IPRO 372 Spring 2004

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Medical Informatics:

Better Tools, Better Care?

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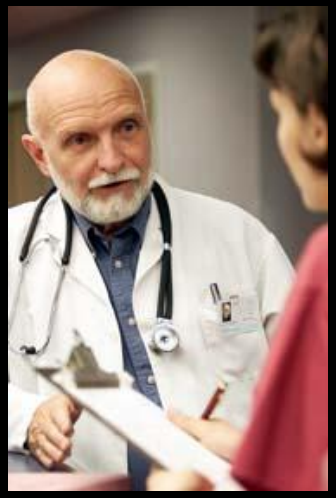
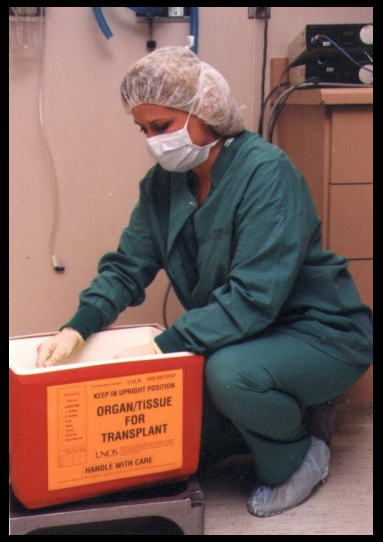
What is Medical Informatics?

Software and hardware solutions that automate the organization, management and application of health care information.

Who uses automated tools?





Why is Medical Informatics relevant to practitioners?

IT tools are intended to improve the speed and accuracy of communication amongst practitioners.

Why is Medical Informatics relevant to patients?

It is estimated that between 44,000 and 98,000 hospital deaths occur yearly due to medical errors.

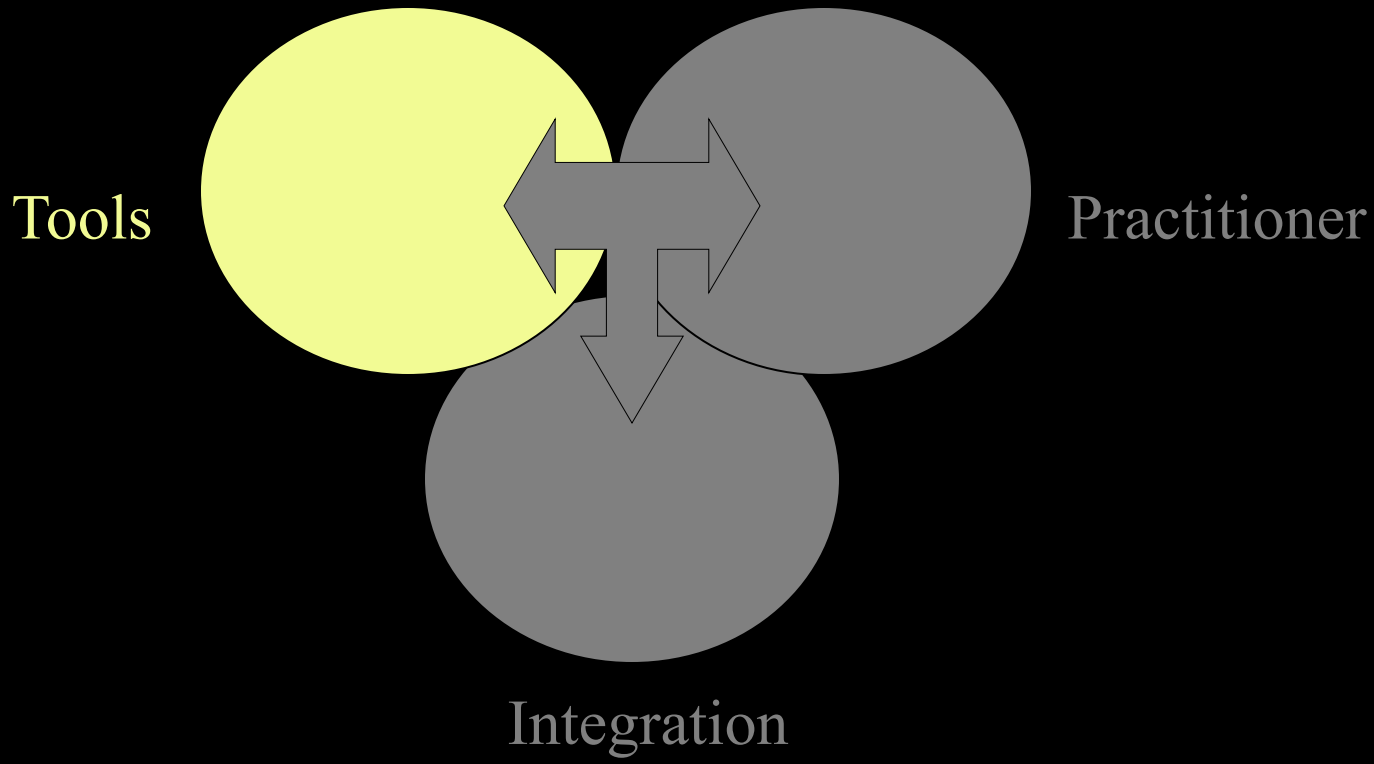
(Institute of Medicine)

