

# EMC: A Consultant's Perspective

---

MoHCA 2<sup>nd</sup> National Summit on EMC

March 26, 2003



# Conflicting and Competing Message

## VIEWPOINTS

### Electronic Magnetic Compatibility (Interference)



### Supporting Clinicians Through Automation



# Concerns on the Minds of Healthcare Professionals

- Wireless Network Hacking
- Confidentiality of Patient Data on Lost or Stolen Devices
- Small Form Factor
- Communication of Order Information in a Timely Manner
- Real Time vs. Synchronized Access
- How Many Devices Can We Support?
- Will We Require Usage?
- Incentives to Encourage Physicians Utilization
- Coordination Between Facility, Office and Home Systems
- Battery Life
- ROI

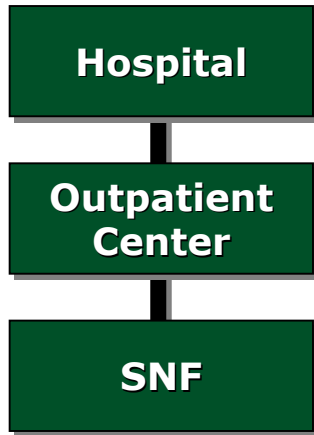
~ No Mention of INTERFERENCE ~

# Vision

To provide **access** to current and historical **clinical data** at any point along the **continuum of care**.

Develop an **electronic record** with supporting data repositories that can be used to **benefit** individual **patients** while collecting the necessary data to achieve **best practice** models, enhance **health outcomes**, and **reduce cost** of delivery.

