Back to the Future:
Remembering the Promise of Health IT

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Conflict of Interest

- Conflict of Interest Disclosure
  S. David McSwain, MD MPH

Has no real or apparent
conflicts of interest to report.

The Promise

THE NEW YORKER

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WHY DOCTORS HATE THEIR COMPUTERS

Digitization promises to make medical care easier and more efficient. But are screens coming between doctors and patients?

By Atul Gawande

Digitization promises to make medical care easier and more efficient; instead, doctors feel trapped behind their screens. Illustration by Ben Wiseman

How much blame is really deserved?

- Development of the EHR paralleled (and contributed to) increased regulatory, billing, and compliance requirements for clinicians.

- Arch Collaborative study: 10% of burnout attributed to EHR

- But 10% improvement is NOT the ceiling
  - Technology is still a part of the solution
  - Currently available and evolving technology can greatly improve engagement and resilience and reduce burnout.
  - Must be selected, deployed, and evaluated carefully and intelligently

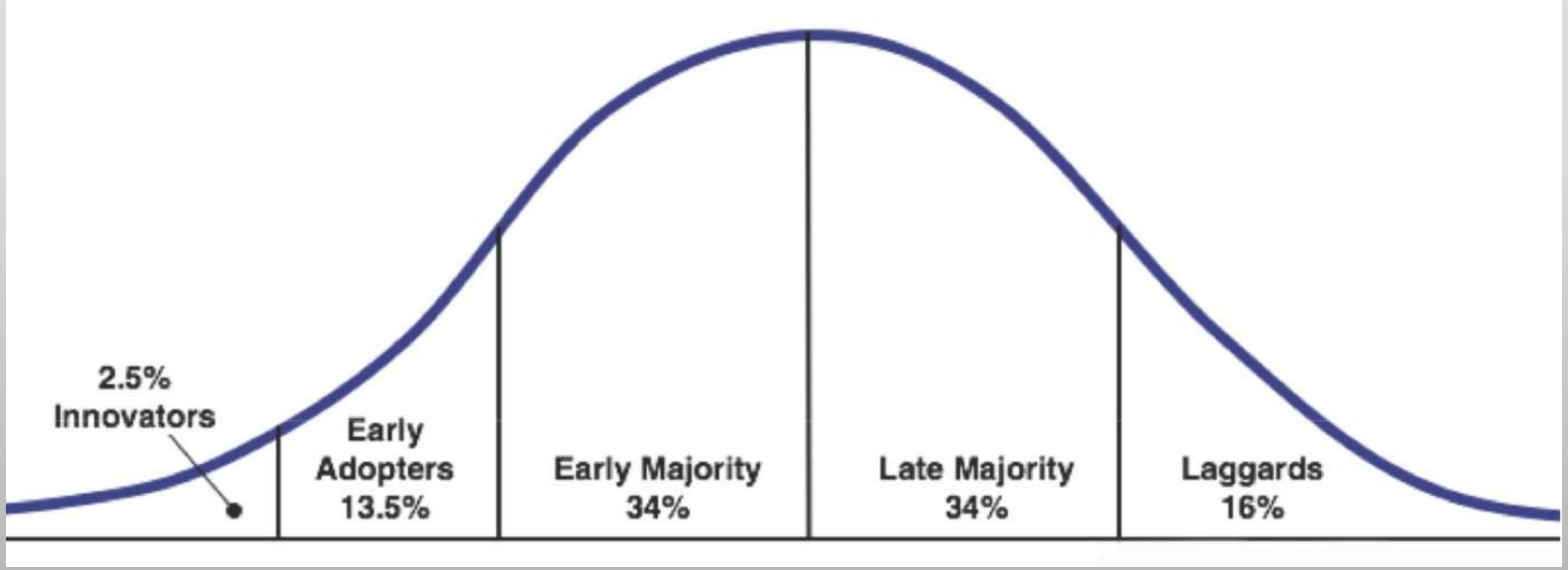
What’s the Vision?

We should leverage healthcare technology to improve the care of our patients and the daily lives of our clinicians and staff!

