Theoretical Infection-Exposure-Resistance Relationships

Fraction infected or resistant

- No Drug
- No Resistance
- Infection

Zone of Resistance Risk

- No Infection
- No Resistance

Drug Exposure

Low

High
• How often will dual therapy with fragile drugs (3TC, rilpivirine) lead to integrase monotherapy? To integrase resistance?

• How often will resistance emerge during subtherapeutic dosing with long acting drugs?
Perspective
HIV Drug Resistance — An Emerging Threat to Epidemic Control

Chris Beyrer, M.D., M.P.H., and Anton Pozniak, M.D.

The NEW ENGLAND JOURNAL of MEDICINE

NEJM 2017; 377:1605-7
5. Generic ART

Will They Decrease Costs?
<table>
<thead>
<tr>
<th>Drug</th>
<th>Quantity/Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic Ritonavir</td>
<td></td>
</tr>
<tr>
<td>Generic TDF/3TC</td>
<td></td>
</tr>
<tr>
<td>Generic EFV 600mg /TDF/3TC</td>
<td></td>
</tr>
<tr>
<td>Generic EFV 400mg/TDF/3TC</td>
<td></td>
</tr>
</tbody>
</table>

**Looking Forward**: DOR/gTDF/g3TC
Drug Pricing: The Simple Version

- **Average Wholesale Price (AWP)**
- **Wholesale Acquisition Cost (WAC)**

**Generics**

- **Average Manufacturer Price (AMP)**
  - **Best Price**
  - **Unit rebate: 23.1% / 13% of AMP or AMP – Best Price plus CPI penalties**
  - **340B Price**
  - **Medicaid Price**
  - **Supplemental rebates and discounts negotiated (including ADAPs)**

- **Private sector prices**
  - **Negotiation on most-favored commercial customer price**
  - **Rebates to PBMs Copay assistance Other price concessions**

- **Nonfederal Average Manufacturer Price (Non-FAMP)**
  - **76% of non-FAMP minus additional discounts**

- **Federal Supply Schedule (FSS) Price**

- **Federal Ceiling Price**

- **Federal Ceiling; “Big 4” Price**

- **Federal Upper Limit**
- **State Maximum Allowable Cost**

Slide courtesy Tim Horn, ACTHIV 2018
Looking forward...

• High prices = not sustainable, but will generics help?
• Lack of price transparency
  ➢ “Secret” discounts & rebates, older drugs are cheaper
  ➢ Expensive middlemen (Pharmacy Benefit Managers - PBMs)
  ➢ Copay cards to shield patients but keep prices high
• Drug access is a fragile “House of Cards”
• Advocacy needed here!
And...
Unintended Consequences

• Decoupling of single tablet regimens can lead to desynchronization of med refills
  • “I couldn’t afford both copays, so I only got one of them this time.”

• Generic costs are not necessarily cheap
  • Some insurers place all generics on the highest tier

• Generics may not be covered by “copay cards” may cost the patient more than the more “expensive” drug
  • “They told me that they wouldn’t cover my Truvada™ since there is now a generic. But the generic cost $300. I couldn’t afford it.”
6. TB Treatment for People with HIV

Game changer or not?
BRIEF-TB/A5279 Study: 1 Month of Rifapentine/Isoniazid to Prevent TB in People With HIV

1 month Rifa/INH non-inferior to 9 months INH alone

Endpoints: TB, TB death, or death from unknown causes

But...
**Rifapentine (RPT) PK**

- Induces CYP3A4, therefore interacts with most PIs, some INIs
- DTG PK study with INH/RPT terminated early due to toxicity (2 of 3 pts)
  - Nausea, vomiting, fever, hypotension requiring hospitalization, grade 2-4 transaminase elevation
- DTG exposure decreased 46%, Day 14; Cmin decreased 74%, Day 15

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PK with Rifampin

TAF/Rifampin: Probably OK
• Impact of rifampin on TVF-DP plasma concentrations
  – TDF: decreased 55%
  – TAF: decreased 36%
• Impact of rifampin on TVF-DP intracellular concentrations
  – TDF: decreased by 40%
  – TAF: increased by 76% relative to TDF without rifampin
• No data with rifapentine

BIC/Rifampin: Just Say No!
• Plasma BIC concentrations: ~60% lower
• Trough BIC concentrations: ~80% lower
• Twice daily dosing does not mitigate the effect
• No data with rifapentine but would avoid

