VUMC people, service, quality, and business growth. In addition to Vanderbilt data, patients maintain their personal health record: export information from their Vanderbilt electronic medical record and import information from compliment and alternative medicine sources. The patient controls access to the personal health record and Vanderbilt provides relevant information to providers to facilitate the most appropriate care. Patients rate satisfaction with overall care and desire to recommend Vanderbilt to others as excellent.

Support System

Vanderbilt Medical Center creates new and better models for supporting the entire care process—this includes processes that support the patients, their families and the care providers. This work receives local and national recognition awards. Supported by sophisticated, easy-to-use, integrated technology, we envisioned and implemented the most effective and efficient clinical work flows. We are widely acknowledged for this major transformation. Whiteboards throughout VUMC eliminate bottle necks. As an interconnected organization, we verify patient data by asking the patients each question once. The information system facilitates scheduling the patient for multiple tests at the best time for both the clinical test and the patient. All patient insurance information is available online for authorizations/pre-certifications, etc: the system knows what amount insurance will pay, and referrals and prior approvals are electronic. Our systems accurately identify referring physicians. Referring physicians receive automated communications on the status of and recommendations for the care of their patients.
Informatics Center

Multi-Year Planning Timeline

Strategic Timeline to 2012
Updated June 30, 2006
<table>
<thead>
<tr>
<th><strong>AdminRx</strong></th>
<th>McKesson system for Closed loop medication administration. Caregivers use scanning devices to identify themselves, the patient and medications at the point of administration. Check against active orders and charting are automatic. Prerequisites include: Horizon Medication Manager (live Summer 2005), Horizon Expert Documentation (pilot 12/2005), bar code medications in pharmacy.</th>
</tr>
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<tbody>
<tr>
<td><strong>Agile Data Acquisition &amp; Analysis</strong></td>
<td>Assembly and analysis of data from disparate and multi-dimensional data sources to support clinical, health services and population research. De-identified database &amp; DNA databank are building blocks.</td>
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<tr>
<td><strong>AHRQ &amp; State Regional Contracts</strong></td>
<td>Contracts (approximately 5 mil over 5 years) to support implementation and evaluation of regional patient data sharing in southwest TN and provision of national infrastructure for quality improvement/safety grants.</td>
</tr>
<tr>
<td><strong>Aleris Pump Interface</strong></td>
<td>Need plan post expedited HED rollout.</td>
</tr>
<tr>
<td><strong>Alerts and Notification</strong></td>
<td>Alerting of critical information, with escalation. Example would be critical laboratory values. Access to Call Schedule database is a pre-requisite.</td>
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<tr>
<td><strong>Ancillary Schedule (Integrated)</strong></td>
<td>Integrated schedule for all ancillaries. A building block toward a schedule for the inpatient.</td>
</tr>
<tr>
<td><strong>Ask Galen</strong></td>
<td>EBL’s digital library of learning resources linked to Knowledge Map</td>
</tr>
<tr>
<td><strong>Ayers</strong></td>
<td>Jim Ayers Institute for Pre-Cancer Detection and Diagnosis</td>
</tr>
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</tr>
<tr>
<td><strong>Bioinformatics Resource Core</strong></td>
<td>Provide bioinformatics consultation and tools to support research, beginning with molecular biology. Jay Snoddy recruited in Fall 2005 to lead development. Pilotimg with Bioinformatics Clinics in partnership with Biostatistics. Snoddy and John Manning to develop plan for implementation.</td>
</tr>
<tr>
<td><strong>Biomedical Informatics Training Grant</strong></td>
<td>Cynthia Gad recruited in 2005 to direct training program. Competitive re-competition proposal due 2/2006.</td>
</tr>
<tr>
<td><strong>Blackboard Course Management</strong></td>
<td>Campus-wide use of Backboard for on-line course management</td>
</tr>
<tr>
<td><strong>Blood Ordering in the ORs</strong></td>
<td>Wiz Order and VPIMS have been enhanced to provide order entry in the ORs for blood products and delivery to the correct OR location of the patient.</td>
</tr>
<tr>
<td><strong>Call Schedule Access</strong></td>
<td>Mechanism of providing a single source to who is on call. First step is a database to provide a point of aggregation and a standard format for imports and exports. Long term will involve explicit team roles and incorporating handoffs into workflow.</td>
</tr>
<tr>
<td><strong>Cardiology Outcome Registry</strong></td>
