

Telehealth

An effective tool for antibiotic stewardship
(URI, C. diff, UTI, and URI)

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**MY DOCTOR SAID
'ONLY 1 GLASS OF ALCOHOL A DAY'**



I CAN LIVE WITH THAT

Objectives

- Things that need our attention NOW
 - UTIs
 - Cellulitis
 - C. diff
 - URI
- Telemedicine
 - Basics
 - Overview
 - Rules and regulations
 - How to utilize for infection control and antibiotic stewardship

Urinary Tract Infection

- Gram negative drug resistance has increased dramatically, and we are now seeing stable outpatients with UTI's due to ESBL and CRE requiring IV antibiotics
- Overuse of antibiotics, especially carbapenems and FQs, will lead to higher rates of gram negative drug resistance
- You need to educate your "prescribers" on how to interpret a UA
 - Should ALWAYS do urinalysis WITH microscopy AND culture
 - **If NO pyruia (<10 WBC/HPF) then no UTI and no antibiotics**
 - Treat if >10 WBC/HPF and symptoms: TMP/SMX, NTFTN, Cefdinir, Fosfomycin, Cipro, others (think cipro 4th or 5th)
 - Suppressive abx does not work, consider methanamine

C. Difficile Infection

- Treat if diarrhea and PCR positive
 - Should not be doing 3 samples or test of cure, PCR has sens/spec ~ 99%
- Flagyl ONLY for mild disease, and first episode only
 - Dose is 500 mg TID x 14 days
 - Would not recommend repeated doses due to risk of irreversible neuropathy and general lack of effectiveness
- PO vancomycin LIQUID 125-250 mg QID x 14 days
 - Much cheaper than vancomycin pills
 - Use for moderate-severe illness or 2nd+ episode
- PO fidaxomicin (Dificid) 200 mg BID x 10 days
 - \$40 with coupon if private insurance
- Stool transplant
 - Need to discuss, consider on/after 3rd episode

Upper Respiratory Infection

- VIRAL: if sore throat, cough, fever, runny nose, sick contacts
 - DO NOT check for Strep throat
 - DO NOT give antibiotics
 - Supportive care unless concern for Influenza (then treat)
- BACTERIAL: sore throat, fever only (no cough, runny nose)
 - Check for Strep, if positive then PCN or Amoxicillin
 - Consider Monospot (young, lymph nodes, sore throat)
- Consider allergies as a cause of "recurrent URI"

Cellulitis

- ❑ NOT HARD!!!
- ❑ B/L red legs most likely stasis dermatitis (NOT an infection, is due to edema and won't respond to abx)
- ❑ Strep cellulitis: unilateral, painful, acute, sick
 - ❑ No pimple, sore, or boil
 - ❑ Treatment is PCN/Amoxicillin, Cephalosporins
 - ❑ Vancomycin is a crappy Strep drug
- ❑ Staph infection: starts as pimple, sore, or boil
 - ❑ I&D more effective than abx alone
 - ❑ Combination of I&D and abx > 90% cure
 - ❑ Consider having a decolonization protocol if recurrent or pre-op
 - ❑ Clinda largely not effective (bactrim/doxy >95% sensitive)

Cellulitis

- Diabetic foot ulcer is usually polymicrobial (gram positives, gram negative, anaerobes)
- 75% of unilateral red extremity (erysipelas) is Strep
 - Almost always monomicrobial
 - 45% Group A Strep
 - 30% Group B Strep
 - 15% Staph, 10% GNR
- Vancomycin is inferior to PCN/ceph's for treatment of Strep
- Zosyn is not needed just because patient is diabetic
- Treatment of choice for Strep cellulitis is PCN (consider addition of 2nd agent/clindamycin if severe)

Telehealth

- Definitions
 - Telemedicine, telehealth, mobile health (mHealth), direct-to-consumer (DTC), 2-way video, store and forward, secure messaging, remote monitoring, OH MY!
 - Broadly, telehealth refers to the delivery of care or exchange of information via any method of technology
 - Phone call, text, email, live video, forwarded / downloaded data, messaging
 - Major definitions
 - Telemedicine and telehealth: broad, everything
 - mHealth: telehealth via smartphones, laptops, tablets
 - DTC: as it sounds
 - Remote monitoring: devices collecting data
 - 2-way video: requirement for reimbursement

Med City News 2016

MedCityNews

More virtual care than office visits at Kaiser Permanente by 2018

By NEIL VERSEL

Post a comment / 435 Shares / Apr 12, 2016 at 5:41 PM



By 2018, [Kaiser Permanente](#) will perform more virtual visits than in-person office visits.