Looking Forward:
Optimal ART for TB? New drugs?
7. The Opioid Epidemic

Opioids now kill more people than breast cancer

By Nadia Kounang, CNN
更新: 12:14 AM ET, 周日 2017年12月21日

Total US drug overdoses from 2006-2016

Total drug overdoses: 63,632

Opioid Deaths Rise, Especially in Youth 15-19

The First Count of Fentanyl Deaths in 2016: Up 540% in Three Years

By JOSH KATZ  SEPT. 2, 2017

New Clusters of HIV Infection Associated with IDU

NKY, Cincinnati see sharp rise in HIV cases linked to injected drug use; CDC to assist NKY

Terry DeMio, tdemio@enquirer.com  Published 12:00 a.m. ET Jan. 9, 2018 | Updated 9:24 a.m. ET Jan. 9, 2018

- Northern Kentucky: 18 cases (up from 0 to 5/yr)
- Cincinnati: 126 cases (up from 91)
- Massachusetts: 78 cases among PWID, 100% increase

HIV is surging in Lawrence and Lowell. The CDC wants to know why

April 5, 2018

Looking Forward...

• Remind lawmakers about ID complications of the opioid epidemic
  ➢ HIV, hepatitis B and C
  ➢ Infective endocarditis
  ➢ Skin and soft tissue infections

• Ryan White clinics need expansion funding to offer Medication Assisted Treatment

• Bills are pending on “The Hill.” Advocacy is urgently needed right now!
ADAPs with Medication-Assisted Treatment for Opioid Addiction on Formulary, 2018

8. The STD Epidemic

Culture Clashes and Funding Deficits

* 36 states were able to classify ≥70% of reported cases of primary and secondary syphilis as either MSM†, MSW†, or women for each year during 2012–2016.

† MSM = Gay, bisexual, and other men who have sex with men (collectively referred to as MSM); MSW = Men who have sex with women only.

Benzathine Penicillin G Crisis

- **Unavailable** – sole source manufacturing chain = stock-outs
- **Unaffordable** – prices as high as $350 per dose, far exceeding reimbursement

* 36 states were able to classify ≥70% of reported cases of primary and secondary syphilis as either MSM†, MSW†, or women for each year during 2012–2016. † MSM = Gay, bisexual, and other men who have sex with men (collectively referred to as MSM); MSW = Men who have sex with women only.
Beaver County Sees Uptick In STD Numbers Among Young People

By John Shumway March 9, 2018 at 7:04 pm

Huge STD outbreak in Pittsburgh suburb as health officials say 'under-24s are more promiscuous than ever'

- A health department alert revealed Beaver County, Pennsylvania, saw a 300 percent increase in HIV among 15- to 24-year-olds in 2017 compared to 2016
- There was also a 34 percent increase in gonorrhea, nearly twice the national increase across the same time period
Shock in Milwaukee over 'cluster' outbreak of HIV and syphilis, including babies and teens

- 125 persons with HIV, syphilis or both
  - 13% increase in HIV; 29% syphilis; 12% gonorrhea
Governor Scott Walker cut evidence-based sex education, funded abstinence only programs.
The 2018 Omnibus federal budget increased CDC’s 2019 STD budget by $5 million (replacing funds that were previously cut.)

This was not an accident – this was advocacy!

Looking Forward: More advocacy needed!
Looking Forward: With an accelerating STD epidemic, Bad Bugs are just a flight away from your clinic!

- Advocacy for state/federal STD clinic funding
- Antimicrobial stewardship
- New drugs needed!
9. Health Policy Threats

ACA, Medicaid, Medicare, Ryan White, PEPFAR, affordable medications

All under attack...
Budget Bullet Dodged (Temporarily)

Congress rejected the White House’s budget that would have

– Eliminated Ryan White AETCs and SPNS
– Cut funding for NIAID by $111 million
– Cut CDC funding by $767 million
– Slashed funding for PEPFAR, the Global Fund, global TB programs

This was not an accident – this was advocacy!
America Still Struggling with Health Literacy

While U.S. consumers are more willing to use technology to improve health care knowledge and access, few have a full understanding of basic insurance concepts.