<td>Cardiology and Cardiac Surgery database for submission of ACC &amp; STS standard datasets for accreditation. Plan includes: data capture via VUMC tools in the care process; capture of procedure data and submission of standard dataset via Cedaron; and export to the Enterprise Data Warehouse for quality monitoring and research.</td>
</tr>
<tr>
<td><strong>CCEC Launch</strong></td>
<td>The Clinical Cost Effectiveness Committee was launched in July, 2004 to succeed the Resource Utilization Committee. The work of the Committee includes: evaluate the benefit and cost of informatics approaches to improving quality and resource utilization; prioritize and sequence the Wiz Order queues; support initiatives to enhance linkage of evidence into practice and feedback of outcomes into practice.</td>
</tr>
<tr>
<td><strong>Chemo Wiz</strong></td>
<td>Improve patient safety and clinic efficiency in the Cancer Center by providing computerized provider order entry for outpatient oncology patients. This requires mechanisms for: managing a Protocol across episodes of care; adapting orders for an episode of care through conditional arguments for dosing based on patient condition; tracking changes in plan and what was given over time.</td>
</tr>
<tr>
<td><strong>Closed-loop Life-long Learning</strong></td>
<td>Linkage of the Perform cycle (assess competency, act with just in time information support, track outcomes) with Learn cycles (assess competency, assemble content to fill gaps, assimilate, simulate skills and limits).</td>
</tr>
<tr>
<td><strong>Clinical Research Data Management Resource</strong></td>
<td>We need data management services ranging from support for a single PI through a data coordinating center.</td>
</tr>
<tr>
<td><strong>Closed-loop Medication Administration Online</strong></td>
<td>The &quot;safety check&quot; for medication administration and documentation at the bedside. Caregivers use scanning devices to identify themselves, the patient and medications at the point of administration. Check against active orders and charting are automatic. Prerequisites include: Horizon Medication Manager (live Summer 2005), Horizon Expert Documentation (pilot 12/2005), bar code medications in pharmacy.</td>
</tr>
<tr>
<td><strong>Closed-loop Quality</strong></td>
<td>Paradigm shift from quality as a “rear view mirror” to proactive management to optimal outcome (the right instruments in the cockpit and a flight controller looking over the shoulder). Begins with analysis of data from practice to identify populations at risk (untoward events, practice variability, high cost, etc). Root cause analysis and process design follow, leading to systems of behavior, process and tools. The closed loop comes from identifying that a patient is a risk at the earliest possible point. The care provider is then alerted to what needs to happen and informed of what is complete and incomplete. Higher level views permit institution-wide monitoring and dispatch of response teams.</td>
</tr>
<tr>
<td><strong>Competency Evaluation</strong></td>
<td>Active mentoring and self assessment component of learning portfolio</td>
</tr>
<tr>
<td><strong>Controlled Vocabulary Plan</strong></td>
<td>Mechanism to manage the set of terms used in clinical data capture tools. Makes semantic relationships among terms explicit. Includes mapping to national standard vocabularies (SnoMed, LOINC, etc) where available.</td>
</tr>
<tr>
<td><strong>COO On-board for Informatics Center</strong></td>
<td>A new position of Chief Operations Officer, Informatics Center, was created to provide a single focus for support of VUMC operating units. John Doulis started in this role 10/05.</td>
</tr>
<tr>
<td><strong>Core Systems use Common User ID &amp; Password</strong></td>
<td>See “Enterprise Authentication and Authorization”</td>
</tr>
<tr>
<td><strong>CTSA</strong></td>
<td>Institutional Clinical and Translational Science Award (successor to the GCRC) proposal due 3/06.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
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<td>-----------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>De-identified Database</strong></td>
<td>Database to support research. Links de-identified data from patient records (phenotype) with genetic &amp; molecular information. Phase 1: Query Interface &amp; Standard Patient Extract from StarChart Phase 2: Searchable SNPs Database Phase 3: Molecular analysis from cores starting with DNA Phase 4: Query interface across molecular attributes and patient abstracts</td>
</tr>
<tr>
<td><strong>Data Warehouse Framework</strong></td>
<td>Plan clarifying the levels through which data is prepared for use in decision support. 0 – operational store, 1- extract in DBMS, 2-4 progressive normalization with explicit metadata</td>
</tr>
<tr>
<td><strong>DBMI Chair</strong></td>