# Simpler Times



- Patient Accounting/ADT
- Order Communications
- Departmental Systems

# Today's Complex Environment

Hospitals

Payor  
Organizations

Long Term  
Care

Physician  
Practice

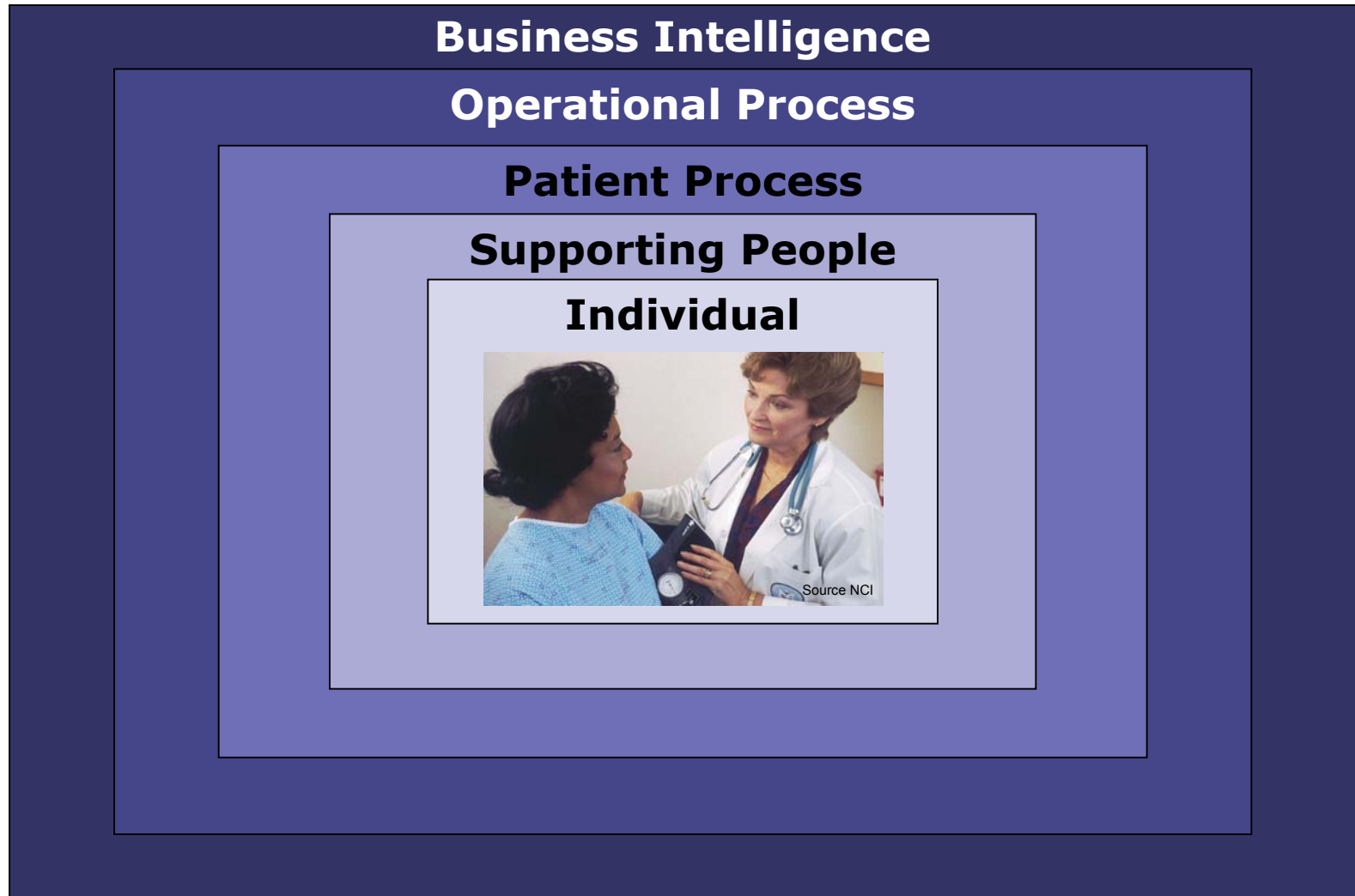
Outpatient  
Center

Ambulatory  
Setting

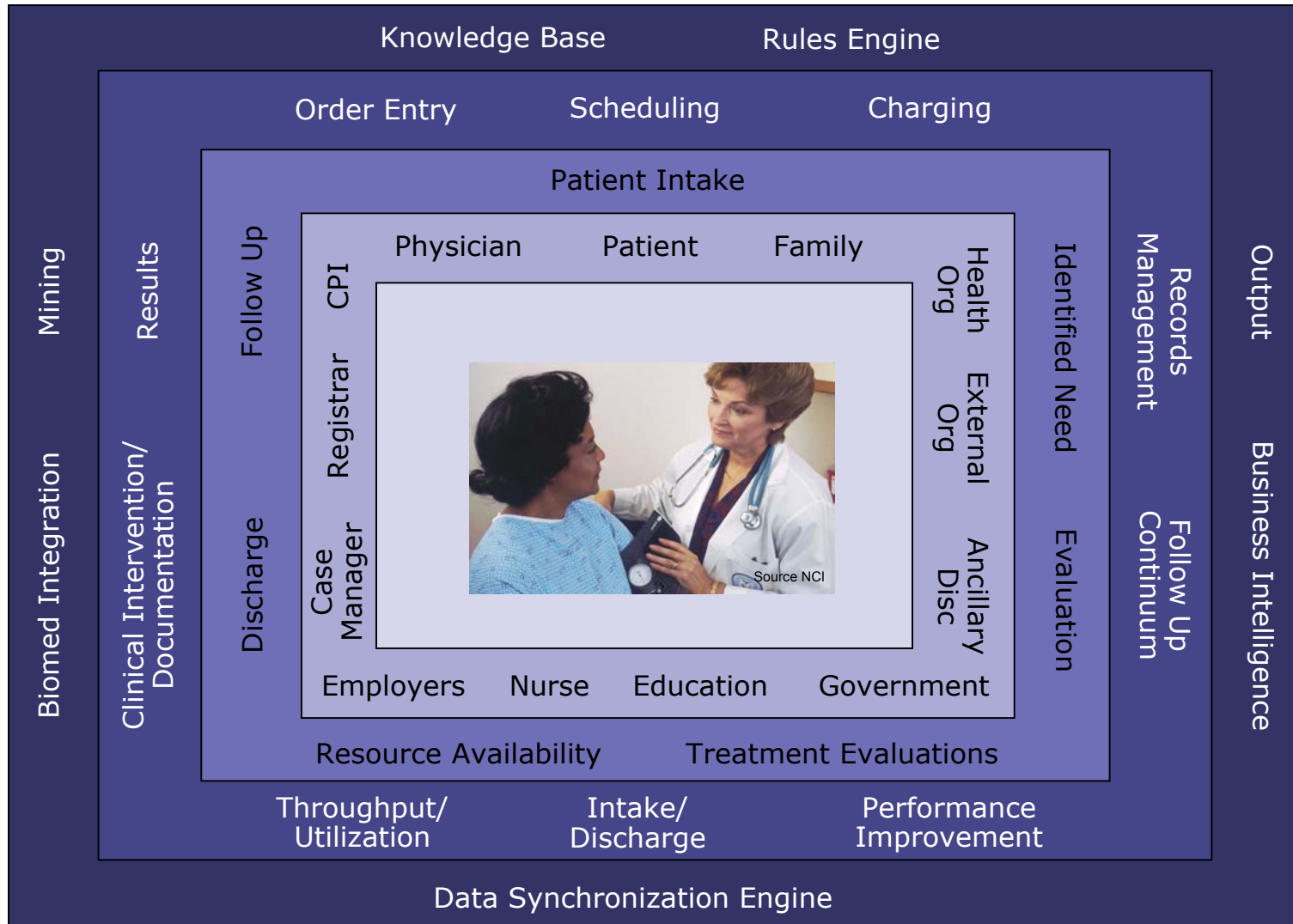
Home Health

- Enterprise MPI
- ADT/Patient Accounting
- Order Communications
- Advanced Clinical
- Clinical and Financial Repositories
- Electronic Medical Records
- Practice Management
- Rules Engines
- Databases
- Contract Management