This bombshell of sorts came to us from Dr. Robert Pearl, executive director and CEO of the [Permanente Medical Group](#) and president and CEO of the [Mid-Atlantic Permanente Medical Group](#). Pearl was on a keynote panel Tuesday at the 13th annual [World Health Care Congress](#) in Washington, and spoke to MedCity News briefly afterwards.

A vertical poster for the ATA 2016 Fall Forum. The top section features a photograph of a large, white, classical-style building with a portico, framed by large, leafy trees. The text "JOIN US" is in the top left corner. Below the photo, the text "Experiencing Telehealth" is written in a cursive font. The main title "ATA 2016 FALL FORUM" is in large, bold, orange letters. Below that, the dates "SEPT. 28-30, 2016" and location "NEW ORLEANS, LA" are listed. At the bottom, there is an orange button with the text "CLICK HERE TO LEARN MORE".

The Status of Telemedicine Today

- Cheaper, easier, better technologies
- Improving reimbursement / payer demand
- Increasing physician / hospital acceptance
- Rising patient demand
- Heightened competition
- Society promotion (AMA, ATA, States, etc.)
- Easiest way to connect rural patients to specialists

Adoption, Demand, Competition

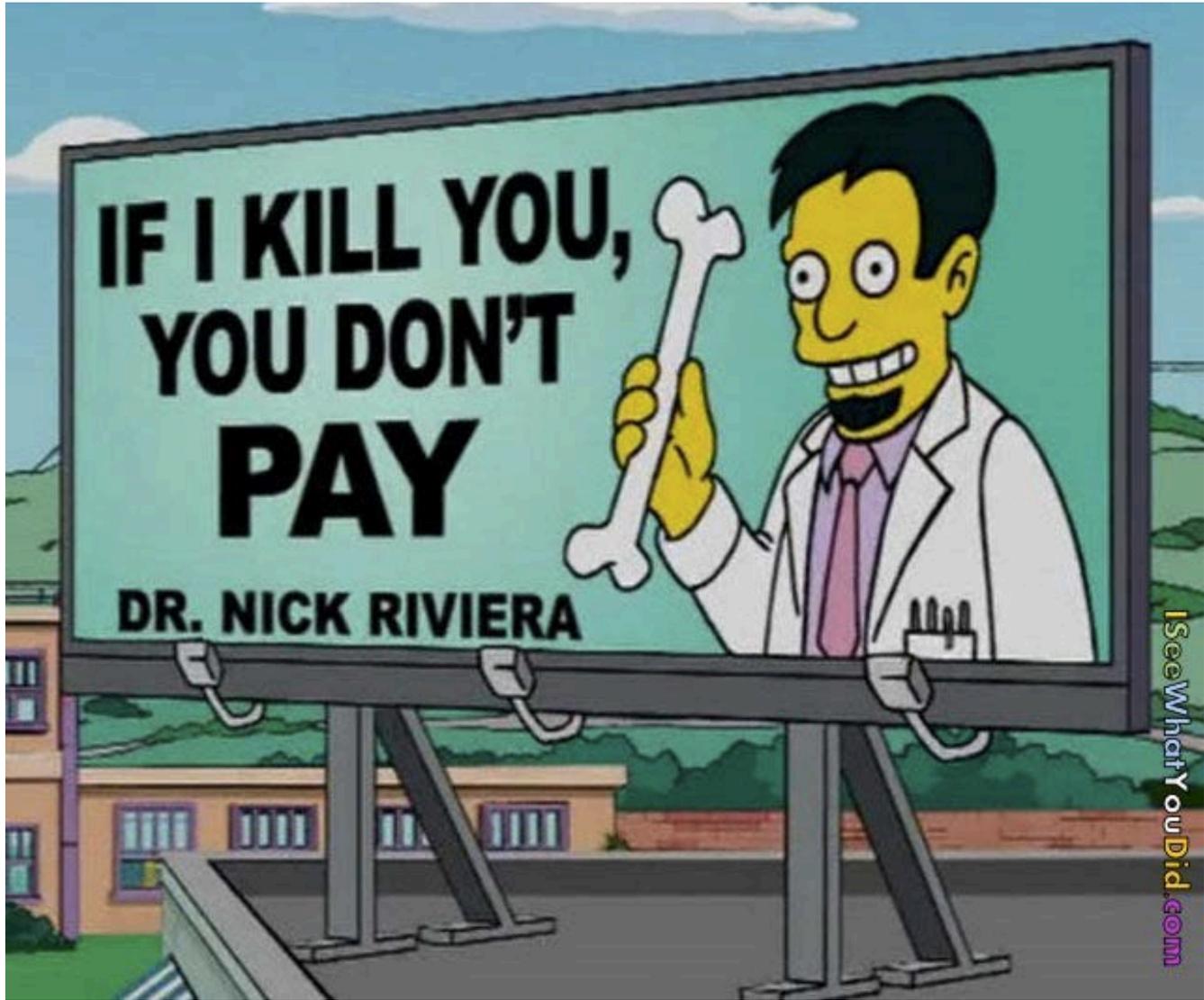
- Today, patients can access physicians immediately, from anywhere, on their smartphones and within minutes
- Who's offering telemedicine?
 - **Healthcare systems:** Sanford, Avera, Kaiser, Cleveland Clinic, Mercy, Mayo
 - EVERYONE!
 - **Online doctor networks:** MDLive, American Well, Doctors On Demand, Teladoc
 - Contracting with insurers, businesses, healthcare systems
 - Direct to consumer (DTC)
 - **Insurers:** UnitedHealth, Blue Cross, Wellpoint, others
 - Providing on own or contracting with doctor networks
 - **Businesses:** Home Depot, Boeing, Walgreens, CVS, MANY others

