Positive patient identification

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Identifying the patient

The single biggest unsolved problem in medical informatics

Our most egregious shortcoming in laboratory medicine

One that, for decades, we have known how to solve

Important issues in laboratory informatics: whose point of view?

- The experts: unfortunately, professional societies have neglected patient identification

- The patient: but who would ask the patient?

- The leaders of our Health System: what they don't know can hurt them...

The patient's request: keep me safe

- When you are diagnosing and treating me, make SURE that you do it on a specimen that actually belongs to me

- We wouldn't buy a car without brakes - why do we think it's OK to use crude manual identification tools, that permit gross misidentification?

Three stages of identification

1. Consistent identity as the patient presents

2. Linking any specimen - or therapy - to that patient

3. Tracking identified specimens throughout the system

Implications of misidentification

- Liability exposure

- Ignoring a moral imperative

"of course we run tests on the right specimen"

- Our staff is very careful !

- We double-check all our work

- We check two identifiers (the JCAHO fallacy)

- We don't know about misidentifications - so they must not happen

Is this your hospital's view of patient identification?

Patients and specimens are mis-identified

- We don't have good measures
- Blood banking studies suggest that about 1 specimen per 1000 is drawn from the wrong patient.
- Most of us expect that the rate for non-blood bank specimens is much higher
- Estimates as bad as 3%, as "good" as 1 per thousand
- Has your hospital measured your rate?
- Delta checks - significant underdetection

Other consequences of failing to identify our patients accurately

Medical - Treatment based on someone else's results

- Incorrect/incompatible transfusions
  - Incorrect procedures
  - Delayed/wrong therapies
  - Misplaced diagnosis: malignancy, HIV
  - Longer length of stay, higher costs
  - Breach of patient-provider relationship/trust
  - Adverse, sometimes fatal outcomes

Legal

how much money would a jury award? (do they get a chance?)

Public relations

How does the organization suffer from a patient misidentification?

Wasted time to investigate the problem

Wasted time and materials to repeat testing

Inaccurate billing

Inaccurate patient medical record

Malpractice settlements

The merge: consequence of patient misidentification

- Merge miasma - the necessity to merge different patient records, without knowing if they are really the same person.

- Oops .... then we must un-merge - if we can

A technological
chain of custody for all of
healthcare, including
pathology and laboratory
medicine
is *now feasible*

This chain of custody will prevent almost all misidentification errors

Cost-justification of patient identification: An oxymoron

● "Cost-justification" of systems to accurately identify patients? Do we ask that seat belts or brakes be cost-justified?

● Instead, consider the legal, moral, and public relations consequences of diagnosing the wrong specimen, treating the wrong patient, or taking action based on the wrong blood in tube

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Three stages to secure identification

1. Secure registration
   a. Establishing a record
   b. Linking to that record on each encounter
2. Assured linkage of patient identification to every diagnostic specimen and therapeutic event
3. Unbroken robust tracking of specimens from collection through result (a-CP, b-AP)

Stage 1

Registering the patient

Registration in your hospital

How do you know who the patient is when they walk through the door?

Ask name, date of birth, address, etc...

Driver's license, other photo ID

Patient ID card

Risks of this approach

We in the laboratory need to get involved, even if we haven't
traditionally participated in this activity.

Linking a patient with previous encounters

- Patient ID card – but do they bring it?
- The master patient index
  - Gather all kinds of data about a patient – name, birthdate, mother's maiden name,
  - The most effective systems – many more data elements
  - Who runs these? Admitting and I/T
  - Who builds them: Sometimes, the pathologist
    - Dr. Ken Bloom, built Initiate Systems while junior faculty at Rush – now Med Director of Clarient
  - The weakness – depends on data supplied by the patient
  - In 2012, this is an obsolete and dangerous concept

Outpatients

Even more difficult to identify than for patients being admitted

Generally don't have as much time available to quiz them about their third cousin's favorite color

Higher risk

- Siblings, twins - especially if simultaneous appointments
- Unconscious patient
- Common names - but what is a common name? In some localities, Shisnetkski may be more common than Smith
- Look alike, sound alike names
   - Ann E vs. Annie
- Nicknames

Sometimes the patient WANTS to be mistaken for somebody else

- I'm using my brother's Medicaid card because I don't have health coverage

What about name and DOB?