- Managed Care
- Departmental Systems

# The Clinical Strategy Model



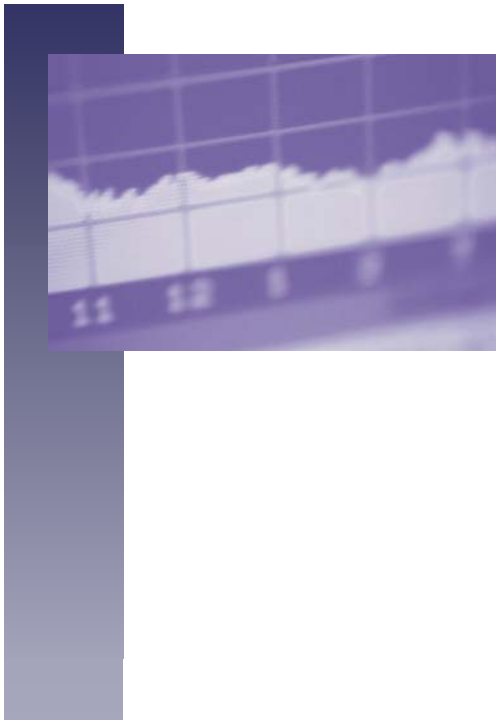
# The Clinical Strategy Model



Individual	Supporting People	Patient Process	Operational Process	Business Intelligence
------------	-------------------	-----------------	---------------------	-----------------------

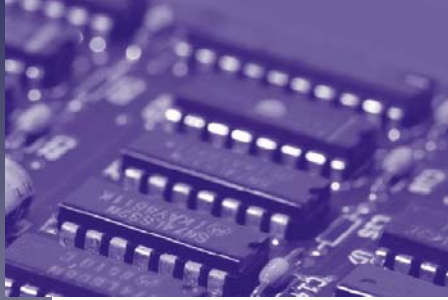


# Industry – Complicating Factors



- Evolving Delivery Models
- Profit vs. Non-Profit
- Cost Justification (ROI)
- Data Ownership
- Security
- Disaster Recovery
- Paperless Environment

