

HOW CAPABLE OF USING INFORMATION TECHNOLOGY IS THE AVERAGE PATIENT?

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Why should surgeons care about medication errors?



- **Impact the health of our patients**
- **Impact the cost of care for our patients**
- **Impact the outcomes of clinical research projects**
- **Impact the outcomes of care for our patients (survival, length of stay, readmission, wound infection...)**

reality 2006

KIDNEY TRANSPLANTATION



Options in Uremia Therapy

**IPD/CAPD/
CCPD**

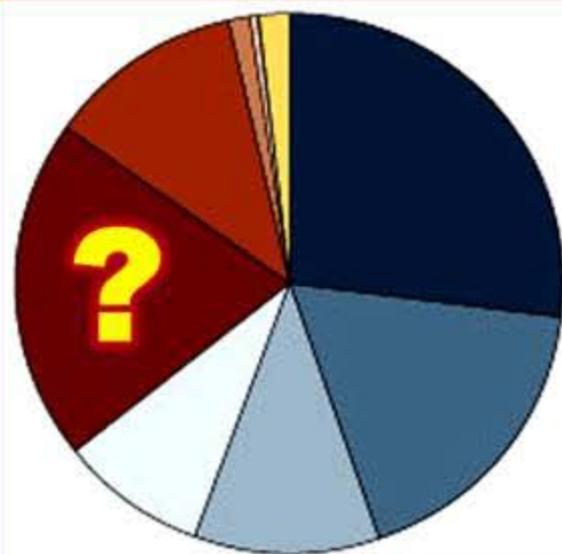
**Kidney
Transplant**

Hemodialysis

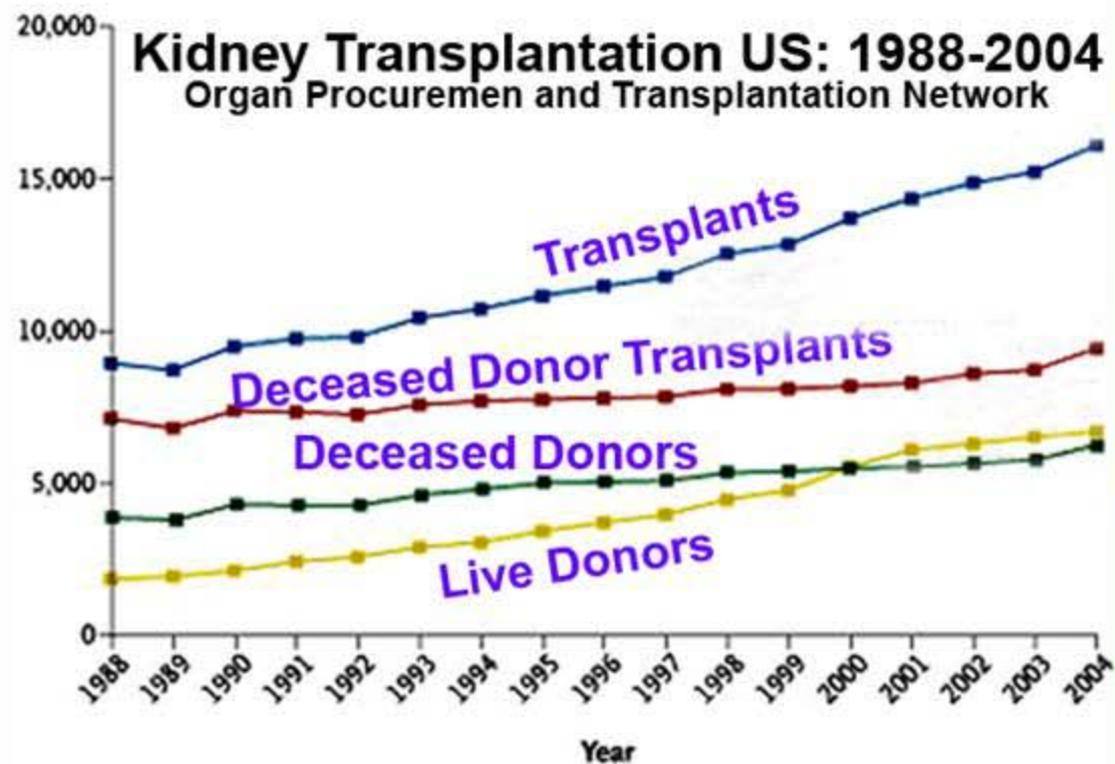
**No Treatment
= Death**

Imperfect Choices: 2005

RELATIONSHIPS BETWEEN LIVING KIDNEY DONORS AND TRANSPLANT RECIPIENTS IN US, 2004



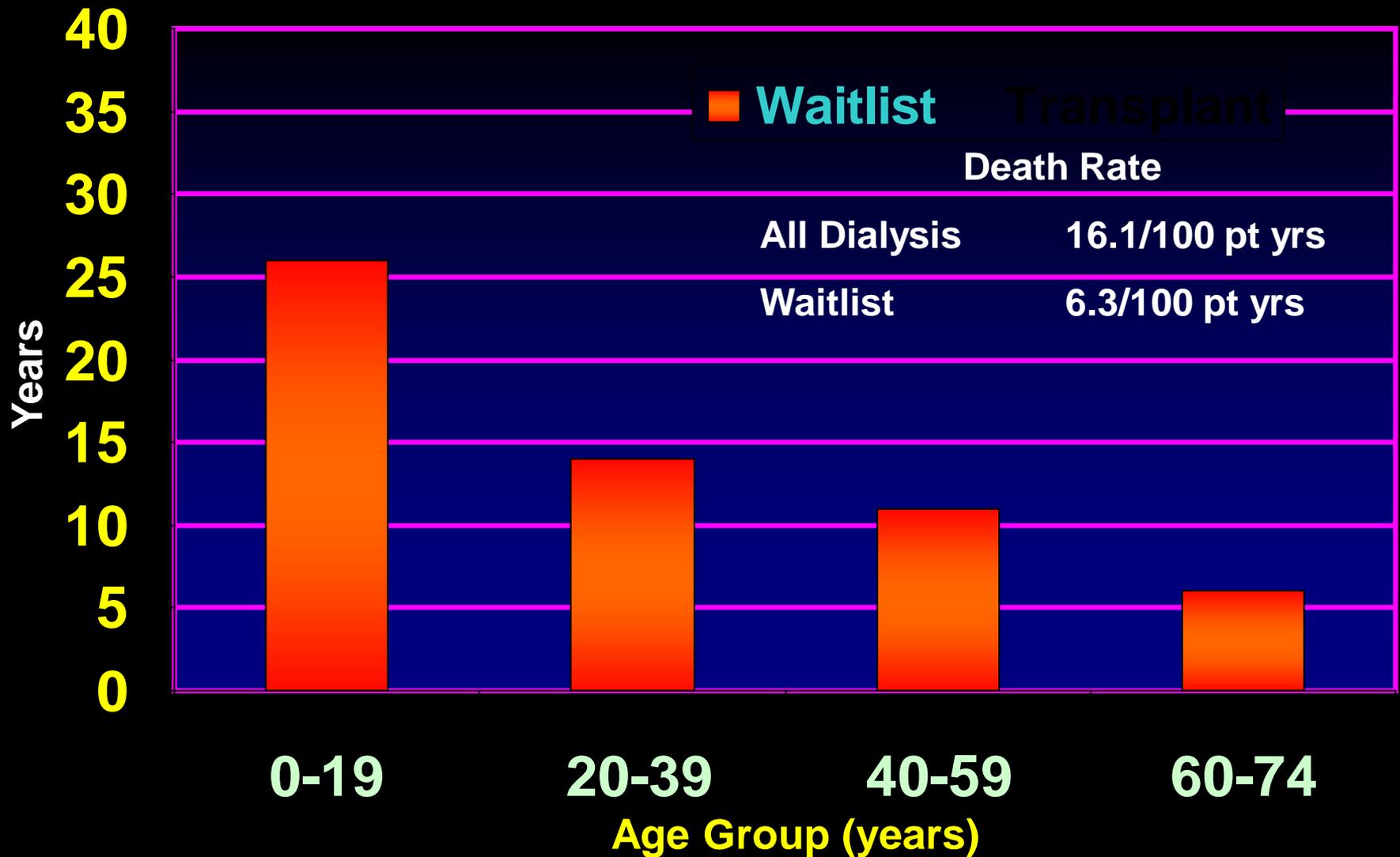
- Related by Blood**
 - Full sibling
 - Child
 - Parent
 - Other
- Not Related by Blood**
 - Unrelated directed donation
 - Spouse
 - Anonymous donation
 - Paired exchange
 - Living-deceased donor exchange
 - Not Reported