Our team conducted **primary** and **secondary** research to learn more about what role Medical Informatics plays in the daily work lives of medical practitioners.

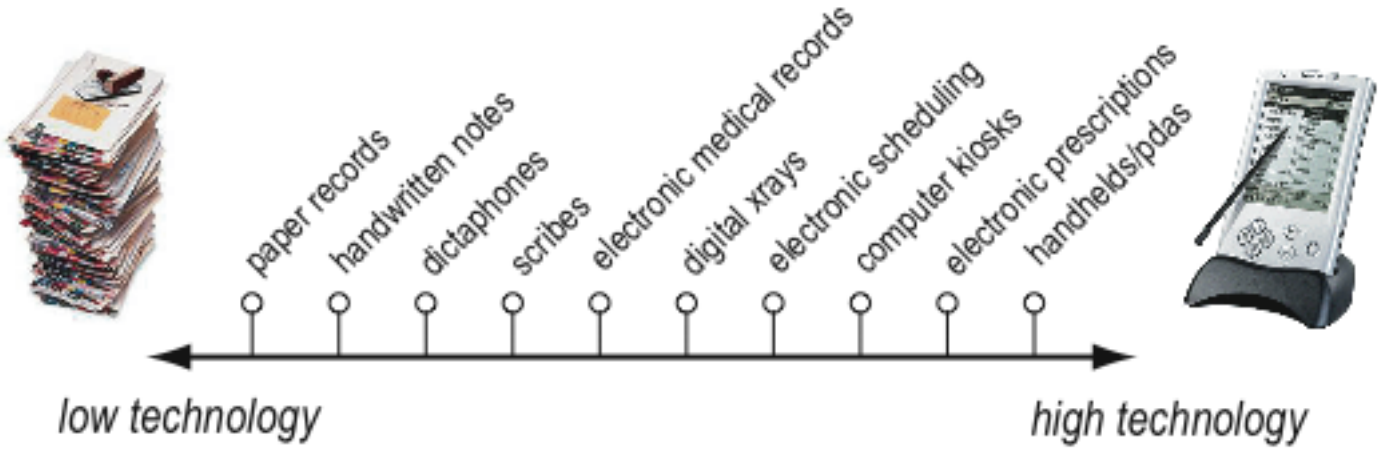
The team performed ten interviews at seven hospitals in the greater Chicago area.

- Methodist Hospital of Chicago
- Saint Joseph Hospital
- Cook County Hospital
- Rush University Medical Center
- University of Chicago Hospital
- Northwestern Memorial Hospital
- VA West Side Medical Center