# Technical – Complicating Factors



- Operating Systems
- Platforms
- PC/Peripheral Devices
- Databases
- Integration
- Infrastructure
- Intranet, Internet

## Newest Complicating Factor

- Convergence of BioMed and IT

# Clinical Decision Making

## Before

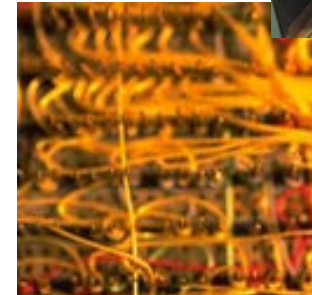
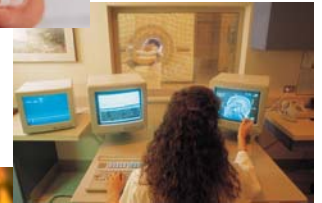
- RN remembers to call, then calls, calls..
- Dr. comes to hospital
- Dr. walks to floor
- Dr. attempts to find chart
- Dr. rounds
- Dr. makes appropriate clinical decisions



# Clinical Decision Making

## After

- RN electronically alerted to issue
- Automatic page sent to Dr.
- Dr. reviews information on-line from home
- Dr.'s PDA updated upon entering hospital
- Dr. reviews information while rounding
- Dr. orders on-line, at bedside through wireless network
- Dr. alerted to allergies, etc.



# Improving Clinician Decision Making

- Decision making in real time, in multiple places:
  - Timely information
  - What the Doctor wants when they want it
  - More information
- Providing secured information in more places:
  - In the office, at home, on PDAs
- Providing support / assistance in decision making



# Medical Administration Record


before

Flagyl 500mg q8h	IV	06	14	22	06	14	AP	E	0604	E								
Clafam 2.0g q8h	IV	06	14	22	06	14	AP	E	0604	E								
Solumedrol 30mg q12h	IV			09	21		09	AP	E	E							11AS	21 9m
Flonast 1 puff BID	R	T								R30								
Acetazolamide 1.25g q4h	R	T							0400E 1200	0700		0000	0600	1200	1800	0600	1200	1800
Xopenex 2 atomol	R	T							0700			0000	0600	1200	1800	0600	1200	1800
acetazolamide 2ml elixir q8h	R	T							2400E 0315	0700		0300	0700	1100	1500	1900	2300	0600
MDE 11	R	T							0711	0700		1930	0000	0600	1200	1800	0600	1200
Servant BID	R	T										0000	0600	1200	1800	0600	1200	1800
Trach care c	T	OP	06	14	22	06	14	AP	E	E								
Vancomycin 750mg q12h	IV				18													
Lasex 30mg q8h	IV				06													
Vanco 750mg q12h	IV				18													

after

NOVOLIN R U-100 NOVOLIN R U-100 *Q6H DAILY ROUTINE # 255 NURVERIF BY: TBW9DO ON: 03/04	0600DMOEB4	0600NUR026 HIST D=8 UNITS SITE=L20 M=BG=255 1200TWH524	0600JCO39A
INSULIN SLIDING SCALE - SEE DETAILS EVERY 6 HOURS IF BG 0-180 = 0 U 181-230 = 4 U 231-270 = 8 U 271-300 = 12 U >300 = 14 U USE FOR - HUMULIN R 03/04 12:00 TO /	1200AAVC24 D=12U SITE=R20 M=BG=300 CID=TBW9DO 1800MVC204 D=8U SITE=L3 M=BG=231 CID=TBW9DO 2400NUR026 D=12UNITS SITE=R20 M=BG=296	CID=MMVD54 *1800MMVD54	2400JCO39A
ACETAZOLAMIDE 500 MG IV ONCE ROUTINE # 271 NURVERIF BY: TBW9DO ON: 03/05	1130TBW9DO		
LAST DOSE OF 3 DOSES 03/05 11:30 TO 03/05 11:30			
Sites: 1-Hand 2-Forearm 3-Upper Arm 4-Antecubital	5-Subclavian 6-Chest 7-Jugular 8-Femoral Artery	9-Femoral Vein 10-Radial 11-Scalp 12-Umbilical	13-Foot 20-Abdomen 21-Buttocks 22-Anterior Thigh
Ports: A-Peripheral B-Central Ven Cath	C-Proximal D-Medial	E-Distal F-Sideport	G-Arterial H-Venous
	I=Access Needle J=PICC	K=Foley Cath Z=(Other)	
			*DISC* - D/C * - NOT ADMIN