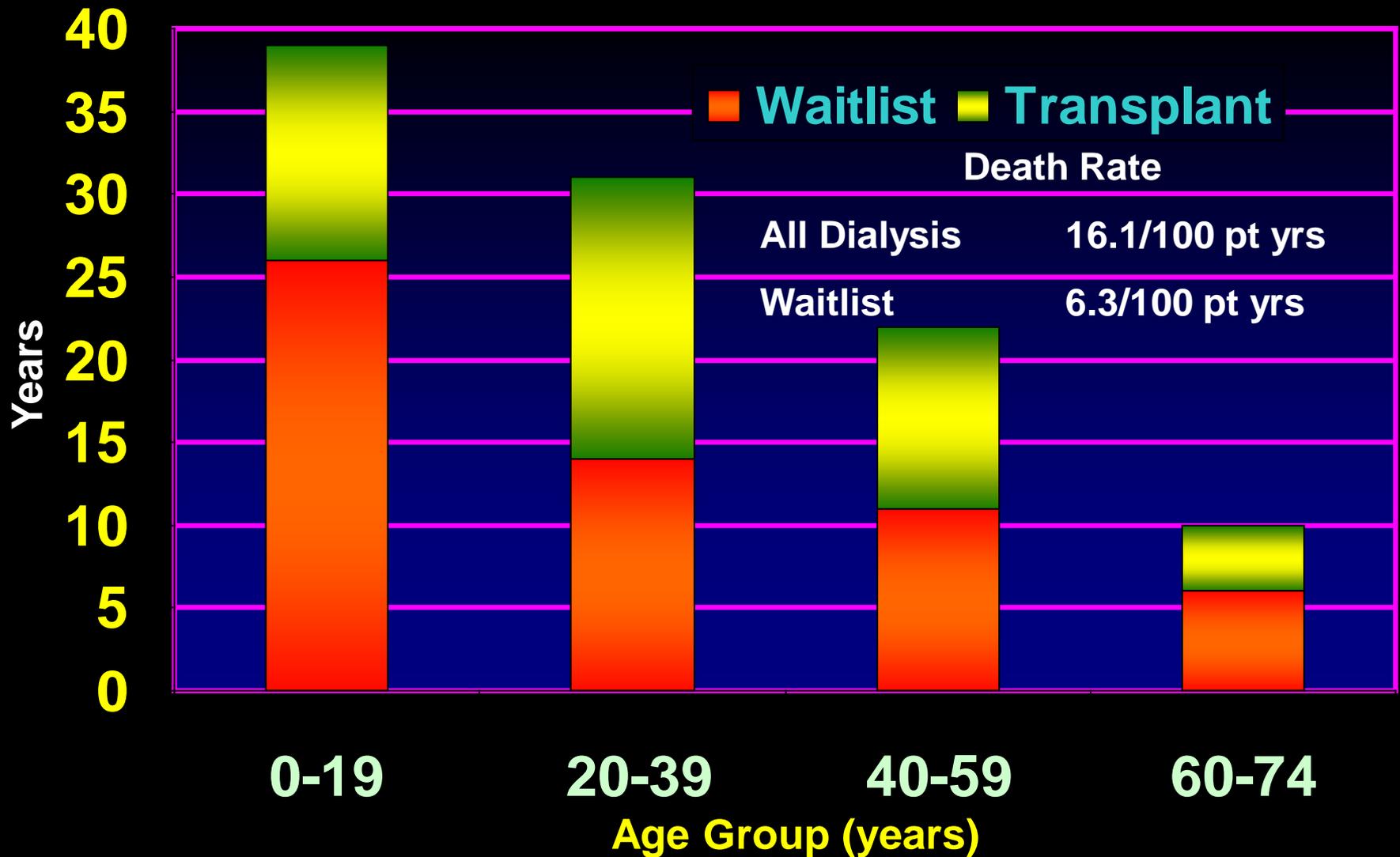
NOTE GROWTH IN TRANSPLANTS FROM UNRELATED AND ? DONORS

(Steinbrook R N Eng J Med 2005;353:442)

LIFE EXPECTANCY



LIFE EXPECTANCY



Transplant Recipients Take Many Medications (mean = 10 meds)



Medication Errors Observed In Transplant Patients



YALE-NEW HAVEN
HOSPITAL
20 York Street

- Patient transferred to ward from ER after 10 hrsentire PM med regimen omitted (7 meds)
- Caspofungin dose missing from refrigerator, pharmacy declined to replace (\$500), dose never administered
- Liquid cyclosporine modified 25 mg ordered but dose of 2500 mg administered (10,000%)

Humans Make Errors



abc7chicago.com

Quick Links



go ▶

STRANGE NEWS

print story | email story last updated: 2/24/2005

Docs work on monk who glued eyes shut

Feb 23, 2005 (BANGKOK, Thailand) — Doctors have partially restored the sight of an 81-year-old Buddhist monk who accidentally glued his eyes shut when he mistook a tube of superglue for eye drops.