Patient and Payer Demand

- Patients
 - Cost, convenience
 - Expectation(s)
- Providers
 - Slow to embrace “new”, but are coming around
 - Patient demand, easy/affordable technology, competition, and reimbursement all drivers
- Payers
 - Medicare: CONNECT for Health Act (2016) and Next Gen ACO's
- Employers
 - Many offering telemedicine as a standard/covered service

“Choice, Transparency, Coordination, and Quality among DTC telemedicine websites...” , JAMA Dermatology 5/15/2016

Results We received responses for 62 clinical encounters from 16 DTC telemedicine websites from February 4 to March 11, 2016. None asked for identification or raised concerns about pseudonym use or falsified photographs. During most encounters (42 [68%]), patients were assigned a clinician without any choice. Only 16 (26%) disclosed information about clinician licensure, and some used internationally based physicians without California licenses. Few collected the name of an existing primary care physician (14 [23%]) or offered to send records (6 [10%]). A diagnosis or likely diagnosis was proffered in 48 encounters (77%). Prescription medications were ordered in 31 of 48 diagnosed cases (65%), and relevant adverse effects or pregnancy risks were disclosed in a minority (10 of 31 [32%] and 6 of 14 [43%], respectively). Websites made several correct diagnoses in clinical scenarios where photographs alone were adequate, but when basic additional history elements (eg, fever, hypertrichosis, oligomenorrhea) were important, they regularly failed to ask simple relevant questions and diagnostic performance was poor. Major diagnoses were repeatedly missed, including secondary syphilis, eczema herpeticum, gram-negative folliculitis, and polycystic ovarian syndrome. Regardless of the diagnoses given, treatments prescribed were sometimes at odds with existing guidelines.