# Clinician's Access to Paper Record

- 
- Attending Physician
  - Nursing
  - Consulting Physician(s)
  - Respiratory Care
  - Case Management
  - Nutritional Services
  - Risk Management
  - IV Team
  - Patient Financial Services
  - Infection Control
  - Wound Management
  - Pastoral Care
  - Clinical Process Improvement
  - Cardiology
  - PT/OT/Speech
  - Others



## PATIENT CHART

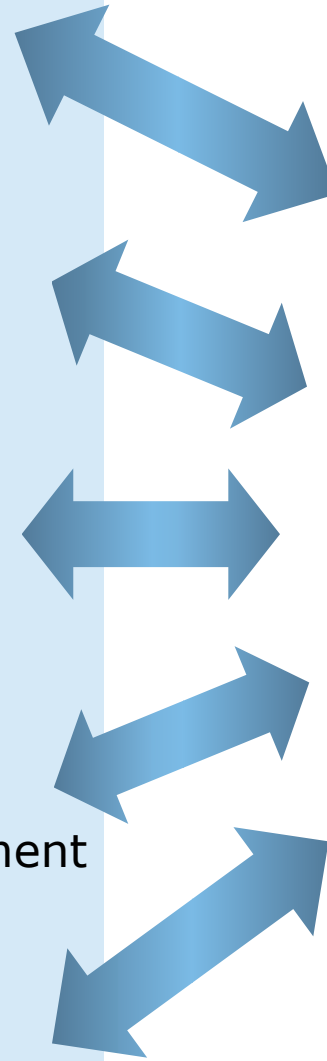


### BARRIERS

- Record must be on unit
- All clinicians and support personnel must walk to location of chart
- One person can access the chart at a time
- Legibility of chart input
- Timely filing of data results into chart
- Finding clipboard for most current information
- MAR at different location
- Redundant information

# Clinician's Access to Online Record

- 
- Attending Physician
  - Nursing
  - Consulting Physician(s)
  - Respiratory Care
  - Case Management
  - Nutritional Services
  - Risk Management
  - IV Team
  - Patient Financial Services
  - Infection Control
  - Wound Management
  - Pastoral Care
  - Clinical Process Improvement
  - Cardiology
  - PT/OT/Speech
  - Others