Case Study: Harris County Hospital District

Number of patients in the Harris County Hospital District's database: **3,428,925**

Number of times when two or more patients share the same last and first names: **249,213**

Number of times when five or more patients share the same last and first names: **76,354**

Number of times when two or more patients share the same last and first names, and date of birth: **69,807**

Number of patients named Maria Garcia: **2,488**

Number of Maria Garcia's with the same DOB: **231**

Text-based identification
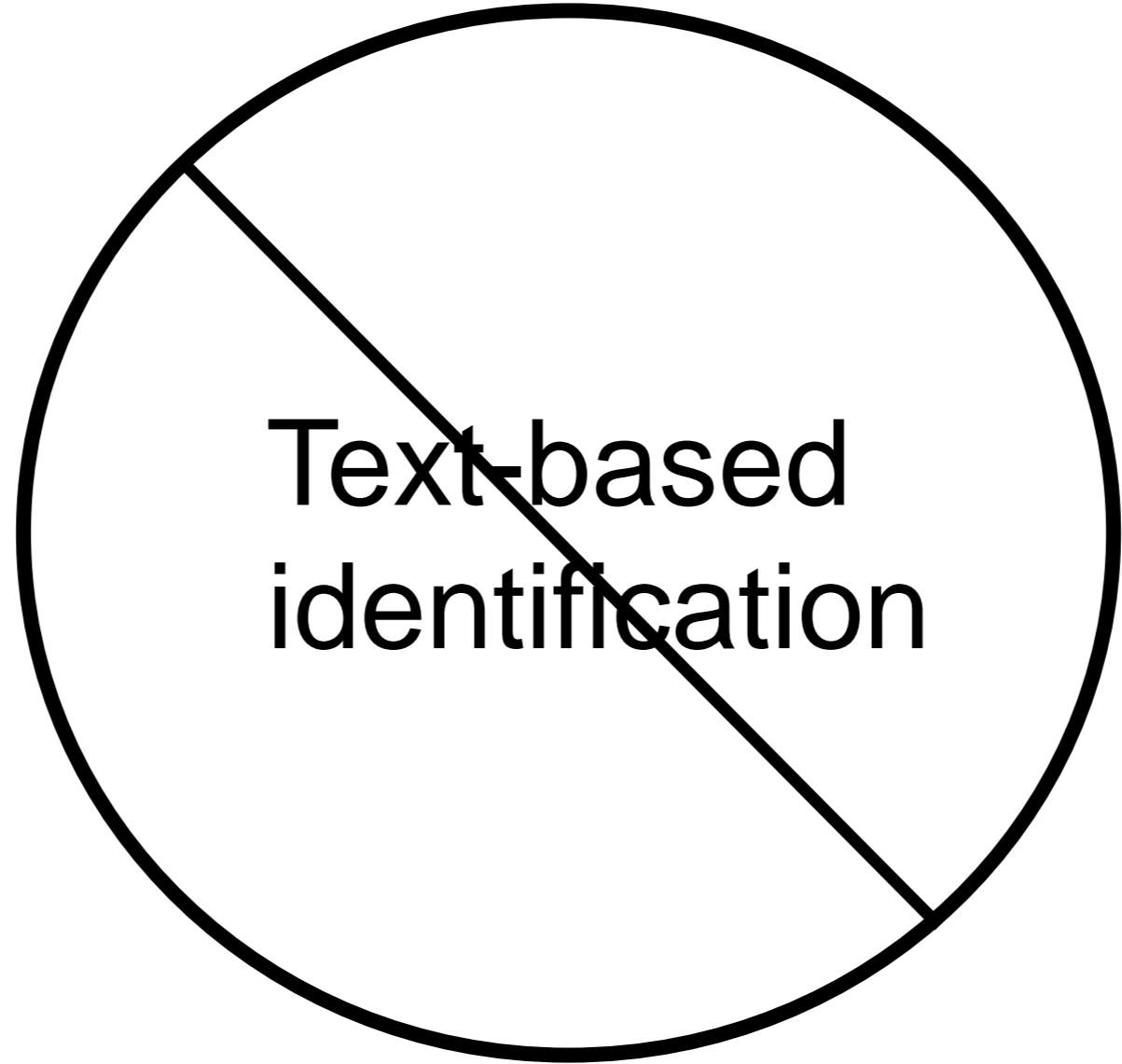
Secure registration

- Text identifiers, such as name, birthdate, etc, are inadequate

    How many Maria Gonzalez's with the same birthdate do you have in your database?
  Would you detect Joe, who uses brother Sam's driver's license, because Joe doesn't have insurance (Sam does)?