The doctors at Anothong Hospital, 100 kilometers (60 miles) north of

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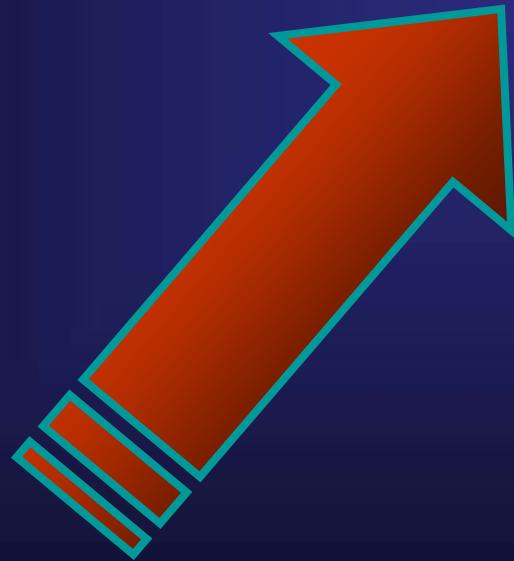
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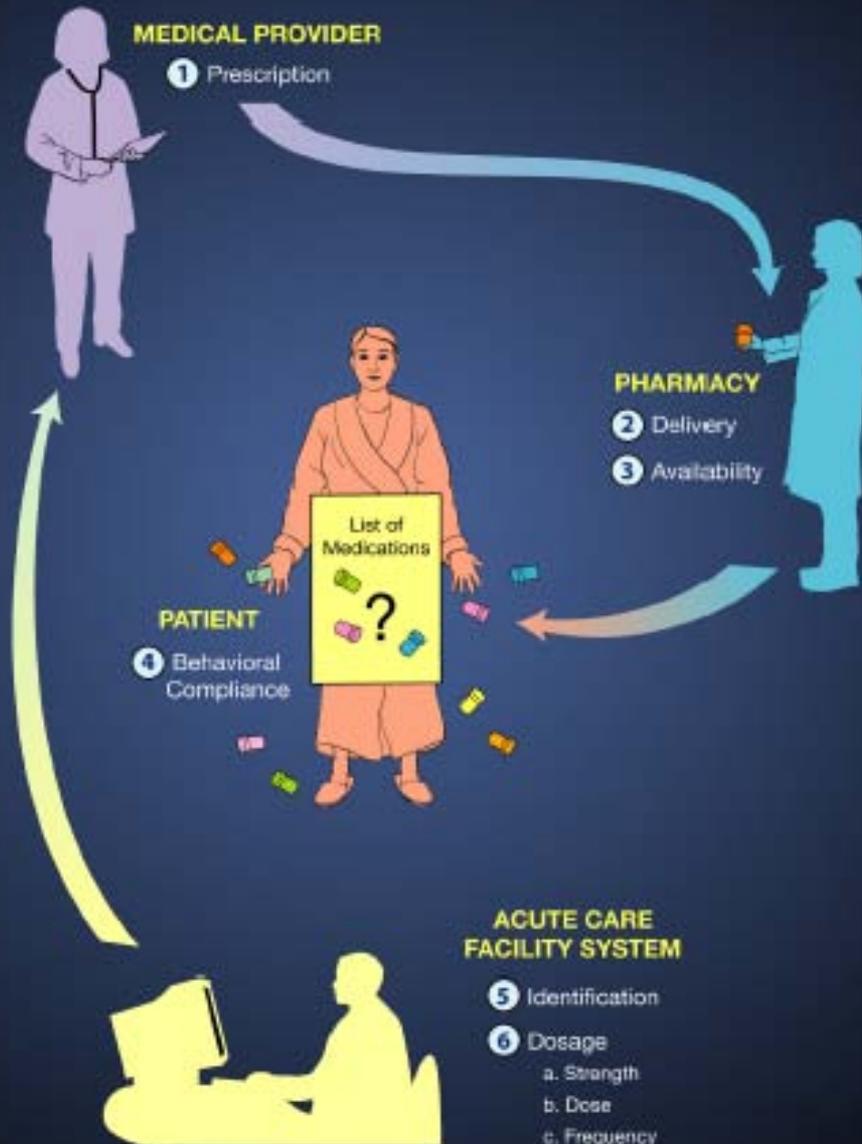
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Culture of Safety