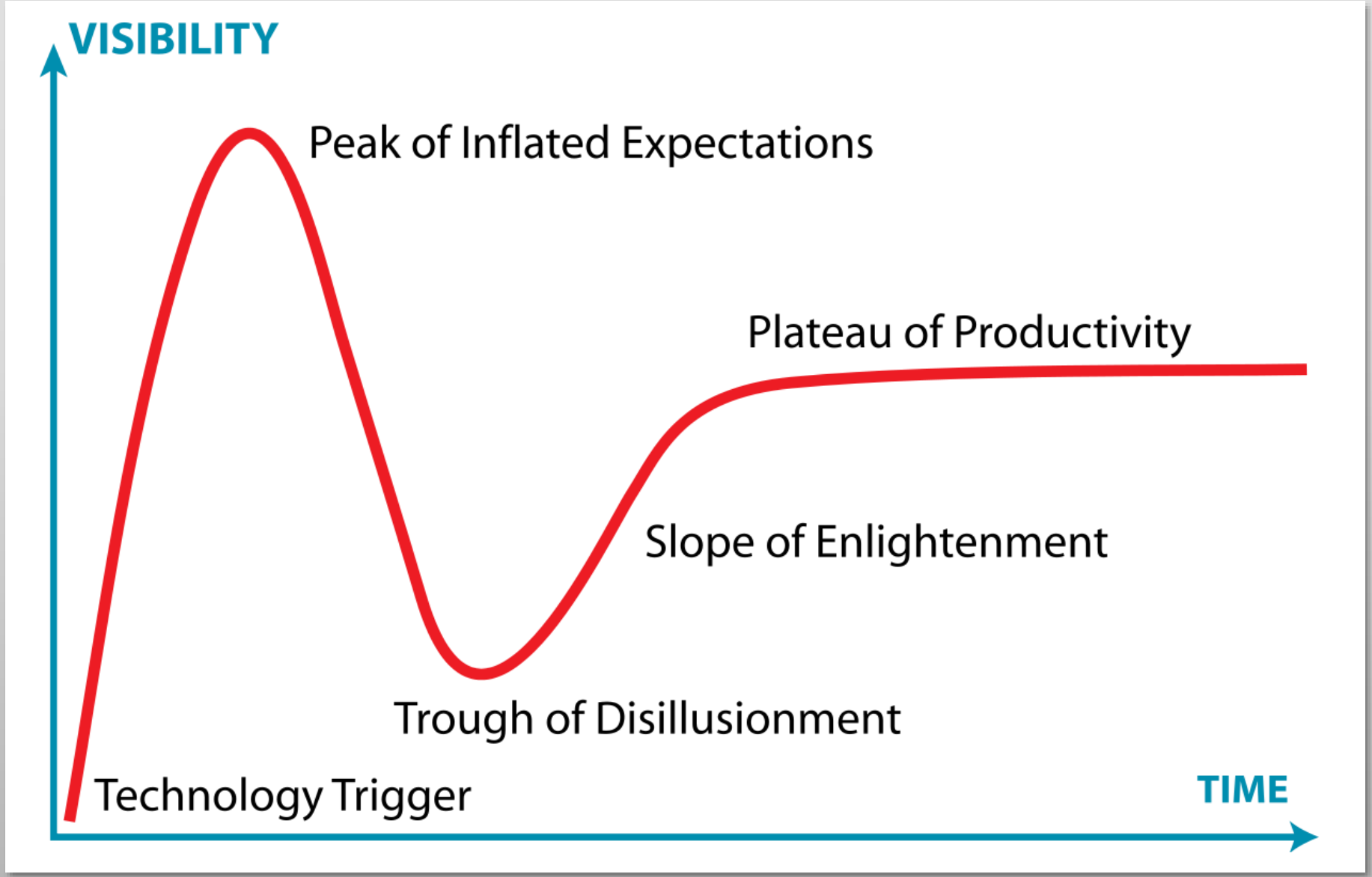
- The key is putting the theory into practice
- How do we identify, implement, and operationalize these ideas?
- That’s the space where **Health Informatics** functions
- The key is creating a **shared vision** and building collaboration to work towards it.

What’s the Challenge?