- Biometrics (unique body characteristics) are essential
  Over 150 hospitals around US have already adopted biometrics for patient registration

Getting data that will allow us to reliably recognize the patient the next time they appear…

- Biometrics – a body characteristic that allows one to uniquely identify an individual
- Typically can be distinguished at a 1 in a million or better accuracy

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Biometrics: there are dozens

- Fingerprint
- Iris pattern
- Palm vein
- Finger vein
- Hand configuration (US-Canadian border, 1999)
- Face
- Voice
- Shape of the cardiac electrical signal
- Not feasible - retinal vein
- Behavioral: typing rhythm, signature tempo
- Not biometric: DNA, implantable chip

biometric tools
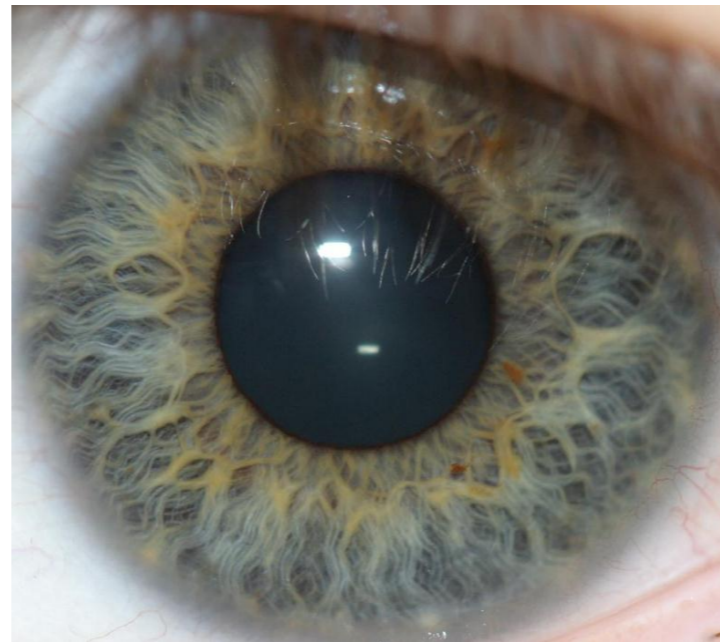
These, and several others

Palm Vein Technology

Visible light

Near-infrared light

Extracted vein pattern

Biometrics not a panacea

- Require special equipment – cost, logistics
- Psychological/sociological – unpleasant connotations of fingerprinting
  - Counterexamples – e.g., 24 hour fitness
- Some biometrics may not work well in certain populations – e.g., fingerprints in newborns, and in some of Asian descent, palm vein if less than 5 years old
- How reliable are they? Can they fail to identify, or mis-identify?

Strengths of biometrics

- Ability to reliably discriminate among millions of people
- Don't require patient to remember several surrogate identifiers
- Safeguards against intentional misidentification
- Will not change, cannot be impersonated, will remain with the patient over years.
- Many technical and sociological challenges, but biometrics still the best technological solution

Recommended configuration for use of biometrics

- Provide brief identifier (e.g., birthdate), then identifies with biometric
- Patient pre-identifies themselves with an ID card, confirms with one – or two – biometrics (e.g., fingerprint plus palm vein)
- If no ID card available, clerk asks legacy identifiers, such as name and birthdate, then biometrics are used to confirm the identification
  - A new ID card is generated, to provide for an identifying token for the next encounter

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Why slow to deploy?

- Focus has been elsewhere in the health system - admitting, finance

- Biometric tie in to LIS - software integration required

- Scanner locations required for lab use differ from primary registration locations
  - Draw stations
  - Physician's offices who are sending work

An example: palm vein

- In active use at over 30 health systems
- Most: patient registration area, physician's offices
- Some: outpatient laboratory, draw stations
  BayCare Health Systems, Tampa
  University of Wisconsin
  Harris County Health
- Expanding to: outside physician's practices that refer specimens

Health information exchanges

Biometrics can be used to tie together patient identity among several disparate health systems:

Michigan Health Information Network - all practices in Michigan will have access to a common identifier

Skeptical patients ?