Culture of Blame

Prescription Medications in the Inpatient Setting

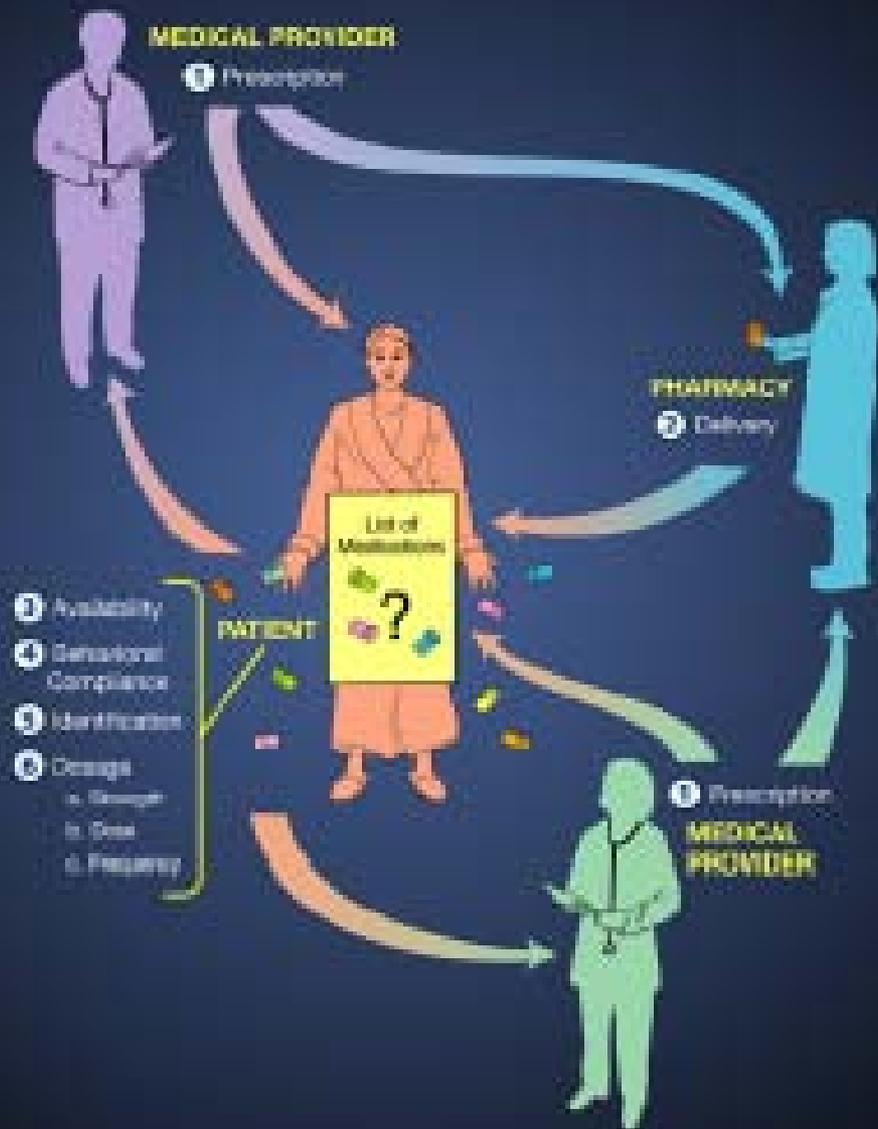


- Healthcare providers intend to help, not harm

- Healthcare providers have education and training relevant to their role in the prescription medication system

- Nevertheless, medication errors and adverse events are abundant

Prescription Medications in the Outpatient Setting



- Patients have varied educational backgrounds

- Patients want to help themselves and want to use medications properly

- Unlimited number of providers, pharmacies, payors and systems impact the patient's medications

Length of Stay Limited (Live Donor Kidney Transplant - 5 days)

VALCYTE	450mg	Every other Day	
NYSTATIN	1.5 million units	15ml swish & swallow	
TAMSULOSIN (FLOMAX)	0.4mg	DAILY	
Docusate (COLACE)	100mg	3 times a day	
Lopressor (metoprolol)	25mg	TWICE A DAY	↓ Blood Pressure
PEPCID	20mg	DAILY	Anti-ulcer

For Medication
Rejection
Rejection



Discharge Planning/ Medication Education

Identification of Outpatient Medication Errors

Yale New Haven Organ Transplant Center



- 219 post-transplant visits
- 15 visits with errors (6.8%)
- 5 visits with adverse events (2.2%)
- 29 errors; 1.9 errors per visit, range (0-7)



Conclusions



Medication errors are common among outpatients



Adverse events are common – 14/138 admissions, 7 rejection episodes, 5 graft losses



29% of errors results from causes in the healthcare system



Patients are the cause of 66% of errors



Prevention of errors may improve safety and surgical outcomes

A pair of hands is shown holding a glowing, multi-colored crystal ball. The crystal ball is the central focus, emitting a bright, iridescent light that transitions through colors like yellow, orange, red, and purple. The hands are dark and positioned around the crystal ball, with fingers slightly curled. The background is a soft, out-of-focus gradient of colors, including blue, purple, and pink, creating a dreamlike atmosphere. Overlaid on the crystal ball is the text "Will He Live?" in a bold, cyan-colored font with a black outline.