Technology Adoption Curve



Ushering an Institution Through the ”Hype Cycle”

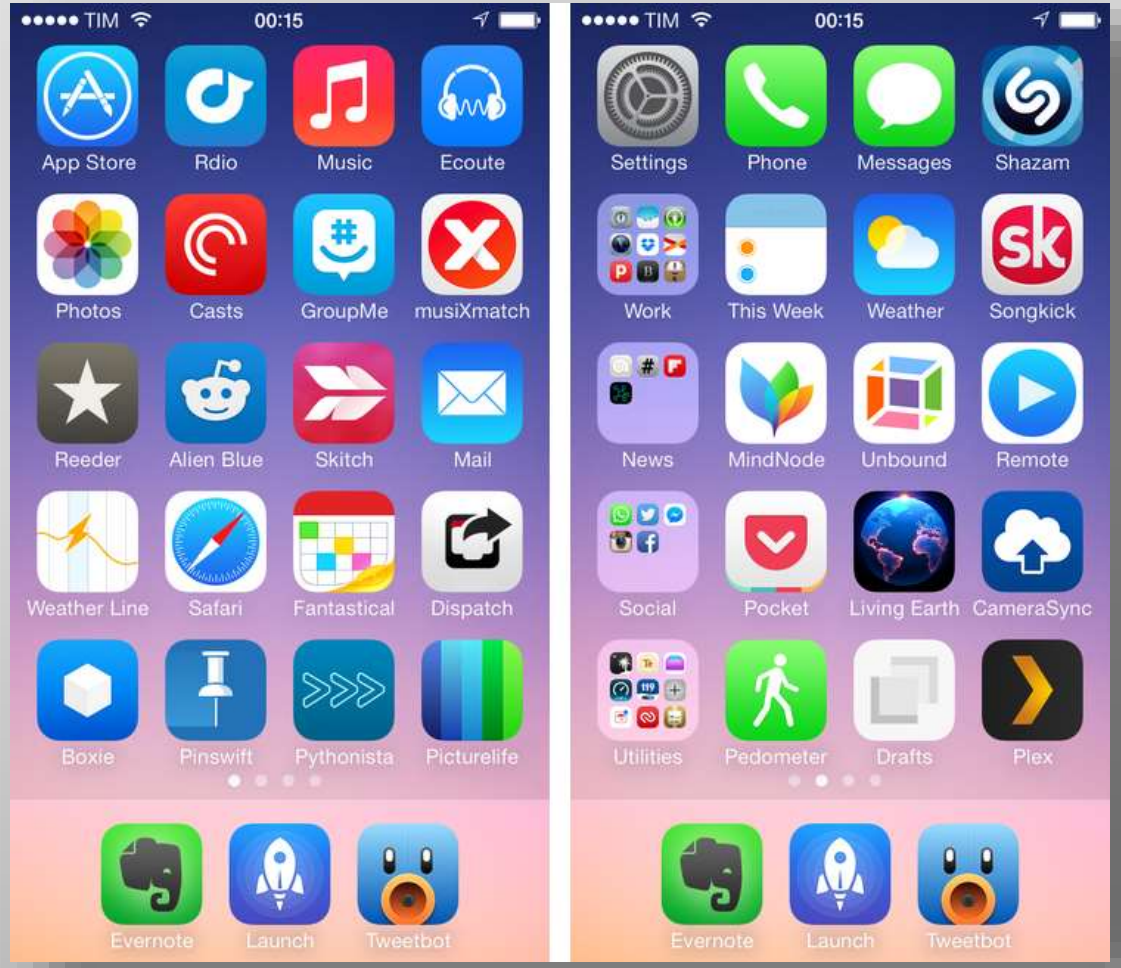


What makes technology effective?

- What's the most effective and useful piece of personal technology you can think of?
- Why is it effective?
- What if…?
- Personalization
  - It's about the people
  - The technology fits people's lives
  - It functions intuitively, in part because the user builds it that way.

Don’t be Afraid of Complexity

- The key is how you manage the complexity
- People’s phones may have hundreds of apps
  - A ton of data
  - Different functionality
  - Redundant capabilities
- The complexity is manageable because individuals design their own interface!
  - Within boundaries
  - The guardrails are strict
  - At the macro level, there’s very little variability



3 Steps to Digital Transformation

1. Understand current capabilities
2. Develop a vision for the future state
3. Create a shared roadmap for getting from current state to future vision

Understand Current Capabilities

- Use the tools you have
- Tech problems usually aren’t due to tech
  - Implementation
  - Workflow
  - Education and training
  - On-going support
- Beware “New Toy Syndrome”
- Aim for shared vision and focused attention
- Devote resources to optimizing the toys we already have

Vision for the Future

- Remove technology from between the patient and clinician
- Optimize Mobile Technology
- Focus on Efficiency

Remove Technology

How do you leverage technology to make take technology out from between the patient and clinician?