I See What You Did.com

Market Analysis

- According to Ken Research, the telehealth market is expected to grow at an annual rate of 17-30% year over year for the next 10 years

- 2012: \$6 billion

- 2013: \$10 billion

- 2018: \$38 billion

The U.S. telemedicine market outlook to 2018 – rising penetration of telecom care and mHealth (Ken Research, 2014)

- Market Components

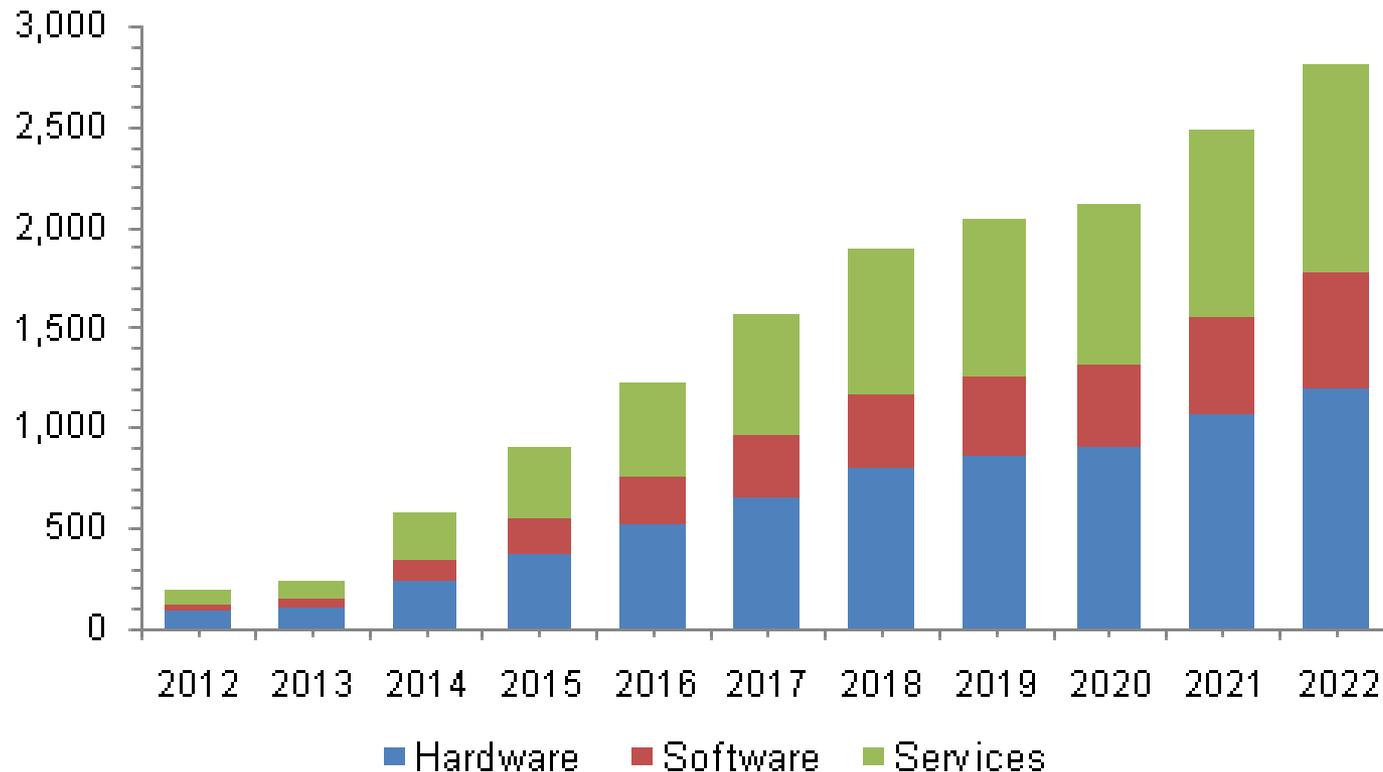
- Hardware

- Software

- Professional services

U.S. Telehealth Market Breakdown

2012-2022, USD Millions



Grand View Research, 2015

Market Analysis

- A 2016 sponsored study with over 390 respondents found:
 - Over 2/3 of healthcare facilities / systems report telemedicine is a TOP priority in 2016 and at an enterprise level
 - The #1 answer for ROI of telemedicine is “Improved Patient Satisfaction”, with actual financial ROI a lower priority
 - AKA: Healthcare systems utilizing to compete to acquire patients with less concern for immediate financial gain
 - Barriers (2) - reimbursement, EMR limitations
 - Interestingly, specialty care via telemedicine is more mature than general / primary care, despite the ease and applicability of the later
 - Facility and administrative support were greater predictors of program success than funding

Market Analysis

- According to a 2015 Price Waterhouse survey, which involved interviewing over 2,500 executives, doctors, and patients:
 - 2/3 of patients would utilize mHealth, but only 16% of doctors / systems currently offer
 - 12 million people received care via telemedicine in 2014, with the number expected to double year over year
 - 85% of doctors expect mHealth to be a component of their practice

Primary care in the New Health Economy: Time for a makeover (PwC, 2015)

Program Requirements