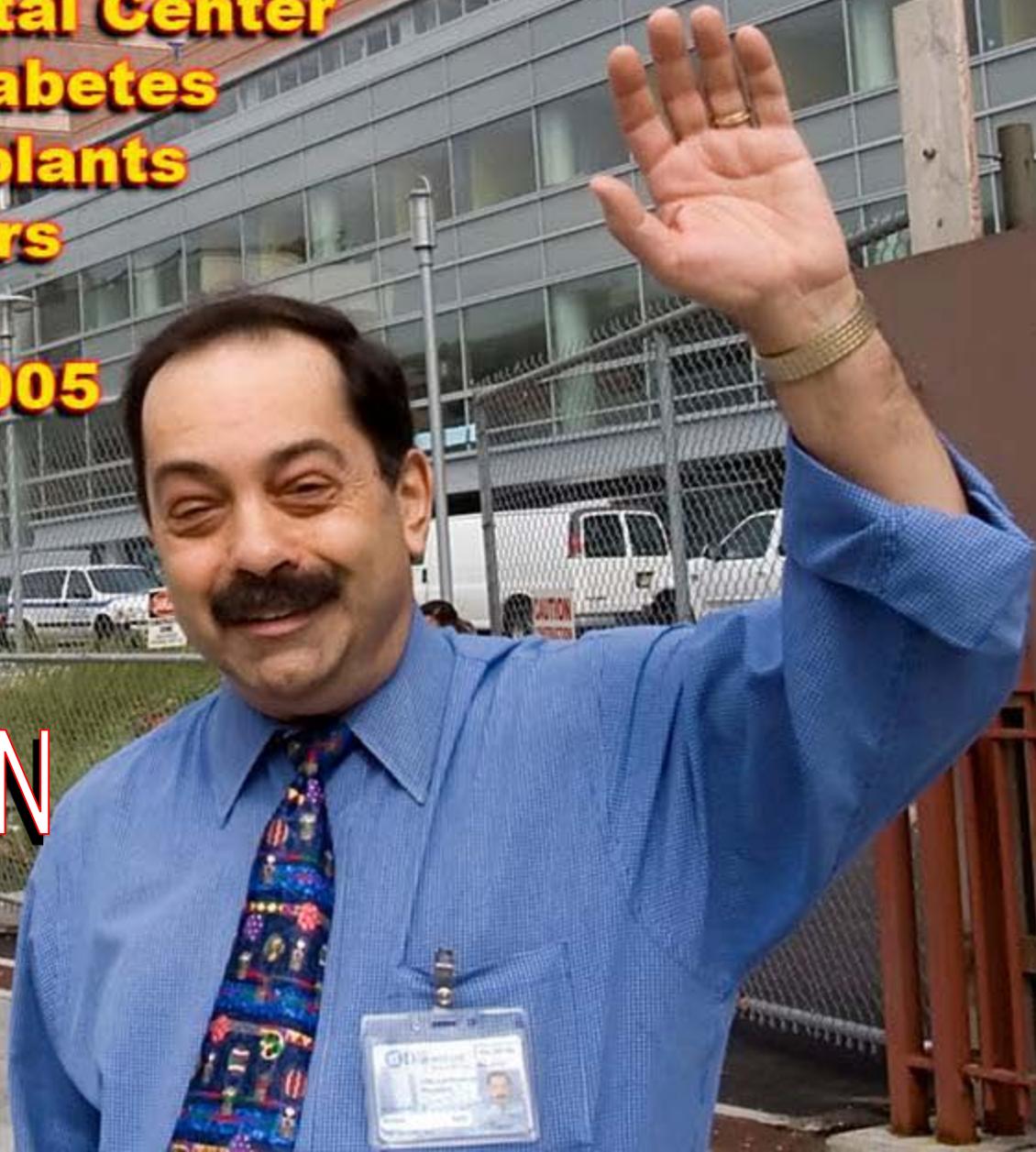
Will He Live?

A pair of hands is shown holding a glowing crystal ball. The crystal ball is the central focus, emitting a bright, multi-colored light that creates a rainbow-like spectrum. The background is filled with soft, out-of-focus streaks of light in various colors, including blue, purple, pink, and yellow, creating a dreamlike and ethereal atmosphere. The hands are dark and appear to be holding the crystal ball gently. The overall image has a high-contrast, vibrant feel.

**Will He Take His
Medications Properly?**

**Chief Pediatric Psychiatry
Kings County Hospital Center
ESRD: Type 1 Diabetes
4 Kidney Transplants
Over 25 Years
Age 51
August 15, 2005**