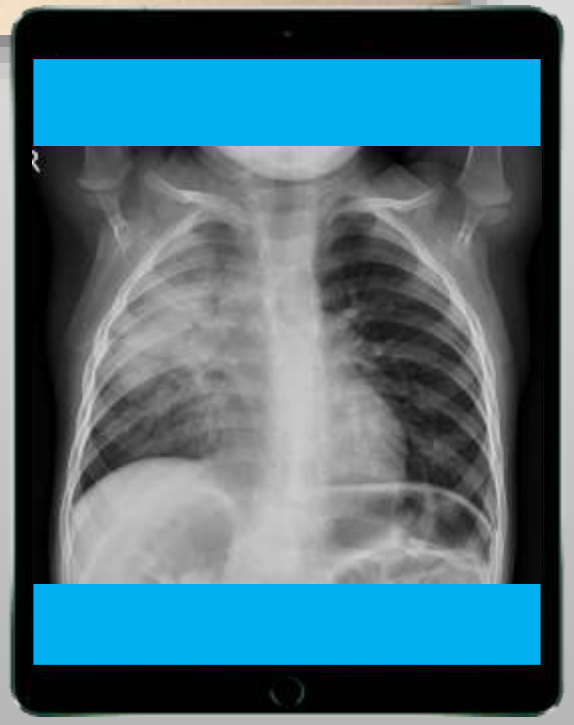
- Mobile devices
- Artificial Intelligence
- Predictive Analytics
- Voice Recognition
- Natural Language Processing

Shawn Jenkins Children's Hospital: Reinventing Rounding

- Engage the enterprise

• Interdisciplinary clinical staff • Human factors engineering • Patient/Family Advocates • Informatics • Infrastructure • Telehealth • Architects	• Residents • Information Security • Epic • Vidyo • Apple • GetWell Network

- Understand current capabilities
- Remove technology from between the clinician and patient
- Utilize mobile technology
- Focus on ease of use and flexibility of approach



Key Technological Focuses for SJCH

Leverage mobile technology heavily

- iPads inside and outside patient rooms
- iPads with Epic Canto for rounding teams
- iPhones with Epic Rover and Haiku for nurses and residents
- Completely eliminate Workstations on Wheels

Remove the technology from between the patient, family, and care team

- WOWs form a wall between you and the patient
- Remove technological barriers that keep rounds out of the patient room
- Make providers' time on rounds more efficient
  - More efficient rounds means less pajama time at home!

10:32 AM Tue Jul 2

97%

Back

Zztest, Audreykate
5y F 2/20/2014 005645567
PCP Jennifer Bain, MD
Addr 1 Poston Road, CHARLESTON SC 29425

Allergies
Bee Venom Protein (Honey Bee)
Beef Containing Products
Codeine
Sulfa (Sulfonamide Antibiotics)

Medications
adalimumab subcutaneous syringe kit
~~ALPRAZolam 0.5 mg tablet~~
amLODIPine 10 mg tablet
54 more medications

Epic

Active Problems

- Type 2 DM with CKD and hypertension
- Generalized anxiety disorder
- Gastroesophageal reflux disease without esophagitis
- Urinary tract infection associated with cystostomy catheter
- Central precocious puberty
- Sarcoma
- Malignant melanoma of neck
- Infiltrating ductal carcinoma of right breast
- Bladder cancer
- Malignant neoplasm of right ovary

Reviewed by Kimberly S. Davis, MD on 8/17/2017

Care Coordination Note

By Jennifer Wood, RN on 6/27/2019 2:35 PM

Current Medications

OUTPATIENT MEDICATIONS

- **adalimumab subcutaneous syringe kit** 40 mg Subcutaneous Every 14 days
- ~~**ALPRAZolam 0.5 mg tablet** sdfsdfsd~~
- **amLODIPine 10 mg tablet** TEST CLAIM
- **azithromycin 250 mg tablet** test
- **azithromycin 250 mg tablet** test
- **budesonide-formoterol 160-4.5 mcg/actuation inhaler** Inhalation
- **cephALEXin capsule** 1,500 mg Oral Every 8 hours
- **cycloPHOSphamide 50 mg capsule** TEST CLAIM
- **cycloPHOSphamide 50 mg capsule** TEST CLAIM
- **cycloPHOSphamide 50 mg capsule** Oral
- **dexAMETHasone 4 mg tablet** TEST CLAIM

Patient Care Team

	SPECIALTY
Jennifer Bain, MD	Family Medicine
Jennifer Bain, MD	Family Medicine
Eric J Lentsch, MD	Otolaryngology
Juliana Akers, RN	
Paul E. O'Brien, MD	Hematology and Oncology
Anand K. Sharma	Radiation Oncology