<td>The Department of Biomedical Informatics is being expanded to assemble faculty with the key competencies needed to exploit informatics across the biological science, population science and clinical practice spectrum. The vision involves doubling the size of faculty over the next 5-7 years and developing divisions in areas of focus. Dr. Daniel (Dan) Masys assumed his role as Chair of the Department of Biomedical Informatics (DBMI) and Chief Academic Officer in the Informatics Center on January 1, 2005.</td>
</tr>
<tr>
<td><strong>Discharge Summary Note Wizard</strong></td>
<td>Auto generation of sections of a discharge note with relevant events of an inpatient stay, with options to point-and-click additional information.</td>
</tr>
<tr>
<td><strong>DNA Bank</strong></td>
<td>Create a de-identified database of DNA samples &amp; genomic test data for linkage to de-identified phenotype information extracted from StarChart</td>
</tr>
<tr>
<td><strong>DxR Clinical Reasoning Exercises</strong></td>
<td>102 cases designed for clinical reasoning exercises for medical and nurse practitioner students.</td>
</tr>
</tbody>
</table>
| **ED Nurse Charting** | Electronic nursing documentation for the Adult and Pediatric emergency departments. The McKesson clinical documentation product (HED) will be reviewed to determine if any components could be used for this.  
Part of Feb 2007 “Inpatient Design Mountain” |
| **Education Tech Transfer Strategy** | After experience with betas, need to decide whether to distribute Knowledge Map, Learning Portfolio, etc as education products or as clinical improvement products. |
| **Enterprise Authentication & Authorization** | The infrastructure to support secure single sign-on (log on once and access what you need within authorization). Common university-wide infrastructure for authentication (making sure you are who you say you are) and attribute-management (roles, responsibilities and status) designed to support decentralized management of authorization (deciding what functions you can use).  
Phase 1: Core systems use a common user ID & password  
Phase 2: User ID & password with decentralized authorization |
| **Enterprise Monitoring** | End-to-end monitoring to immediately identify when a server is down, when a service has become unusually slow, or an area has lost connectivity. Includes anticipatory alerting. |
| **Explicit Clinical Team Roles** | Proactively assign care team roles so that responsibilities (expert supervision, consultation, discharge planning, etc.) are explicit. Map individuals and teams to clinical care roles, track who is cross-covering during non-primary hours.  
Part of Feb 2006 “Outpatient Design Mountain”. The Wiz Admission and Consult Wizards, and Call Schedule Access are steps in this direction. |
<p>| <strong>Frist Center for Nursing Informatics</strong> | School of Nursing Information Technology Center opened Jan 2005. |</p>
<table>
<thead>
<tr>
<th><strong>Fully Electronic Inpatient Unit</strong></th>
<th>A fully electronic patient care unit, with elimination of paper-based processes and the need for the paper chart.</th>
</tr>
</thead>
</table>
| **HED (Horizon Expert Documentation)** | The McKesson clinical documentation system. It is also referred to as "HED". The plan is to use an expedited roll-out strategy with minimum unit-specific customization to all VUH and VCH patient care units. Initial focus is viewing of data from monitors and flow sheet documentation with rapid addition of ventilator data and charting against orders.  
Phase 1: Expedited roll out  
Phase 2: AdminRx  
Phase 3: Service & Unit-specific customization |
| **HEO (Horizon Expert Orders) Back-install** | Horizon Expert Orders (HEO) is the McKesson "commercial version" of Wiz Order circa 2001. The "back-install" of the HEO product at Vanderbilt involves: combining Wiz & HEO into a merged code set; substitution of legacy Wiz code with HEO code; augmentation of HEO code with new Wiz Code; and isolation of VU specific Wiz code.  
Phase 1: Switch to HEO Order Entry client  
Phase 2: Update to current ER7.6  
Phase 3: Update to ER10  
Phase 4a: Productize elements of VU specific Wiz  
Phase 4b: Rationalize residual Wiz infrastructure & HOM infrastructure |
<p>| <strong>HEO (Horizon Expert Order) Content Management Plan</strong> | Develop tools to manage clinical content that is sharable between our order entry system (HEO), our pharmacy system (HMM), our nurse documentation (HED), and our other clinical systems (StarPanel, RxStar etc). We envision three tiers of knowledge: Source Data - example data coming from the FDA, NLM, NIH. Integrated Library - making explicit the semantic relationships across sources. System Specific Instantiation – “crunched” version to decouple library management from migration to production and expedite run time execution. |