**FULL
REHABILITATION**



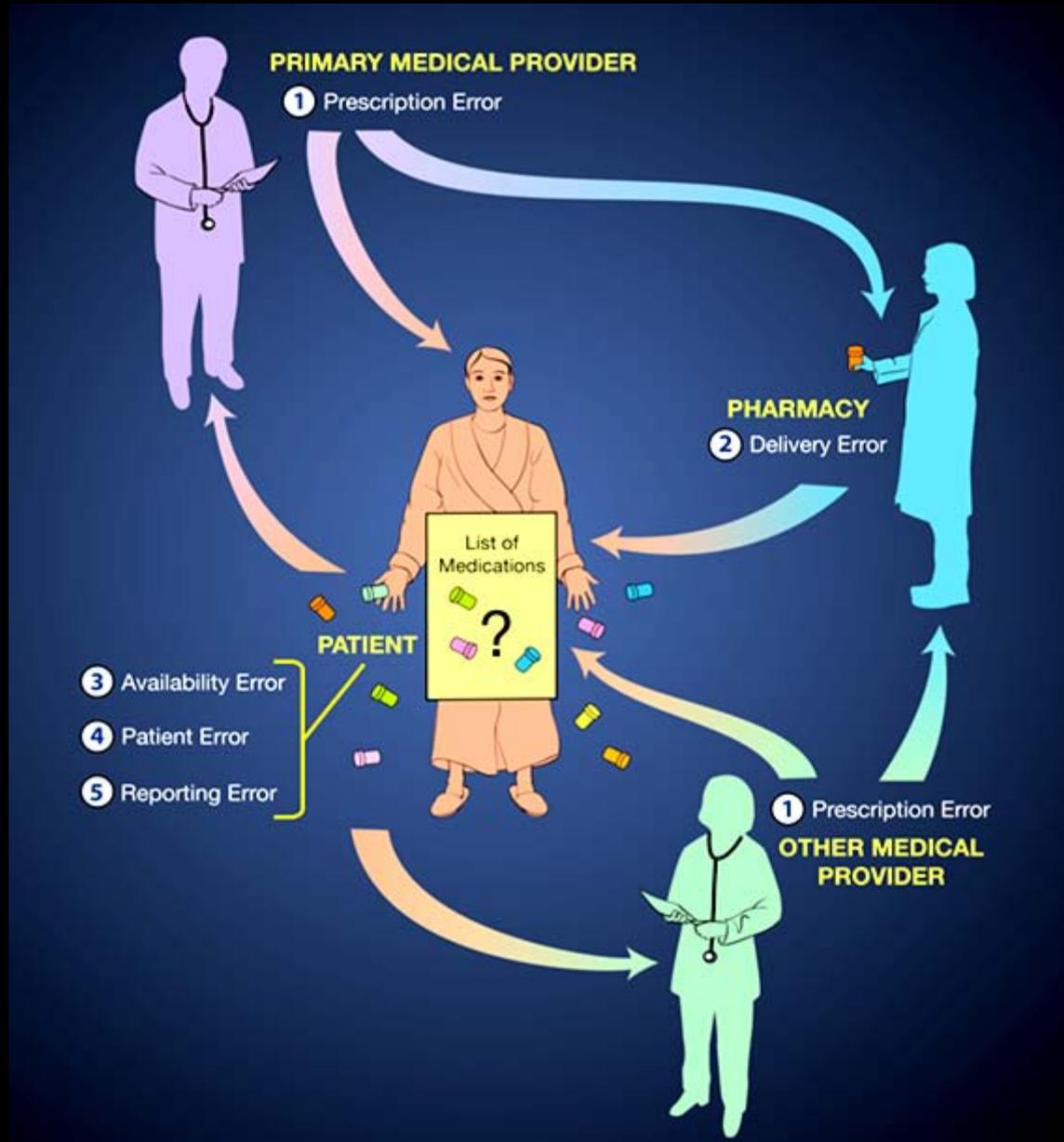


Donald E. Wilson, MD
Distinguished Professor
Vice President of
Medical Affairs
Dean, U of Maryland
School of Medicine
Kidney Transplant
Recipient
Age 64+
Active as
Full Time Academic

05/26/2005



Types of Medication Errors in the Outpatient Setting





WINSTON CHURCHILL:

***"NEVER GIVE IN!
NEVER GIVE IN!
NEVER, NEVER,
NEVER, NEVER - IN
NOTHING GREAT OR
SMALL, LARGE OR
PETTY. NEVER GIVE
IN EXCEPT TO CON-
VICTIONS OF HONOR
AND GOOD SENSE."***



HIPPA compliant
“Portable” computer
Good visibility
Mouse controlled

STUDY DESIGN



De Novo Adult (or independent adolescent) kidney transplant recipients



Enrolled post-operatively



Randomized into **computer based quiz vs quiz + education**



First study visit in hospital



Subsequent visit in clinic

Patient Use of A Computer



Welcome to Managing Your Medications

This educational program is designed to help you learn how to best manage your medications.

The program is broken up into five modules. You will use one module each clinic visit.

In each module there will be reading, video clips and learning activities.

 **First, [play the video.](#)**

This short video features patients and health care providers talking about the role of medications in people's lives.

 **When you're ready for the next page** click on the "Next" button at the top of this page.



The five elements of every prescription

1. Why is it important to know the name of your medication?

If you don't know which medication you are taking, we can't know! We won't be able to protect you from side effects or from interactions with other medications!

Why would I not know the name of the medication I am taking?

Many product names sound alike and have very similar spellings, even if the specific contents are not the same. Some contain combinations of medications that are also available individually. Variations may include slower (or extended) release formulations that prolong the effect of the drug but also change the way you are supposed to use it. Medications are prescribed to improve your medical condition. But most medications can possibly cause unwanted reactions or side effects that you and your doctor must consider.

Consider the following example: Three different combinations of medications all include the word "Excedrin" but each has slightly different contents as seen below:

Excedrin Migraine	Excedrin Quick Tabs	Excedrin PM
Acetaminophen 250 mg	Acetaminophen 500 mg	Acetaminophen 500 mg
Acetylsalicylic acid 250 mg	-	-
Caffeine 65 mg	Caffeine 65 mg	-
-	-	Diphenhydramine citrate 38 mg

Cut Rate Pharmacy Ph: 111.111-1111

Rx: 111111 Patient, Transplant
333 Cedar St.
New Haven, 06520

CYCLOSPORINE MODIFIED 100 mg capsule PRESCRIBER:
FRIEDMAN, AMY

Novartis Pharmaceuticals

Take 2 capsules twice a day indefinitely

Refillable 11 times before 04-06-2005 Qty: 60

Date Filled: 04-06-2004 Orig Date: 04-06-2004 Discard After: 04-06-2005



Click to hear about the importance of reading labels

- Real patients
- True stories
- Serious content
- Humor
- 8th grade level(?)