## ELECTRONIC PATIENT DATA

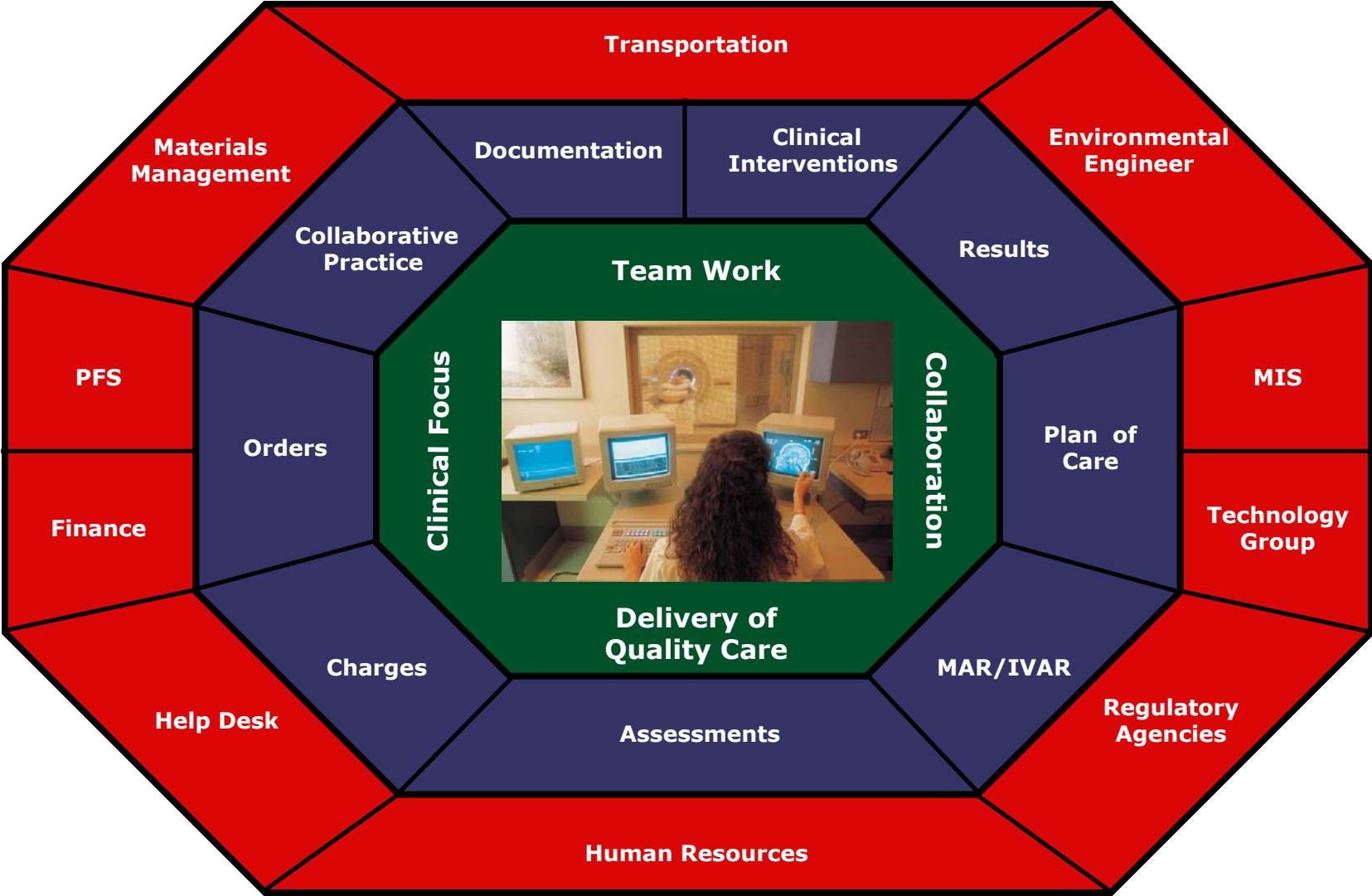


### **BARRIERS:**

- System availability
- User acceptance



# Wireless Challenges



# Living in a Wireless World

## Does Your Vision...

- **Link** wireless technologies to goals and objectives?
- Consider industry **initiatives** and trends?
- Set **direction** and standards?
- Provide a **framework** for technology expansion?
- Address the changing **workforce** requirements?
- Address emerging **consumerism** in healthcare?

# Living in a Wireless World

**“Start small. Learn. Measure the risks.  
Ensure there’s a business benefit.**

**Then go.”**



*~CIO, Wireless: A CIO  
Special Report,  
March 15, 2001*

# Conclusions

- **Heighten** Awareness of EMC (Research, Promotion)
- **Provide** Concrete, Actionable Data (Standards)
- **Unite** IT and Bio-Medical Disciplines Around This Topic
- **Educate**, Educate, Educate