| <strong>HP Service Desk, Change Mgmt &amp; Config Mgmt</strong> | These tools are part of the HP OpenView product that provides technology to decrease the work of supporting the IT infrastructure of the Medical Center. HP Service Desk allows support teams to track all calls to the Help Desk and track issues that support teams find in support of Medical Center applications. HP Change Management records application and system changes and allows proactive planning, tracking and review so that the incidence of adverse impacts due to changes is reduced. HP Configuration Management works hand-in-hand with Service Desk and Change Management to help us understand impacts and dependencies of proposed changes across systems. |
| <strong>IC Strategic Plan</strong> | September 2005 Strategic Plan for VUMC Informatics, Road map to 2010, Annual Progress Reports |
| <strong>IDX Rad - 10</strong> | Upgrade GE Radiology information management system to provide additional ancillary revenue management support |
| <strong>Imaging Archive</strong> | Strategy for a source independent imaging archive to provide a single source to images and enable differential use of compression. |
| <strong>Imaging Informatics Strategy</strong> | We need a plan for faculty and research in imaging informatics (concept recognition, registration, representation of relationships) to complement our strengths in image modalities and processing. |
| <strong>Implementation Resource “Scale-up” Strategy</strong> | The current implementation support efforts by Informatics, System Support, and the EMR team were designed for sequential projects. We need a new strategy to reflect parallel projects with incremental addition of function. Plan will define roles, skill sets and distribution among Informatics, area specific SWAT team and end users. |
| <strong>Informatics Architecture Design Mountain</strong> | Convergence on a strategy to proactively handle issues ranging from human factors; through systematic identification of need; to testing and monitoring. Update of the “VUMC Information Architecture” with regard to fast sign on, user interface integration, standards, middle-ware, etc. |</p>
<table>
<thead>
<tr>
<th>Project Glossary</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Inpatient/Outpatient Medication Boundary Plan** | Coordination of medication information through inpatient ↔ outpatient transitions. Includes reconciliation of home medication on admission, generation of prescriptions from inpatient information on discharge, etc.  
Phase 1: Medication Allergy Architecture  
Part of Feb 2006 “Outpatient Design Mountain” |
<p>| <strong>Integrated Testing Infrastructure</strong> | Provision of a test system to systematically detect flaws that occur in interaction/information exchange between systems, as well as within a system. |
| <strong>JMLA Edited at EBL</strong> | Journal of the Medical Library Association editorial office moved to the Eskind Biomedical Library under direction of Nunzia Giuse. |
| <strong>Knowledge Map</strong> | Tool to help the learner assemble a curriculum. Multiphase project beginning with aggregation of all curricular content, mining the content to identify related concepts, providing a browser so that the learner can locate learning resources on demand, and establishing links from each curricular concept to information resources in the digital library to maintain currency. |
| <strong>Lab GGG Upgrade</strong> | Upgrade to GGG 5.34 or 5.4 |
| <strong>Lab Hemocare Replacement</strong> | Hemocare comes off of support 6/2007 |
| <strong>Lab Specimen Labeling</strong> | Project in support of the Safety and Quality initiatives for implementing a technology and workflow solution to address patient identification and lab specimen labeling. It is expected this project will involve a multi-year timeline and will require a significant effort in planning to ensure alignment with other major initiatives already planned for the same areas of the Medical Center. An initial pilot of key areas of opportunity is planned for FY06, with further rollout planned in remaining patient care areas in FY07. |</p>
<table>
<thead>
<tr>
<th><strong>Lab Workflow Automation Support</strong></th>
<th>Support for work process simplification in the labs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learning Portfolio</strong></td>
<td>Multiphase project beginning with aggregation of an electronic record of a learner’s experience, then assessing specific competencies.</td>
</tr>
<tr>
<td><strong>Medipac Replacement Decision</strong></td>
<td>We expect announcements related to the end of Medipac support in 2006-7.</td>
</tr>
<tr>
<td><strong>Meharry Management Contract</strong></td>
<td>Eskind Biomedical Library assumed responsibility for management of the Meharry Medical Library under contract. Gift of 1 mil obtained to support effort.</td>
</tr>
<tr>
<td><strong>MRB IV</strong></td>
<td>Medical Research Building IV</td>
</tr>
<tr>
<td><strong>MSN On-line</strong></td>
<td>School of Nursing graduates 1” class with on-line masters in 2004</td>
</tr>
<tr>
<td><strong>National Center for Biomedical Computing</strong></td>