The object of the game:

To correctly move the pills from the pill bottles to the pill box according to the prescription information on each medication label.

How to play!

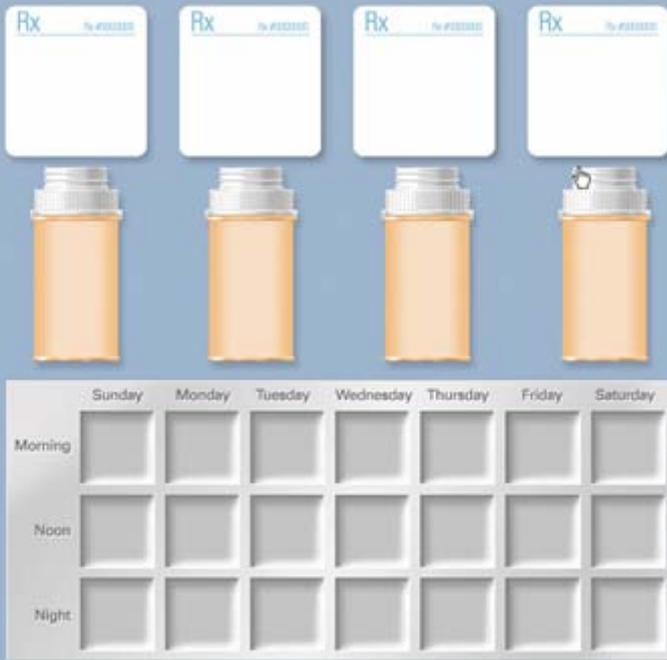
After pressing "Start," the bottles will fill up with pills and the labels will display the prescriptions. You should then read the prescription label for the first bottle and drag the correct number of pills to the pill box. Following the label for one medication at a time, drag pills to the boxes they belong to in the pill box.

After you have loaded the pills from the first bottle into the pill box, press "Am I Right" and the game will let you know if you did it correctly. You will not be able to move on to the next bottle until you've correctly loaded up the pill box with your

Show Me

Let Me Try

Start



Everyone Likes To Play!

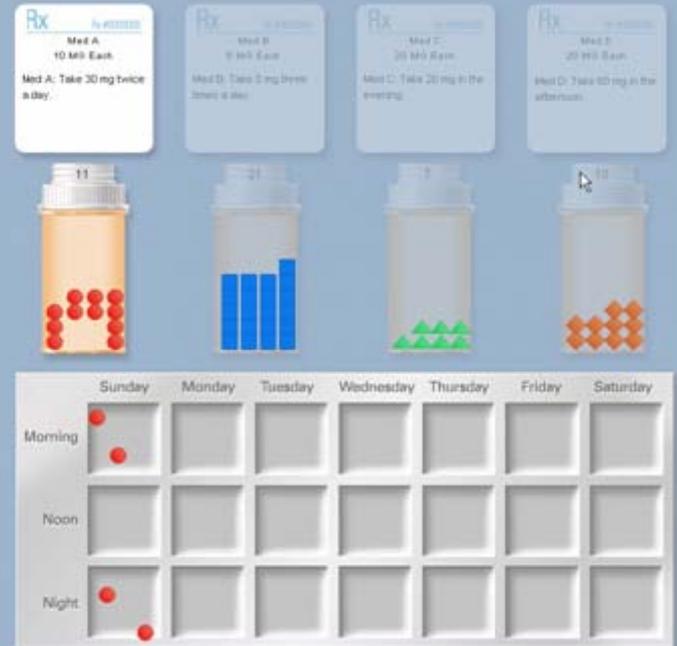
Welcome

Please start by filling the pill box marked SUNDAY with pills according to the label for Medicine A. When you have finished, click the "I'm Done!" button to see if you are correct.

Once you get "Sunday" correct, your pill box will automatically fill with that pill, and you will be allowed to move on to the next pill.

I'm Done!

Start Over



RESULTS



100% of 18 consecutive, eligible patients volunteered to participate



18/18 successfully used a hand controlled mouse



17/18 completed all 6 computer sessions



1/18 chose to discontinue participation, but expressed comfort with the technology



Long-Term Challenge
Medication Adherence

654990216

- IT resources should be directed directly to the patient
- Patients may not have independent computer access (see poster B-4)
- Patients are interested in learning!
- Patients are capable of using IT technology
- Efficacy of teaching patients
-????



A rhinoceros is shown in a dynamic, forward-charging pose, moving from the left side of the frame towards the center. The animal's body is dark brown and textured, with a prominent, pointed horn on its snout. It is surrounded by tall, yellowish-green grass, and a thick cloud of dust or dirt is kicked up behind its legs, partially obscuring the lower part of its body. The background is a soft-focus field of similar grass. The entire image is framed by a thick red border.

**CAN WE TEACH
PATIENTS HOW TO
PREVENT MEDICATION ERRORS?**



Both 94 with ESRD
One Heads Household
The Other Unaware