Where will hospital Biomedical / Clinical Engineering be in ten to fifteen years?
What will drive change in both Clinical Engineering and the vendor community?

- Financial Pressures
- The Electronic Health Record
- The Convergence of BME and IT
- An Aging Population
Hospital Finance 101

- Where does a hospital’s money come from?
  - Operations
  - Investments
Operations

- Over **HALF** of all hospitals did not make money on operations in 2006
- Uncompensated care is **UP**
- Occupancy is **DOWN**
Investment Income

Need I say more?
Consequences of a Shrinking Investment Portfolio

- Reduced investment income
- Impacted debt to equity ratio
- Impacted ability to go to the bond market for project financing
In 2007 the average hospital in CA lost 15% on their Medicare patients.

Commercial payers are carrying the weight. They will be under even more pressure to reduce their costs.
Will healthcare reform make it all better?

There are two general alternatives

- Add new money (Healthcare = 16% GDP today)
- Reallocate what you have.

First indications are for a decrease in payments and/or redesign of payment practices.
The Bottom Line: Hospitals will need to continue to focus on reducing their costs.
At the very least, hospitals will need to “Break Even” on …
So what will hospitals do?

Just cutting costs for materials and staff will not be enough.

Both those efforts and a redesign of What, Where, and How services are offered will need to take place.
Hospitals will need to break out of the maze and find new formats for delivery of care.

- Payment changes will drive “Best Practice”, which will impact utilization.
- Not for Profit / For Profit Partnerships
- Hospitals Will Abandon Selected Service Lines
Some Cost Reduction Strategies

- Capital Conservation
- Mine the Supply Chain
- Eliminate / Renegotiate Contracted Services
- Outsourcing
Capital Conservation

Capital programs are under review across the US. The majority of hospitals have all or part of their capital budgets on hold.

This year Capital Spending is projected to be down. National <7%> CA <15%>

Likely Result:

- Equipment will stay in service longer.
- Alternatives to capital purchases will be more common.
Supply Chain

- Value Analysis
- Aggregated Commodity Pricing
- Standardization
- Physician Preference Items
- Pharmacy Formulary Optimization
Value Analysis
(Value Management)

This is the Supply Chain process that is intended to

- Engage all impacted clinical stakeholders

- Identify opportunities to reduce costs by reducing the number of vendors of a particular product without compromising clinical quality
Aggregated Commodity Pricing

Some types of products have little clinical impact (pens / paper / forms / etc.)

These can be bundled together and “shopped” to firms that specialize in finding the low cost providers within specific quality parameters.
Contracted Services

Renegotiate to reduce cost by
- Changing Services / Coverage
- Changing Vendor

Or, in the case of equipment service agreements
- Eliminate the contract and go to time and materials support.
Outsourcing

In 2005 the top five outsourced departments (out of 5000 hospitals) were:

- Housekeeping: 2500
- Food Services: 2300
- Laundry: 2000
- A/R: 1200
- Clinical Eq Maint: 1000
Clinical Equipment Support
Outsourcing Trends

Outsourced
In House

2005
2006
2007

0
500
1000
1500
2000
2500
3000
3500
4000
4500

Year
Number of Units

Graph showing the outsourcing trends in clinical equipment support from 2005 to 2007, comparing outsourced and in-house support.
Why do hospitals outsource?

- Perceived Cost Savings
- Difficult to recruit trained staff
- Difficult to afford training for existing staff
- Lack of perceived value (Visibility)
- Not a core competency – a COMMODITY
What can you do about it?

A hospital’s core biomedical equipment support is most effectively delivered by in-house programs. Typically, it is the specialty services with high costs that are used to justify the outsourcing decision.

Therefore:

- Identify savings opportunities in the specialty services
- Drive the value proposition to the in-house program
The Electronic Health Record

How is it going to impact Clinical / Biomedical Engineering departments?
Outpatient EHRs are becoming more common. (They are selling them at Wal-Mart now.) However, an inpatient EHR is much more difficult.

- Complex workflows require precise definition
- Integration of “legacy” systems
- Integration of multiple patient data sources
- Cost (Time / Staff / Material)

The cost of implementing an EHR will drain resources from all other hospital activities.
Integration of Multiple Data Sources will Drive Standardization

- Minimize the number of device interfaces
- Simplify device support
- Reduce cost of equipment acquisition through volume
- Simplify training
Data Integrity

- No more paper! Electronic data flow is now the foundation of the medical record.
- Windows operating system too fragile
- Imbedded Real Time OS
- Rapid response required
- New support models needed
Convergence of BME and IT

- Historically,
  - Biomeds have taken care of stand alone monitoring networks
  - IT has taken care of computers, phones, and business applications
The Implications of Being on the Hospital Network

- When the monitoring and PACS data begin to move over the IT infrastructure questions emerge
  - Who does the clinical staff call?
  - Where does Biomed’s responsibility stop and IT’s begin?
  - How are hand offs made?
  - Who has the final responsibility?
Biomed’s View of IT Support

Biomed’s often portray IT as unresponsive to its customers (perhaps due to an overworked desktop support group in IT who justifiably does not provide immediate response)

However, once data integrity issues in the EHR become part of the hospital’s expectations, IT’s responsiveness must be as rapid as Biomed’s.
An Integrated Service Delivery Model Will Be Required!