<td>Grant proposal submitted to develop a center for pharmacoinformatics as a national resource - spanning basic computer science research, support for the new biology, and linkage of discovery into decision support. Proposed in partnership with CMU. Not funded. Portions resubmitted successfully as RO1s.</td>
</tr>
<tr>
<td><strong>One ID &amp; Password &amp; Decentralized Authorization</strong></td>
<td>See “Enterprise Authentication and Authorization”</td>
</tr>
<tr>
<td><strong>OR Instrument Tracking</strong></td>
<td>The new Censitract system to support Instrument-level and Tray-level tracking in the ORs. Replaced the GE tray-level tracking system. Goals are to address the number one quality issue identified by staff: missing instruments within a pan, as well as provide detailed productivity reporting, provide infection control recall and reduce instrument replacement cost.</td>
</tr>
<tr>
<td>ORMIS</td>
<td>Upgrade GE ORMIS (Operating Room Management Information System) to meet regulatory requirements</td>
</tr>
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</tr>
<tr>
<td>Outcome Registry Plan</td>
<td>Strategy to capture and aggregate categorical data compliance, accreditation, research and quality monitoring. Plan is a hybrid build and buy approach. VUMC data capture tools (Wiz, Star, Quill) are preferred in the care process for integration with data from other care processes. Vendor products are preferred for procedure data with automatic acquisition interfaces and submission of standard datasets. The Enterprise Data Warehouse is preferred for quality monitoring and research across sources.</td>
</tr>
</tbody>
</table>
| Outpatient Order Entry Plan | Strategy to support complete outpatient order entry with Medicare compliance, billing support, resident education and decision support.  
Part of Feb 2006 “Outpatient Design Mountain” |
| PathworX              | PathworX is a tool linking pathway management, standardized nursing documentation and variance tracking. This system will be replaced by PDF pathways, Wiz Order Sets, and charting in HED. |
| Patient Access to Studies Results | Provided in conjunction with MyHealthAtVanderbilt.com to allow patients direct access to results. Some are available immediately (such as Glucose), others after a delay to allow physician review and communication (such as x-rays), others never (such as HIV). |
| Patient Education Plan | Give patients information and tools to learn about their condition and participate in their care. |
| Patient Intake Plan    | Multiple methods to capture clinical information as patients enter in clinics, often currently in overlapping, duplicative manner. May include home entry, kiosks, etc.  
Part of Feb 2006 “Outpatient Design Mountain” |
| **Patient Throughput Plan** | Plan for addressing the requirements and technologies to track patients at all points in the patient care process, modeling the flow, and identifying emerging problems in advance, thereby improving patient access and throughput, length of stay.  
ED Simulation project (joint among ED, Finance & Informatics) is a step in this direction. |
<table>
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<tbody>
<tr>
<td><strong>Patient-to-Provider Messaging</strong></td>
<td>Provided in conjunction with <a href="http://MyHealthAtVanderbilt.com">MyHealthAtVanderbilt.com</a> to allow patients to communicate with their providers using secure messaging. The system utilizes the StarPanel message baskets and routes the patient messages to their provider’s Staff’s message basket within StarPanel and also stores the message in the patient's electronic medical record.</td>
</tr>
</tbody>
</table>
| **Perioperative Nurse Charting** | Tools are needed to support clinical documentation by nursing staff in the ORs to ensure accurate documentation of supply utilization, charging and billing compliance.  
Part of Feb 07 “Inpatient Design Mountain” |
| **Pharmacy Bar Code Medications** | Medications and other pharmacy prepared products must be bar-coded prior to distribution to pt units in preparation for closed-loop medication administration. There is a 6-9 month lead time for this project completion prior to implementing Closed-loop Medication Administration Online.  
Build versus buy decision. Increasingly, products will be tagged during manufacture. We need a capability in the pharmacy to tag products formulated or repackaged here. We can outsource the rest of tagging on either a short or long term basis to focus our attention on workflow optimization. |
### Pharmacy Horizon Meds Mngr
The McKesson Pharmacy system integrated with Wiz Order (and HEO) so that the pharmacy can electronically receive, verify, and send medication orders to automated dispensing and administration applications, eliminating the need for any manual transcription. It is integrated with First DataBank’s knowledge bases for compliance monitoring, drug-dose checking, patient consultations, allergy screening, drug-interaction screening, therapeutic duplication and drug-disease interactions.