- Security of platform/technology
- HIPAA/privacy, business associate agreements, contracts, terms and conditions
- Malpractice insurance
- Licensure
- State laws
- National and specialty standards
- Payers
- EHR integration

Rhabdomyolysis: Nature's way of telling you to stop f***ing running already.



som^{ee}cards
user card

Rules, Rules, Rules

- National standards
- Specialty standards
- State requirements
- Who pays

National and Specialty Standards

- Largely, the standard of care for telemedicine is the same as the standard of care for in-person visits
 - Healthcare has deemed telehealth to be an acceptable delivery method for medical care across all specialties
 - Telehealth is NOT inferior to in-person
- For some specialties/conditions, telehealth is the STANDARD of care
 - Telestroke
- If limitations of the encounter prevent an adequate history, exam, assessment, and plan, then the patient should be seen in person

Interstate Medical Licensure Compact

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About the Compact

The Interstate Medical Licensure Compact offers a new, voluntary expedited pathway to licensure for qualified physicians who wish to practice in multiple states, increasing access to health care for patients in underserved or rural areas and allowing them to more easily connect with medical experts through the use of telemedicine technologies.

While making it easier for physicians to obtain licenses to practice in multiple states, the Compact strengthens public protection by enhancing the ability of states to share investigative and disciplinary information. The Compact is being implemented in a growing number of states, with others expected to adopt it soon.

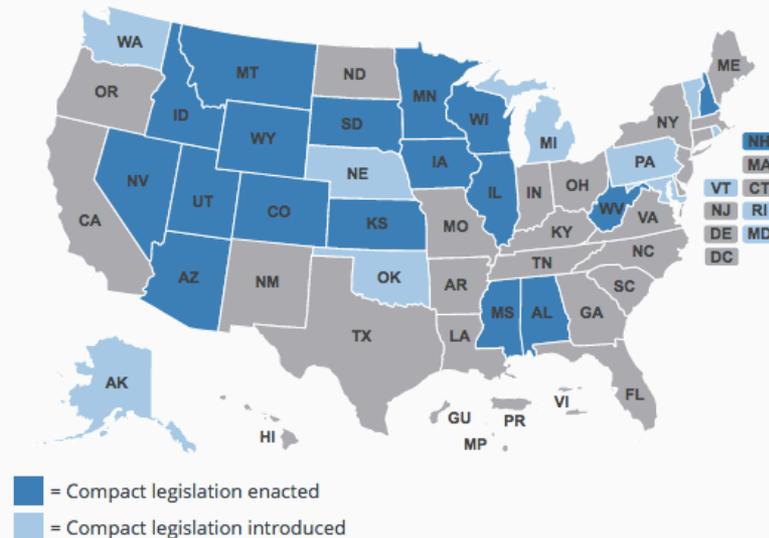
To learn more, call (202) 463-4000.