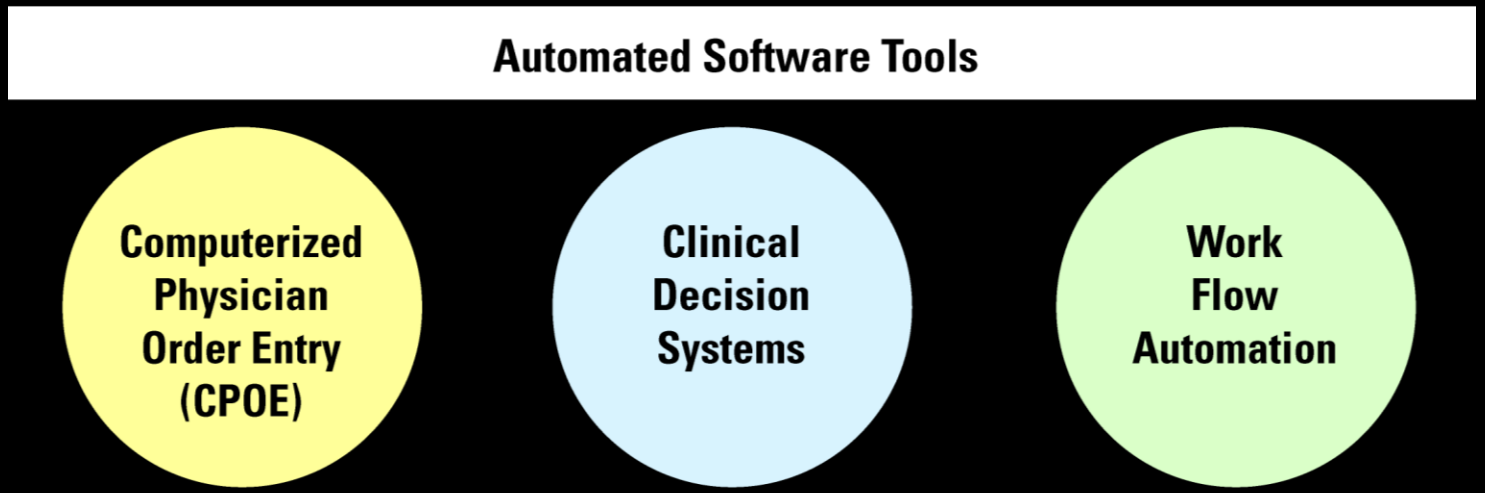
But the question is, how successful are they?


Tools
Practitioner
Integration

We discovered a continuum of tools and technology exists in medical care environments today.



The majority of tools fall into the following three categories:

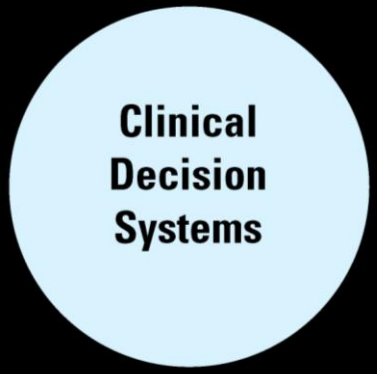


Benefits and disadvantages

PROS:
Avoids a strictly paper based system

CONS:
May hamper clinician thought processes and foster inefficiency as the systems require large amount of clerical work, and may be inflexible in the implementation

Benefits and disadvantages

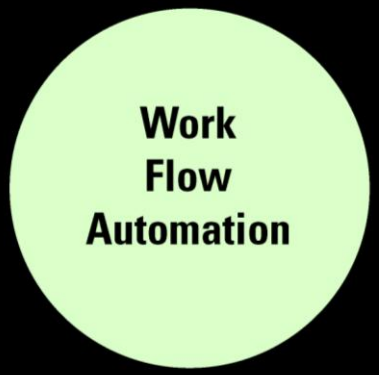


PROS:
Expert system for medical nomenclature and EMRs facilitates standardization and streamlining of health care practices

CONS:
Achieving meaningful action through preset rules and formulas is dubious

Over-reliance on decision support in providing clinical direction is dangerous

Benefits and disadvantages



PROS:
Automation benefits can make systems run simpler and smoother for stake holders