History

MEDICAL
Gerd (gastroesophageal Reflux Disease)
Type 2 Dm With Ckd And Hypertension

SURGICAL
Laser Trabeculoplasty Selective - Od - Right Eye
Laser Trabeculoplasty Selective - Os - Left Eye

FAMILY PROBLEMS

Diabetes	Mother
Diabetes	Sister
Diabetes	Paternal Aunt
Diabetes	Maternal Grandfather

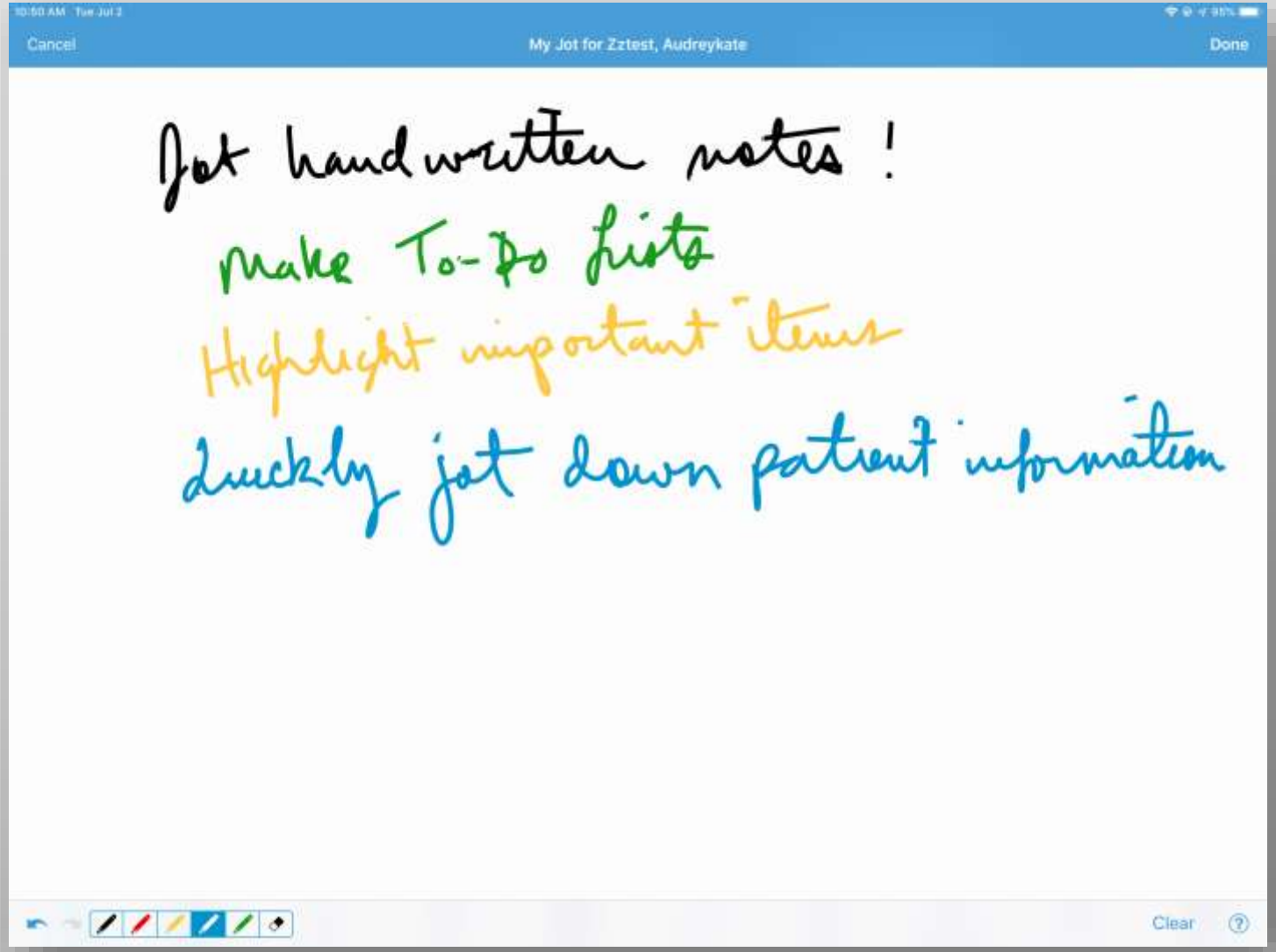
FAMILY STATUS
Mother
Sister
Paternal Aunt
Maternal Grandfather