### Pharmacy Robotics
Automated packaging and dispensing equipment for the pharmacy, with a goal of increased pharmacist efficiency. The robotic systems automate the storing, dispensing, returning, restocking and crediting of bar-coded, unit-dose inpatient medications. This is **not** a requirement to do bar-coded medication administration at the bedside.

### PHV Wiz
Wiz Order implementation in the Psychiatric Hospital at Vanderbilt.

### Physician Documentation Plan
Plan for the set of informatics tools to support all inpatient and outpatient documentation by physicians.

Part of Feb 2006 “Outpatient Design Mountain”

### Plan-of-care Across Continuum
We need a way of developing and maintaining an interdisciplinary plan-of-care for a patient across the inpatient and outpatient continuum.

ChemoWiz is a first step in this direction.

Part of Feb 2006 “Outpatient Design Mountain”

### Point-of-Care Testing Plan
A plan is required to address the workflow and technology challenges with point-of-care testing in intensive care units and the ED areas. The problem is assurance of quality and integration of results with information from the labs.

Part of Feb 2007 “Inpatient Design Mountain”
### Process Control White Boards

Quality Indicator Dashboard Group 2 - Specific to the process that results in an indicator. Presents each step that must be completed, its status, and a mechanism for entering the result of a step if not otherwise captured automatically.

Pilot with line management.