All parties MUST work together for the support process to be successful.
Integrated Service Delivery

- Single Number for Staff To Call (Help Desk?)
- Defined Call Triage Process
- Defined Hand Offs
- Clear Call Ownership
Irrespective of organizational structure, a series of new concerns will emerge

- Increased sparing of critical components (faster repair / equipment standardization)
- Version control
- Spectrum management
- New device integration – “The I/O Lab”
The growing population of relatively healthy older individuals will drive changes in the healthcare delivery model used today.
Our Senior Population

In The Past
Our Senior Population

In The Past

Today
Demand Will Go Up & Site of Care Will Change

In addition to hospitals becoming focused on the very ill, many acute services will continue to move to new venues.

- Specialty surgical hospitals (short stay)
- More outpatient services
- Community clinics
- In home services
- Quality of Life services
Our Role In Hospitals

- Remote diagnostics
- High tech systems local diagnosis and module replacement
- Communications failure analysis (network)
- Standardized systems swap
- User training
- Little other repair (other than mechanical damage)
Our Role In Outpatient / Office Services

Complex technologies currently deployed in hospitals will be found in these venues resulting in service delivery beyond the hospital walls.
In-Home Services

Support for

- Telemedicine Support
- Internet Based Patient Monitoring
- Medical “Appliance” Swap
Quality of Life Services

Our Seniors will be more active and demand higher levels of care to support that lifestyle.

- Joint Repair
- Physical Therapy
- Mobile Physiological Monitoring
So What Does this Mean For Biomedical / Clinical Engineering?

- Aggressive Cost Management
- Equipment Standardization
- New Organizational Models
- New Service Delivery Venues / Strategies
Aggressive Cost Management

Aggressive cost management will be a fact of life. You will need to focus on:

- Total Cost of Ownership
- What are you doing that could be improved?
- How can you best use outside resources?
- How can you improve your visibility?
Aggressive Cost Management

Total Cost of Ownership

- What is your facility’s capital spend each year for all equipment (not just medical)?
- Understand the hospital’s total spend on equipment support not just in your department.
- Get copies of all outside service agreements.
Aggressive Cost Management

What can you improve?

- Is your staff’s real productivity high?
- Are you getting the best possible parts pricing?

What can you stop doing to...

- Internalize equipment support currently provided by external vendors
- Improve visibility / value to key departments through additional services
Aggressive Cost Management

Work with clinical staff to optimize the use of external service vendors

- Review service coverage.
- Evaluate alternate service vendors.
- Evaluate taking services in-house.
- Partner with service vendors.
- Establish a “Risk Pool”.
Aggressive Cost Management

Risk Pool Considerations

- Service Model
  Time & Materials

- Prime Candidates
  Mature Technologies (over five years old)
  Technology that has non OEM support options

- Starting Pool Size
  Greater than $500,000
Aggressive Cost Management

VISIBILITY

Lead! Don’t Follow!

“TELL THE WORLD YOU ARE DOING IT!”
Equipment Standardization

Actively engage in the hospital’s EHR and Materials Management’s efforts in standardization and Value Analysis to insure that

- Equipment support is an integral part of the selection process
- Support expectations and costs are clearly defined
What Will the New Organizational Models Look Like?

- Report through Facilities
What Will the New Organizational Models Look Like?

- Report through Facilities
- Report through IT
What Will the New Organizational Models Look Like?

- Report through Facilities
- Report through IT
- Report through Materials Management (Supply Chain)
What Will the New Organizational Models Look Like?

- Report through Facilities
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IT DOESN’T MATTER!
Then What Does Matter?

What does matter is who in your organization can best assist in your primary objective?

To facilitate the optimal (quality and cost) integration of technology into the patient care process.

- Selection / Standardization
- Procurement / Negotiation
- Support Infrastructure
New Service Delivery Venues /
Strategies

- Network support training
- Replace / Configure little repair below module level
- Integrated Service Delivery
- Off site support
- In home support
What Does this Mean for Vendors?

They can be viewed as an asset in responding to the cost reduction challenges by

- Empowering the Biomeds though new support options w / savings

- Supporting driving down commodity costs through aggregation of volume (vendor consolidation)

- Developing creative models that support a shared risk approach to introducing technologies (no capital investment / fee per use etc)
What Should Vendors Expect?

- Expect tighter access controls ("credentialing")

- Expect that there will be less tolerance for one off solutions...
  “Try to get one product in and convert the rest later (the key MD approach).”
What Does This Mean for ISOs?

This is a time of great opportunity for ISOs

- They can bring cost savings over OEMs as a “straight up” alternative.
- They can partner with in-house programs through training and first call programs.
What does this mean for people thinking of entering Biomedical / Clinical Engineering?

This field will continue to grow because the demand for healthcare will continue to grow.

- It will require people with
  - Strong general technical skills
  - Good interpersonal skills
  - Solid systems engineering and networking skills

- Remember, whether an in-house or outsourced support model is used, you still need people to get the job done.
In The Next Decade We Will See

- Continued focus on cost reduction
- Changes in healthcare financing will drive changes in the services offered by hospitals and how they partner to deliver them.
- Expanded telemedicine applications
- Equipment standardization will be the norm
- Integration of clinical data through networking will require an Integrated Service Delivery strategy
- Changes in where and how care is delivered due to an aging population
A Few Last Thoughts

&

Some Old Chinese Curses
“May you live in interesting times.”
“May you live in interesting times.”

“May you come to the attention of those in authority.”
“May you live in interesting times.”

“May you come to the attention of those in authority.”

“May you find what you are looking for.”
Thank You

and Best of Luck!