SOCIAL
Tobacco: Yes
Drugs: No
Alcohol: Yes
Sexual Activity: Yes
Social Details

Reviewed by Lisa Dear, COA on 5/9/2017

Summary | Encounters | Results | Notes | Notes Entry | Media | Orders | Care Everywhere | Links | Telemed

Canto Jot Functionality



Epic

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Lyberand, Eleanor
73 y.o. / Female / 1/20/19

MRN: [redacted]
CSN: [redacted]
PCP : [redacted]
PCP Status: External

Admit Date: 04/30/2019
Unit and Room: A3MS 3040
Service: MED-PULMONARY&CC
Attending: Nadig, Nandita, MD
Patient Class: Inpatient

Weight: 90.8 kg (200 lb 2.8 oz)
Height: 162.6 cm (5' 4")
BMI: **34.36 kg/m²**

Isolation: Contact
Infection: MRSA Colonization
Adv Dir Filed?: None
*Code: **Full Code**

FYI: None
Barrier Precautions: None
Research: None
Language: English

Allergies: **Augmentin [Amoxicillin-pot Clavulanate]**
Primary Ins.: MEDICARE

Blood

HGB	HCT	WBC	BUN	PLT
8.3 ↓	26.6 ↓	9.67	62.0 ↑	267
06/04 0307	06/04 0307	06/04 0307	06/04 0307	06/04 0307

Intake and Output

In	06/04 0800	06/04 0900	06/04 1000	06/04 1100	06/04 1200	06/04 1300
Blood						
I.V.						
IV Piggyback						
Nerve Block	188.8 (2.08)	74.4 (0.82)	274.4 (3.02)	13 (0.14)	13 (0.14)	
NG/GT	300		150	125	125	
Other						
P.O.						
Net	-111.2	+74.4	+124.4	-112	-112	
Since Adm	-11.2	+63.2	+187.6	+75.6	-36.4	-36.4

Vitals

Trend | Graph

Last 24 hours

36.8 (98.2)	Temp °C (°F)
56	Heart Rate
28	Resp
100	SpO2 %
118/70	BP mmHg
84/80	Arterial Line BP mmHg

Respiratory

Vt (Set, mL)	Exhaled Vt	Set RR	Minute Volume	Set PEEP (cm...
340	329	28	9.3	8

O2 Set (%)	PIP Analyzed (...
40	21

Lab Trends

WBC	HGB	HCT	PLT	PT	ptt	INR
9.67	8.3 ↓	26.6 ↓	267	15.3 ↑	--	1.20
06/04 0307	06/04 0307	06/04 0307	06/04 0307	06/02 0552		06/02 0552

GLUCOSE	NA	K	CL	CO2 CONTENT	BUN	CREATININE
141.0 ↑	144.0	3.60	111.0 ↑	18	62.0 ↑	2.9 ↑

ARTERIAL POINT OF CARE PANEL

Specimen Collected Date: 06/04 1012
Last Updated Date: 06/04 1024
Result Status: Final result

FIO2 ARTERIAL	PT TEMP ARTERIAL CORR	PH ARTERIAL CORR	PCO2 ARTERIAL CORR	PO2 ARTERIAL CORR	BICARB ARTERIAL	BASE ARTERIAL	TOTAL CO2 ARTERIAL
40	36.7	7.27 ↓	46 ↑	85	21 ↓	-5 ↓	23

Drips

ARTERIAL POINT OF CARE PANEL 06/04 1012 | GLUCOSE WHOLE BLOOD, POC 06/04 0904 | GLUCOSE WHOLE BLOOD, POC 06/04 0836 | ARTERIAL POINT OF CARE PANEL 06/04 0902 | BASIC METABOLIC PANEL 06/04 0307 | TRIGLYCERIDES 06/04 0307 | PHOSPHORUS 06/04 0307 | MAGNESIUM 06/04 0307 | CBC 06/04

View All Image

Technology Education

- **The Past**: Technology provides useful tools for education, research and clinical care

- **The Present**: Technology is a central and critical component for education, research, and clinical care

- **The Future**: Education on healthcare technology is a critical part of multi-professional curricula
  - Technological tools
  - Understanding of data and analytics
  - Health and Research Informatics
    - Electronic health records
    - Clinical decision support
    - Workflow evaluation and redesign
    - Human factors engineering
    - Mobile health

It’s Over