### Provider- to-Provider Messaging

Allows for secure messaging via StarPanel message baskets and a provider directory to replace utilization of email for communication between providers. This function will be used both for internal and external provider communication.

### Quality Design Shop

Develop the vision for Quality at VUMC. Elements include: measurement of clinical and process outcomes, accountability for targets, dashboards to assess progress toward targets, the right behaviors (Crew Resource Management and Elevate), the right tools (evidence based pathways and order-sets, real-time alerts to incipient problems), and the right process (root cause analysis and process improvement). Ultimate goal is proactive management to optimal outcome. Establish a process for agreeing on evidence based practice; updating pathways and order-sets to link those decisions into practice; feedback of threshold triggers and indicators of bad outcomes into the care process for proactive correction; modification of best practice based on experience.

### Quality Indicators Dashboard

**QIDB 1a** - static aggregation of the latest data that we have reported externally, a mixture of automatically aggregated and manually extracted data.

**QIDB 1b** – real-time aggregation of data we can obtain in a clean state automatically. It will be both a subset (excludes items sampled manually) and a superset (includes cases excluded from external reporting requirements to simplify comparisons).

**QIDB2s** - Process Control Whiteboards. Specific to the process that results in an indicator. Presents each step that must be completed, its status, and a mechanism for entering the result of a step if not otherwise captured automatically.

### Quality Metric Plan

Framework of dashboards to support quality analytics.
| QMI Replacement | The QMI fetal monitoring system used in L&D and the OBGYN clinics must be replaced. A new system is required to a) allow for consistency in documentation across the different obstetrics practices in the medical center and b) allow for integration with StarPanel and other documentation systems.  
Phase 1: Transition physician documentation to StarPanel (done Fall 2005)  
Phase 2: Determine best solution for stand-alone fetal tracking management  
Phase 3: Analyze gaps, implement in HED or Star as appropriate |
| Research Informatics Core Plan | Effort to establish a roadmap of areas of focus for informatics support of clinical, health services and population research. |
| Research Participant Tracking & Billing | Research participant Tracking is required to optimize the billing process for Clinical Trials at VUMC.  
Phase 1: Implement a charge scrubber to aid the billing team  
Phase 2: Decentralized maintenance of a roster of trial participants  
Phase 3: Support for billing rule development and maintenance with possible decentralization into the grant writing process  
Phase 4: Front-end decision support |
<p>| Residency Education Vision | Plan 1.5 day Design Session to develop a vision for the future approach to residency education. We will begin with a brief brainstorm of what residency education may look like in 10 years given the changes we anticipate toward systems of care and personalized medicine. Given that context, the group (largely VU with select national experts) will design strategies for dealing with the challenges of today (such as freeing up time for learning, documenting competency, handling transitions and handoffs). |
| Response Time Plan | Framework identifying the various cause of the system “slowing down the user.” Identifies immediate fixes (implemented in 2005) and future steps. |</p>
<table>
<thead>
<tr>
<th>RxStar</th>
<th>Outpatient prescription writer.</th>
</tr>
</thead>
</table>
| SEMIS Patient Transport | Installation of software designed to track the patient transport function. Will be used in conjunction with e-Bedboard to monitor bed cycle times and improve efficiency of patient discharge processes. The new software will also allow notification to Environmental Services to clean discharge and transfer rooms.  
Phase 1: Replace legacy system (done Fall 2005)  
Phase 2: Process improvement |
<p>| Simulation          | Use of simulation for learning, evaluation and demonstration of individual limits. Begins with OSLE standardized patients. |
| Star Technology License | Formation by Vanderbilt of Star Technology to commercialize StarPanel/StarChart. License of the technology from the university to Star Technology. |
| Staff Scheduling    | An automated staffing and scheduling system, Workbrain, is being implemented in Patient Care Services in support of nursing retention, satisfaction and patient safety. The plan is to have the ability to monitor patient census and match nurse staffing to meet the needs of the patient care units. The goal is to complete the rollout in Patient Care Services then plan for other areas in VUMC. |
| StarPanel Application Component Integration | Link applications such as the Horizon Clinical Suite (HEO/HED/Admin RX), OPOC, Quill &amp; StarRx into StarPanel to make them appear as an integrated application. |
| StarPanel Ophthalmology | Roll out of StarPanel to Ophthalmology |</p>
<table>
<thead>
<tr>
<th>Project Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>StarPanel Patient View</td>
<td>This feature was created as a &quot;condensed view&quot; of patient data for the inpatient setting. Patients View allows staff to see at a glance critical patient data utilizing Rounding View. The display can be based on a panel of patients or the inpatient census. It contains a user-customizable set of columns and actions.</td>
</tr>
<tr>
<td>Student Learning Portfolio</td>
<td>Tracking of the types and numbers of patients which a student has interacted with together with clinical notes. Training exercises are also tracked.</td>
</tr>
<tr>
<td>Supply Chain FY07 initiatives</td>
<td>Support for to be determined FY07 supply chain initiatives</td>
</tr>
<tr>
<td>Time and Attendance</td>
<td>This is the project to replace the Matrix Time and Attendance system with the new Kronos Time and Attendance system. It will be used by the Medical Center and portions of the University for time reporting for hourly employees.</td>
</tr>
<tr>
<td>Tissue Management</td>
<td>We need a strategy for managing and accessing banks of biological samples (human and animal)</td>
</tr>
<tr>
<td>User Interface Filters</td>
<td>Mechanism to filter information display in StarPanel by role and preference to avoid information overload. Part of Feb 2006 “Outpatient Design Mountain”</td>
</tr>
<tr>
<td>VSM 1-4 Curriculum Revision</td>
<td>Phased introduction of the revised School of Medicine curriculum that grew out of the Feb 2004 Education DesignShop.</td>
</tr>
<tr>
<td>Vigilance in ICU</td>
<td>The Vigilance system used in the Perioperative areas has potential benefit in the ICU setting for patient monitoring and coverage by the patient care team. Part of Feb 2007 “Inpatient Design Mountain”</td>
</tr>
</tbody>
</table>