- In most health systems, less than 1%

  Provide a brochure explaining how the scan will improve care of the patient.

  - Registrars apply subtle persuasion – "why aren't you registered in the biometric system?"

  - Some have proposed that those who refuse be asked to sign a waiver, confirming that they understand they are placing themselves at higher risk of adverse consequences

Other biometrics

- Iris, finger vein, fingerprint, …
- Equipment/software for each of these has been exhibited at HIMSS over the years
- However, I am not aware of deployment for patient identification
- Fingerprint has been implemented for donor identification in 4 blood centers, by BioKey
- Some biometrics (fingerprint) associated with higher rates of skepticism than others (palm vein)

Biometrics AND barcode

Biometrics do not supercede the use of barcode

1a. Biometrics for primary patient ID

1b. Then apply a token (barcode wristband)

2. Barcode used to identify the patient during the duration of the encounter (e.g., hospitalization)

Implantable Radio Frequency ID chip - is this an alternative to biometrics?

- NOT likely to be accepted

- Less secure than biometrics

    (chip can be moved from one individual to another)

        - Not recommended

Phase 2

For every intervention during the encounter,

- Positively identify the patient

- Securely/electronically link them to any specimen

Biometrics - For one activity or procedure

- We have described a strategy for a patient encounter involving only one caregiver, or for the beginning of a longer patient encounter
- What should one do for an encounter that will extend over more than one caregiver, for a longer time, or for a few days (e.g., a hospitalization)?

Two approaches for stage 2 ID during a longer/more complex encounter

1. Use biometrics for every contact/procedure
2. At the time of initial identification, securely apply a "token" and use that for identification throughout the encounter/hospitalization

- Commonly used tokens:
  - -- Barcoded wristband
  - -- Radiofrequency ID wristband
  - -- Can be applied to wrist, or ankle

a token for in-visit identification

- Once the patient has been positively identified with biometrics (stage 1a), apply an identification token (stage 1b)
  - barcoded wristband
  - radiofrequency ID wristband
  - use waistband for neonates
  - must be attached to the patient – not just nearby

- Use of this token is *required* on every diagnostic or therapeutic encounter during this visit

Murphy in action …

- If wrist bands are not securely attached, certain patients will attempt to remove them and trade them with other patients
  - Hypothesis: maybe I can get more drugs

- Any human activity or mechanical process has an error rate – but the error rate of the process we've just described is WAY lower than what we have today….

But what if we do it the old fashioned way?

- Human double check of patient ID – JCAHO considers this "confirmation" !!

- Very few hospitals have measured the rate of specimens drawn from the wrong patient – even fewer have published those results

- Most places have attitude "we don't have a problem with incorrect patient/specimen ID" – simply because they have never measured.

Batch Form...

Spec
Type
EPLAS

SPOT
CTAQ1

LOPEZ,FELICIANO GONZ

125547
25547
5548
5548
549
549
565

62144

Patient
Name
ZZZ-TEST, ADRIENNE

100200
ABDC

IB,SAZMEEN   2025598   MLK   24

W115A
L219000117
MYER,LAB1
03/16/2011 1610
MG2.1

Acc #
Name:

CID
L219133920 W297611

Preliminary result entered

L219133921   W297611   LAV-LYM
ZZZ-TEST,ADRIENNE   43Y F 225   DRAW-+   AQ-EPL
7141342   LAC   DRAW-+
03/16/2011 1422   AMOVE   LAC
CHCVVL-DRAW-LON3MDP.1

W294784   L219130630 W294784
L219130630   ZZZ-ELIS,GO-LIVE RO 14Y M 906   CTAQ1
ZZZ-ELIS,GO-LIVE RO 6905765
03/16/2011 0958   03/16/2011 0958
CHCVVL-DRAW-LON3H2Q.1