Latest News

[Colorado Becomes Latest State to Enact Interstate Medical Licensure Compact](#)

Enactments: 17

Introductions: 9



How the Compact Works



How and when can I apply for an expedited license?

The Interstate Medical Licensure Compact is in the process of establishing its administrative process for expedited licensure. Expedited licensing is not yet available but will be soon. To request information from the Interstate Medical Licensure Compact Commission (IMLCC), or to make a comment to the IMLCC, please contact Ian Marquand, IMLCC Chairperson, at imarquand@mt.gov. Please consult the interactive

FSMB Interstate Medical Licensure Compact



“Tele-ID”

- Telemedicine has tremendous potential for infection control and antibiotic stewardship, which are now both a CMS requirement
- Patients can be seen same day or next day without need to drive hours to see doctor or specialist
- Ability for specialists to reach remote clinics, hospitals, and nursing homes for oversight, committees, and patient care
- Becoming more and more important given rising rates of drug resistance and national measures to promote effective prescribing

Personal Experience

- Collectively, have performed over 3,500 unique, billable, telehealth encounters
 - Bacteremia
 - Sepsis
 - FUO
 - Endocarditis
 - Osteomyelitis
 - Meningitis
 - SSI/Cellulitis
 - Pneumonia
 - AIDS
 - Drug Resistance
 - UTI
 - Pyelonephritis
 - Tuberculosis
 - Influenza
 - Histoplasmosis
 - Septic Arthritis
 - Sinusitis
 - Discitis
 - Cat Scratch
 - I have no idea, fix it

Case #1

- 63 y.o. female with history of lymphedema, diabetes, hypothyroidism, hypertension, hyperlipidemia, and obesity
- 2 days of worsening left LE redness, warmth, pain, fatigue, and malaise
 - Prescribed Keflex 500 mg QID yesterday but today worse
 - Meds: Lisinopril, Amlodipine, Synthroid, Metformin, Glipizide
- 4 prior episodes of cellulitis and 2 hospitalizations (2013, 2015)
- Back in PCP office, urgent referral requested
 - She lives 180 miles from ID specialist

Case #1

- Telehealth visit set up within 30 minutes
- Patient reports a history of Penicillin allergy (hives) and does report feeling a little itchy today
- Prior episodes typically required IV antibiotics for 1-2 weeks prior to resolution
- Although she does not feel well, her vitals are stable and her labs are “acceptable”
 - WBC 14,000, creatinine 1.2 (baseline), lytes WNL

Case #1



Case #1



Case #1

- Telemedicine visit same day
 - GT-99205
- IV antibiotic (daptomycin, telavancin, vancomycin) x 1-2 weeks
 - Will receive at PCP office, which also doubled as an urgent care
- PICC/Midline/Peripheral IV ok
- Weekly CBC, BMP faxed to me
- Follow up in 1 week: 90% better, feeling well, transitioned to oral doxycycline 100 mg BID for suppression

Case #2

- 74 y.o. female with a history of hypertension and atrial fibrillation presents with 1 days of urinary frequency, urgency, hesitancy, and burning
 - History of occasional UTI's, 1-2/year, and an admission for pyelonephritis in 2005
 - Recently treated with ciprofloxacin 2 weeks prior – “symptoms got better but didn't completely go away”
 - Meds: metoprolol, coumadin
- Repeat UA/micro with >100 WBC, culture pending
 - CBC normal, creatinine 1.9 (baseline, CrCl 30)
- Telemedicine consultation requested
 - Patient lives 80 miles away

Case #2

- Telehealth visit same day
 - (GT-99204)
- Patient reports palpitations on cipro
- Culture from 2 weeks ago reviewed:
 - Susceptible to bactrim, nitrofurantoin, ertapenem
 - Resistant to ancef, rocephin, gent, cipro, augmentin
 - "ESBL"
- Rx'd PO fosfomycin 3 g QOD x 3 doses
 - Why not bactrim? Why not nitrofurantoin?
- Follow-up visit via telemed in 2 weeks - symptoms resolved
 - Do you do a repeat UA/culture?