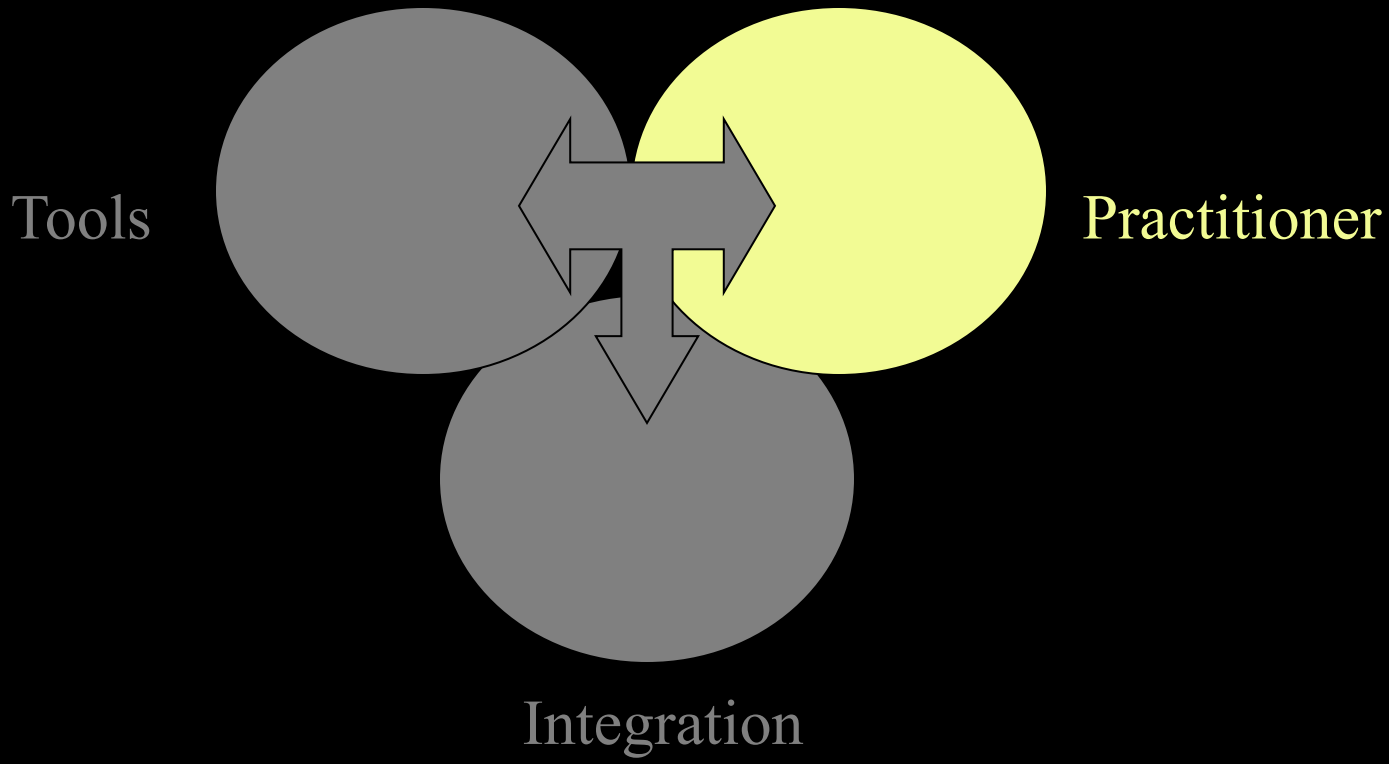
CONS:
May introduce assumptions in which information transfer replaces communication

Sometimes tools can foster errors

- Communication and Coordination Errors
- Informational Errors

How can Systems Developers better serve practitioners?

- Get practitioners involved
- Utilize software development best practices
- Find problems and fix them early


Tools
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We asked practitioners about their impressions and experiences with automated tools:

On the *UP* side:

Comprehensive documentation

More flexibility

Fewer medical errors

Improved efficiency

Increased access to data

Improved sharing of patient information

On the *DOWN* side:

Creates technological dependency

Unplanned redundancy

Difficult-to-use interface

Different levels of training

On the ***UP*** side:

"Everyone's on the same page. **Better documentation**. You can do cross checks - check to see why something wasn't done. If it was entered here by this person we can find out why it wasn't done. This leads to **fewer medical errors** and mistreatments. It also **helps efficiency** and human resources. For example, I can see that I need more people over here than I need over there. The new systems make people a little **more flexible**."