W294784   L219130630
L219130630   ZZZ-ELIS,GO-LI+
ZZZ-ELIS,GO-LIVE   03/16/2011 0958
03/16/2011 0958

H11140
L219000027
TEST,JANE
1422

L219000027 H11140
TEST,JANE   28Y F TP   LAV-REF
TP-9876645   DRAW-+
03/03/2011 1422   LAC
CHCVVL

H11140
L219000027
TEST,JANE
1422

LAV-REF
DRAW-+
LAC

EDEA04   CTAQ1

LCOCID12

Batch ID: 62124

LAV-REF
DRAW-+   CTAQ1
LAC

03/16/11 13:03:37

L219132947 W296759
EMLABORATORY,TEST   56Y M 906
6964330
03/16/2011 1258
CHCVVL-DRAW-LON3KW5.1

W11146
L219000106
MYSIS,LAB1
03/16/2011 1322
CHCVVL-DRAW-LOOO
MG2.1

W11
L2190
MYSIS,L
1268

LCOCID12

L219132946
EMLABORATORY   56Y
6964330
03/16/2011 1258
CHCVVL-DRAW-LON3KW6.1

ADRIE

CTAQ1

62144

Batch ID: 62124

03/16/11 14:26:13

W296759
L219132947
EMLABORATORY,TEST
03/16/2011 1268

W296759
EMLABORATORY,T+
03/16/2011 1268

L219133920 W297611   LAV-REF
ZZZ-TEST,ADRIENNE 43Y F 225 DRAW-+
7141342   LAC
03/16/2011 1422   CTAQ1
CHCVVL-DRAW-LON3MDP.1

L219000099 W11144   LAV-REF
MYSIS,LAB1   22Y F EDEA04 DRAW-+
67119   LAC
6/2011 1241   CTAQ1
CHCVVL-DRAW-LOOOHGB.1

03/16/11 13:03:37

Batch ID

62124

W296759
L219132947
EMLABORATORY,TEST
03/16/2011 1268
CHCVVL-DRAW-LON3
KW5.1

LCOCID12

L219118E
ZZZ-TEST
6118920

03/15/20

CHCVVL-DRA

L2191185C
ZZZ-TEST,
6118920

03/15/201

CHCVVL-DRAW-

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Matching patient to specimen

- Scan barcoded wristband
- Print specimen label at the bedside (or in OR), immediately apply to the specimen
- We were shown how to do this 23 years ago - yet even today only a minority of hospitals/labs do this - why is it taking so long to become standard?

To collect a specimen

- Scan wristband
- Software on handheld device tells you about orders
- Collect specimen
- Tell handheld device you have collected
- Print barcode labels at bedside
- Label tubes
- Transport to lab

Several excellent tools are available to do this

Tables in July 2012 issue of CAP Today

A moral obligation

- Every software vendor should ensure that ALL their clients have available the tools to positively identify every specimen.
- We must eliminate barriers to adoption: financial, inertia, ignorance
- Every laboratory must effectively implement those positive specimen identification tools.

  Would you sell a car without brakes?
  Would you buy a car without seat belts?

Phase 3 – tracking in the lab

Ensuring that our in-laboratory process is secure

In-laboratory positive identification

- Excellent progress in clinical pathology since 1980
- Good progress being made now in anatomic pathology
- Look at every testing/resulting process in your practice - is there an continuous chain of identification?

How would we even know?

- Biopsy result on a patient who didn't have a biopsy
- Findings that don't make clinical sense
- ABO typing
- DNA typing
- The bad news is.... most of the time we DON'T know that we've mismatched a patient and specimen

Principles

- Work with only one patient at a time, and secure labeling before moving to the next
- Never condone a situation with more than one patient being matched up with a stack of labels, etc.
- Never generate batches of labels.

Specific provisions 1

- When a patient comes to your healthcare organization, gather data that will ensure you accurately identify them from that point forward (biometrics)
- If there will be more than a single contact, then link the biometric ID with a token ID – barcode or RFID
- Whenever any procedure, intervention, etc is undertaken, electronically check the token ID, query the LIS/HIS database, and generate specimen labels, etc.
- In the future, we may see systems relying entirely on biometrics for patient ID, and using barcode only for specimen ID.

Provisions 2

- From the time any specimen reaches the laboratory, ensure that it is always electronically identified by the specimen label, and that specimens are handled one at a time

- Ensure that the analysis/reporting activity is tightly linked to the identifying number on the specimen.

Questions

- Thoughts? Comments? Objections?

- Feel free to eMail me - raller@usc.edu