- 62% Knew the correct meaning of the term “health care premium.”
- 62% Recognized the correct definition of the term “health plan deductible.”
- 36% Knew the meaning of the term “out-of-pocket maximum.”
- 32% Had a good understanding of the term “co-insurance.”

Only 7% of the U.S. population showed an understanding of all four of these basic health insurance terms.

* The amount of money a person pays for a health insurance plan each month.
** The amount a person pays for health care services before insurance coverage starts.
*** The maximum amount a person must pay for covered health expenses during a plan year.
**** The share of costs for a covered health care service a person must pay after health insurance coverage is factored in.
Threats to the
Patient Protection and Affordable Care Act

• Market instability: elimination of cost sharing reductions results in higher premiums
• Waivers allow financial penalties for preexisting conditions
• Elimination of Essential Health Benefits (prescription drugs!)
• Restoration of lifetime caps on out of pocket spending
• Cheaper “junk” insurance: low premium, low coverage
Threats to Continuous Access to Affordable ART

• Prior authorizations
• Step-therapy
• 30 day quantity limits
• ARV placed on highest tiers, subject to high coinsurance, a violation of the anti-discrimination clause, Section 1557 of the ACA
Insurers cutting back on drug coupons amid concerns over consumer costs

By Lisa Schencker · Contact Reporter
Chicago Tribune

SEPTEMBER 14, 2017, 7:50 AM
Copay Accumulator Programs Increasing

• Manufacturer co-pay cards no longer count toward a patient’s deductible or out-of-pocket maximum

• Insurers use misleading terms: “Coupon Adjustment: Benefit Plan Protection program” or “Out of Pocket Protection Program.” = FAKE NEWS!

• Patient gets stuck with entire deductible, making ART unaffordable for many people.
Program Operations:

CMS’ FY 2019 budget request for Program Operations is $2.4 billion, a decrease of $403.6 million below the FY 2018 Annualized CR Level. This request will allow CMS to continue operating Medicare, Medicaid, CHIP, and basic CMS support programs. The FY 2019 Budget proposes to wind down the Federal Exchanges for plan year 2020, as states transition to new Market-based health care grants. Additionally, the budget requests funding to reinvent CMS Medicaid and CHIP operations through improving data systems and creating scorecards that will give States an opportunity to demonstrate how they are using new and existing flexibilities to serve the interests of their citizens with appropriate Federal oversight. The request also funds core outreach and education activities that
Looking Forward...More of the Same!
Keep Your Eye on the Fine Print!
Speak Up!
SpeakUP monitors, catalogs and analyzes the problem experienced by people with HIV in the ACA health care system.
10. Stigma and Discrimination
It isn't lack of drugs preventing us eradicating Aids, but inequality

*Liliananne Ploumen*
Leadership Matters: Vastly Different Realities

“...first state in the nation committed to ending this epidemic.”

“Quarantine”

“What can we legally do”

“...well they are carriers, with the potential to spread whereas in the past they died more readily...not posing a risk

Slide courtesy Carlos del Rio, Jonathan Colasanti
“It was only when I learned about U=U that I realized that I have been living for all these years carrying this heavy weight. Because I took my meds, I kept on living. But inside I felt like I was dying. And that made me afraid to get close to anyone else. The night I heard about U=U, I couldn’t stop crying. It was like that burden I didn’t even realize I was carrying just fell away.”
No White House Office of National AIDS Policy
- Presidential Advisory Council on HIV/AIDS disbanded
- National HIV/AIDS Strategy removed from White House website
But...there’s more...

Emboldened white supremacy
Police violence
Religious persecution
Anti-immigrant & anti-LGBTQ hate crimes
Voter suppression
Why Does This Matter?
We are caught in an inescapable network of mutuality, tied in a single garment of destiny. Whatever affects one directly, affects all indirectly.

-Martin Luther King, Jr

Why We Can’t Wait, 1963
Civil Rights - Under Attack - What Do We Do?
ACT UP, FIGHT BACK
IGNORANCE = FEAR
SILENCE = DEATH
FIGHT AIDS ACT UP
SILENCE = DEATH
“Our lives begin to end the day we become silent about things that matter”

#MLK50
Activate Your Inner Activist
Mobilize, Organize, #Resist
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• Michael Mugavero
• Onyema Ogbuagu
• Robert Remien
• Dawn Smith - CDC
ACT UP, FIGHT BACK