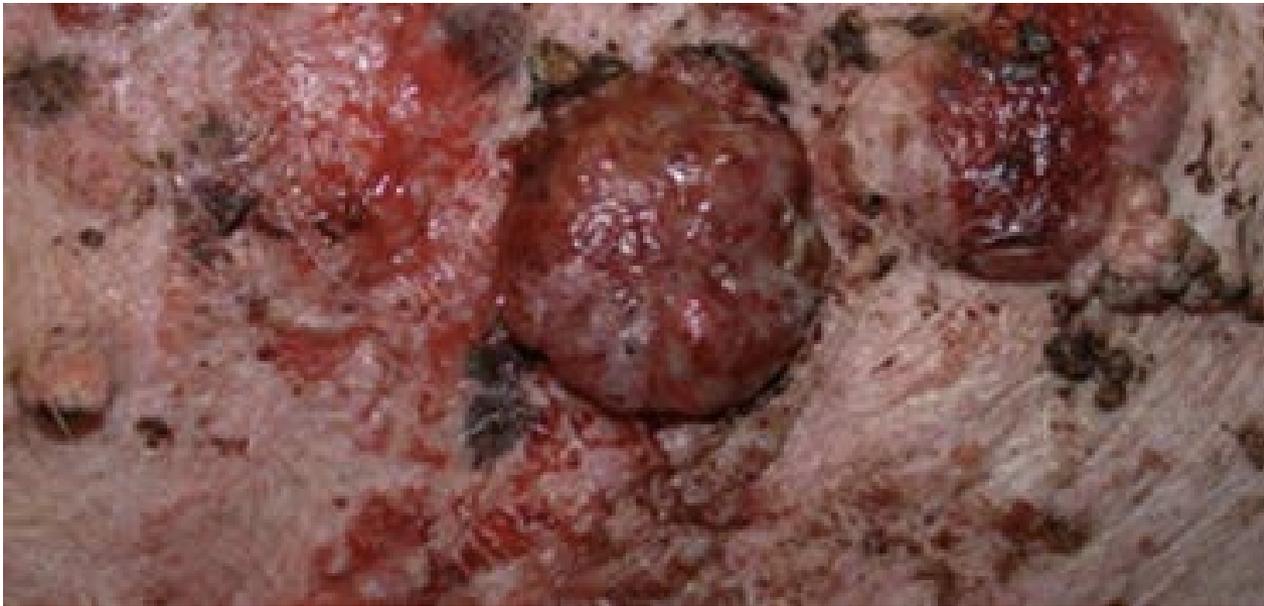


"Somehow your medical records got faxed to a complete stranger. He has no idea what's wrong with you either."

Case #3

- 81 y.o. male with history of CAD, dementia, nursing home resident, with a 1.5 year history of worsening lesion “infection” on thigh
 - No allergies
 - Takes ASA, lipitor, lisinopril
- Cultures of thigh with Strep, MSSA, Proteus, Pseudomonas
- Prescribed multiple courses of PO abx
 - Bactrim, keflex, cipro, augmentin
- Telemedicine visit requested, non-emergent