(An attending MICU physician at a major teaching hospital)

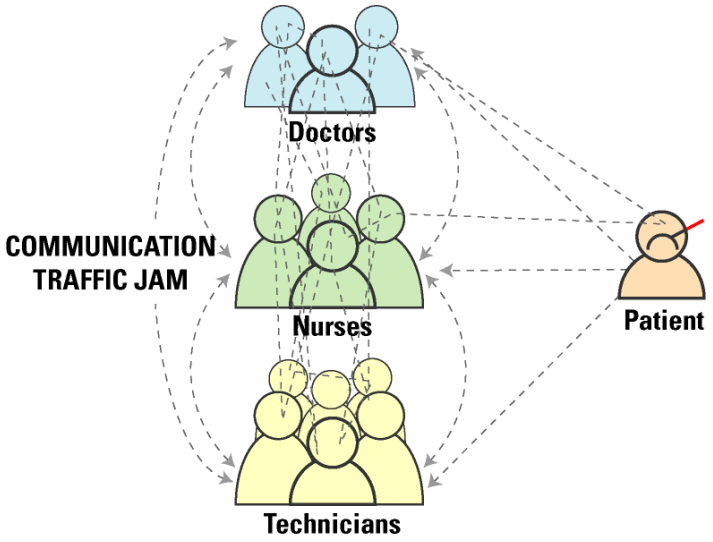
On the ***DOWN*** side:

"You are **absolutely dependent on the technology**, so if the server goes down, or power goes down, or some disaster like that; well in the old days, if I had the x-ray in my hand, then I really had it in my hand."

(A respiratory and intensive care physician at a major public hospital)

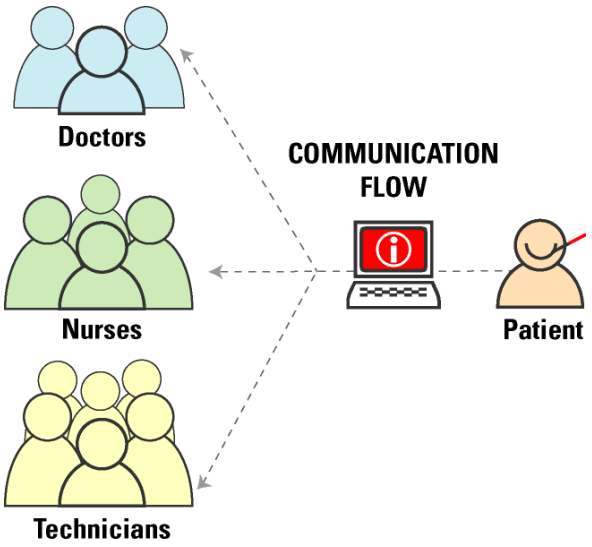
The most common and expedient way to communicate is using face-to-face verbal conversation.