*Progress Report July 2006 - Glossary – Page 17*
<table>
<thead>
<tr>
<th><strong>Whiteboard in Cancer Center</strong></th>
<th>Safe order entry needs the correct orders to be activated on the correct patient at the right time. In the inpatient environment, this is provided by hospital's ADT system. In the outpatient setting, there is currently no mechanism that tracks where a patient is actually located at any given time. Patients who have multiple appointments per day may have all their visits &quot;activated&quot; at the same time so it appears the patient is simultaneously at their cancer clinic visit, their infusion room visit, and a urology clinic visit. A whiteboard prototype has been developed and is being integrated into StarPanel.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Whiteboard Technical Framework</strong></td>
<td>Framework rationalizing the relationship among our various whiteboard tools including the ED white board, order tracker, PICU/NICU order and result notification, StarPanel preop checklist, and the new functionality developed for the cancer center.</td>
</tr>
<tr>
<td><strong>Wiz Go-Live in the CRC (Phase 1 Vanilla)</strong></td>
<td>&quot;Vanilla&quot; Wiz Order without protocol-based order sets in place is being implemented in the CRC as a Phase 1 plan. Subsequent phases to be determined as part of Research Participant Billing.</td>
</tr>
<tr>
<td><strong>Wiz in the OR Plan</strong></td>
<td>A plan is required to implement Wiz Order in the Operating Rooms. Part of Feb 2007 “Inpatient Design Mountain”</td>
</tr>
<tr>
<td><strong>Wiz Order-set Editor</strong></td>
<td>The new editor that uses the current Wiz Order client and servers to create and save the order-sets. There are additional tools that let the librarian/analyst see the changes made to the order-sets prior to activating the order-sets.</td>
</tr>
</tbody>
</table>