Case #3



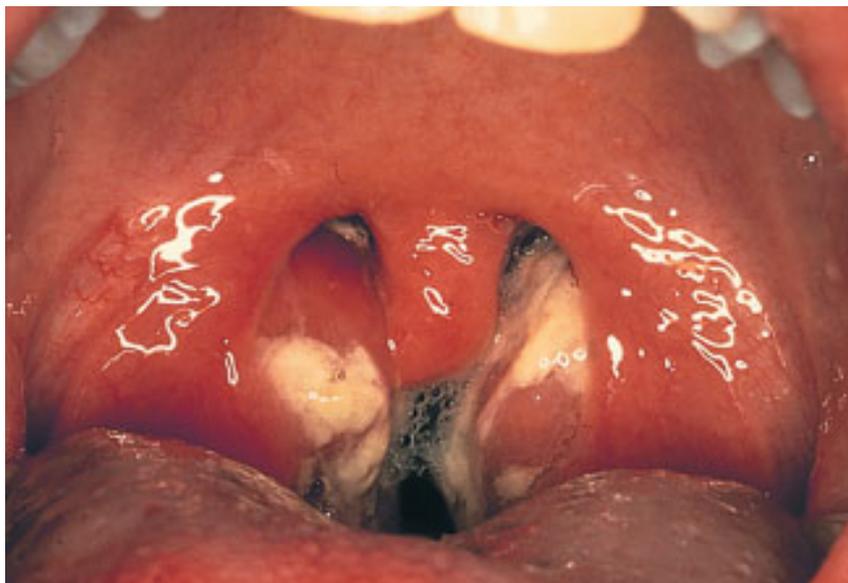
Case #3

- Saw same day via SNF nurse's smartphone
 - Billable (GT-99203)
- What do you do?
- Refer to Derm!!!
 - That is likely cancer and NOT an infectious disease

Case #4

- 15 female with sore throat, fatigue, cervical lymphadenopathy
 - Rapid Strep +
 - Treated with amoxicillin, but developed rash, changed to azithromycin
- Now with persistent fatigue, slight sore throat, diarrhea
 - Rapid Strep positive
 - C. diff positive
 - Still with exudates
 - ? What to treat

Case #4



Case #4

- Check monospot!
 - Classic presentation of Mono (fatigue, tonsillar exudates, cervical lymphadenopathy in acute phase, rash with amoxicillin)
- And...her C. diff PCR is positive
 - PO flagyl 500 mg TID x 14 days or PO vancomycin liquid 125 mg QID x 14 days
 - DO NOT need to check test of cure if asymptomatic (formed stools)

Take Home Points

- Appropriate antibiotic prescribing (or limiting inappropriate use/misuse) is the next big thing
 - MDR (ESBL, CRE, Colistin resistance) is our current reality
- If no pyuria (>10 WBC/HPF for urine micro) then no UTI and therefore no antibiotics
- If sore throat, fever, cough, runny nose then no rapid Strep test or antibiotics
- If C. diff, treat 14 days and if recurrent use vancomycin liquid or stool transplant
- Cellulitis is most likely Strep (75%) or Staph (15%)
- Telemedicine is now affordable, easy to deploy, and can be a great tool to connect patients with providers and specialists to remote/rural settings. **ESPECIALLY FOR INFECTIOUS DISEASE**

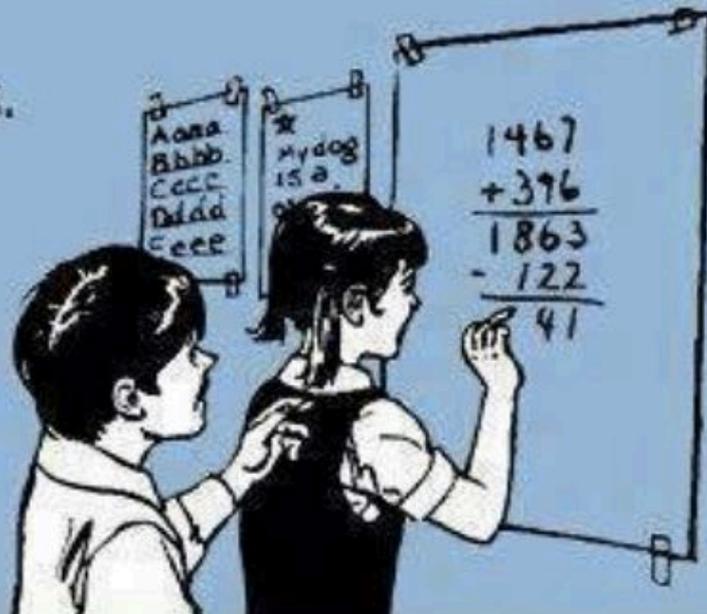
Thank You!

Billy has 32 candy bars. He eats 28.

What does he have now?

Diabetes.

Billy has diabetes.



som^{ee}cards
user card