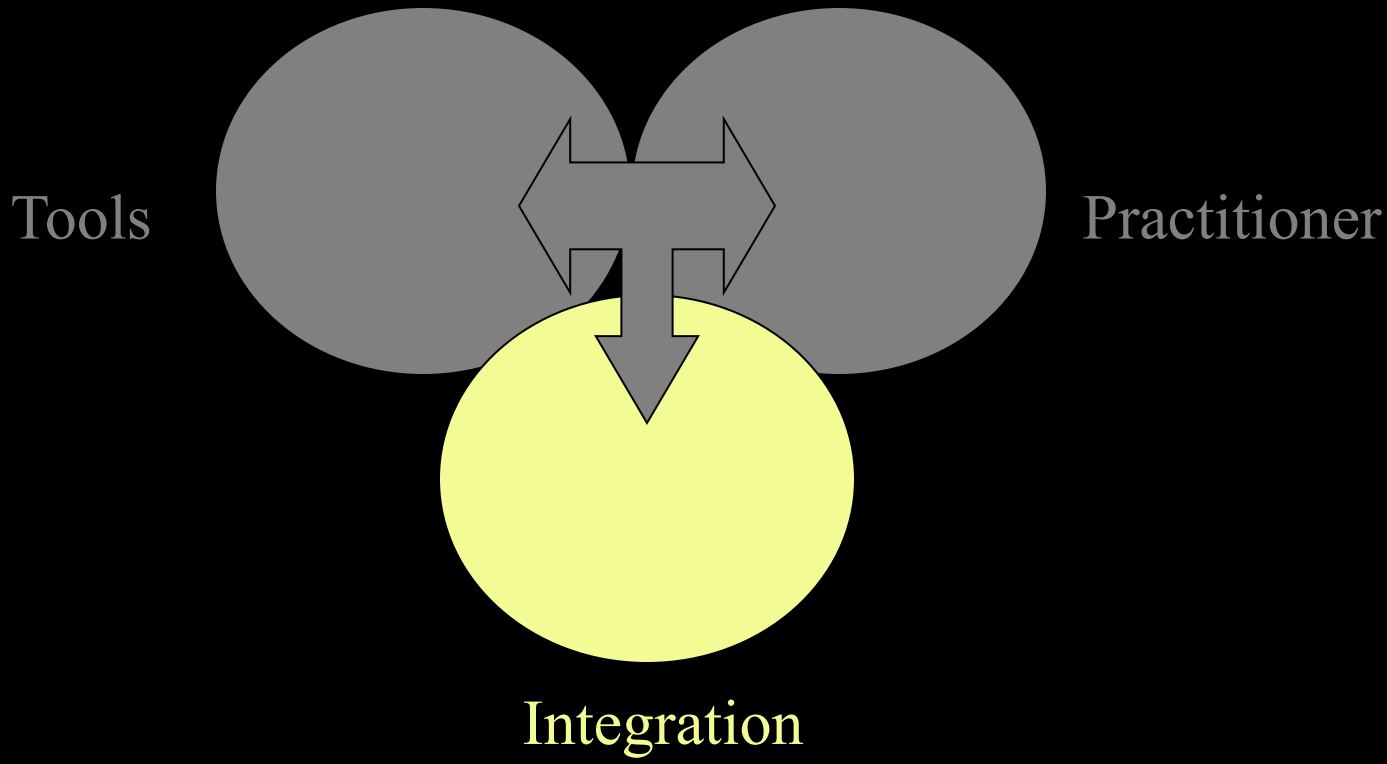
Information between practitioners is commonly transferred during patient consultations and shift changes, and it's reliant on many people sharing verbal communication.



New tools must capture and facilitate these informal conversations between practitioners and the patient.

In this way, new IT tools could improve the communication "traffic jam."




Tools
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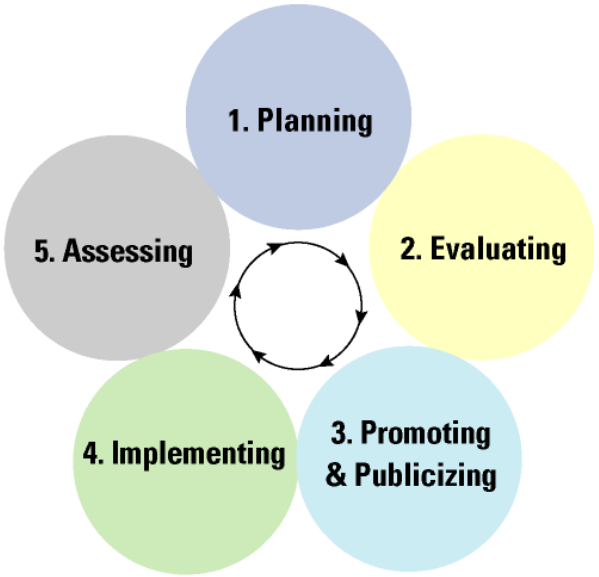
The success of new IT systems rely on following each of these steps:

The IT implementation process is continuous within the workplace as new tools promise improved results.



Users' needs should be continuously evaluated and considered.

Successful IT Implementation Criteria
User-Friendly
Efficient
Flexible
Accessible
Reliable

Recommendations and Insights

Be aware of different scenarios of use, as well as select systems that allow for flexibility to compensate for everyday challenges

Understand that the ideal system could be a hybrid of different communication tools, including a mixture of paper forms and software tools

Recognize that practitioners have different levels of technological aptitude and resources

Recommendations and Insights Continued

Understand that working with IT tools often requires a change in work habits which can be disruptive.

Keep in mind that developers and practitioners should work together to minimize the negative impact of technology tools on the "sharp end".

Thank you.

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