Treating Tuberculosis and HIV in Indian Country

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Disclosures
Disclaimer

- **Disclaimer**: The findings and opinions expressed in this presentation are those of the author and do not necessarily reflect the view of the Indian Health Service.
Presentation

A 43 year old man is seen the Emergency Department for agitation. He was on an alcohol drinking binge until two days ago. On questioning, he is oriented to person only and sees people in the room who are not there. His uncle visiting at the bedside says that the patient has been living on the streets for 7 years.

On exam he is afebrile but has a heart rate of 132 and blood pressure 163/95. He is tremulous but the remainder of the exam is normal. Laboratory testing is notable for AST 65, ALT 41 and bilirubin 2.1. A CXR shows a left upper lobe cavitary infiltrate.
The patient is admitted to the ICU under airborne isolation and is treated for alcohol withdrawal syndrome with lorazepam then dextrometomidine. Sputum are collected for AFB testing and two are found to be RIF-GeneXpert positive for *M. tuberculosis*. He is started on RIPE for tuberculosis and after 4 days and is transferred to the medical surgical floor. He consents to rapid HIV testing and is found to be HIV positive. His HIV viral load is found to be 73,000 and his CD4 count is 134. He is discharged home after 21 days in the hospital to continue daily RIPE therapy at his uncle’s house.
The patient meets with the tribal TB technician daily for the first three days of directly observed therapy. On the fourth day the patient is not there. The uncle states that the patient left abruptly with friends the night before. He suspects the patient is back on the street, drinking alcohol.
Two questions to ponder…

- What went wrong?
- What can we do next to help this man?
Tuberculosis Disparities
Tuberculosis disparities: incidence and risk factors

From 2003-2008:
- 1.1% of all US TB patients were American Indian/Alaskan Natives
- TB Incidence was 5.9 per 100,000 population, 5 x greater than non Hispanic white persons
- AI/ANs had the largest percentage decline in incidence of all groups
- AI/AN were more likely to
  - Be homeless
  - Excessively use alcohol
  - Have no health insurance
  - Live in poverty
  - Receive Directly Observed Therapy (DOT)

Tuberculosis Disparities: Mortality

- TB Death rates for AI/AN significantly higher compared with Whites
  - 1990-1998: 3.3 vs 0.3. deaths per 100,000 per year (RR 11.37)
  - 1999-2009 1.5 vs 0.1 deaths per 100,000 per year (RR 11.5)

- Death rate for persons > 85 in 1990-1998 for AI vs White had Risk Ratio of 14.7

Paseo por el delanuzado con su
peonaza
2021
14 de febrero a las
José V. de
Cantera
Navajo History and Tuberculosis

- Yellow Fever and Cholera plagued the Navajo at Ft Sumner.

- Upon return to Dinétah, the first US government physician noted “consumption” among the Navajo.

- By 1912, 10% of the Diné had TB
  - TB was responsible for 50% of all illness seen on Navajo

- In 1925 25% of reservation deaths were due to TB.

- Hospital opened at Ft Defiance 1938: 343 Tb patients → 230 deaths.
Navajo History and Tuberculosis

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<tr>
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<th>Navajo</th>
<th>US all races</th>
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<td>Tb Incidence rate 1953</td>
<td>1042/100,000 per year</td>
<td>11.2/100,000 per year</td>
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<td>Tb Mortality rate 1950</td>
<td>1.9/ 1000 per year</td>
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Navajo History and Tuberculosis
Annie Wauneka

- Daughter of Chee Dodge & only woman on tribal council in 1951
- Studied TB for 4 months at the Ft Defiance Tb San to learn about “the little red worms”
- Visited Navajos in TB Sans in the 4 corners region
- Did home visits to teach her people about the “bugs that eat the body”
  - Nicknamed the Badge Lady

Navajo History and Tuberculosis

- Annie Wauneka’s accomplishments
  - AMA discharges on Navajo dropped dramatically by 1954
  - Traditional medicine practitioners learned about TB
  - Utilized the “health visitor” program of Many Farms Demonstration Project
    - Walsh McDermott, Cornell physician introduced INH in early 1950s
  - Advocated for transfer of Indian health from the BIA to the US PHS through the IHS
Navajo Nation/IHS TB Program

- In 1972 the Navajo Nation and the Navajo Area IHS began a collaboration

- **Bilingual** TB workers
  - Screen for TB in field with PPD testing
  - Administer DOT/DOPT
    - RIPE
    - 3HP
  - Contact investigations done in Dine bizaad and English
  - Ensure screening for HIV co-infection
Latent TB Infection

- **Persons at personal risk for reactivating TB**
  - 5 mm PPD cutoff:
    - HIV positive
    - Contact of active TB case
    - Fibrosis on CXR consistent with healed TB
    - Immunosuppressed (>15 mg prednisone/d for >1 month, transplant, infliximab, etc)
  - 10 mm PPD cutoff:
    - Recent immigrant
    - IDU
    - Resident or HCW at jail, nursing home, hospital, shelter
  - **DM**, CKD, lymphoma/leukemia, weight loss, silicosis, gastrectomy, age < 4 years old, ALD
TB Infection/LTBI

- **Three criteria for diagnosis**
  - Positive IGRA or TST/PPD → IGRA is now preferred
  - Asymptomatic
  - Clear CXR

- **Three regimens for treatment:**
  - Isoniazid plus Rifapentine once a week for 12 weeks 3HP
  - Rifampin 600 mg po daily for 4 months 4R
  - Isoniazid 300 mg po daily for 9 months 9H
3HP is the IHS **go-to LTBI regimen** in 2019

- **Regimen**
  - 900 mg po INH (3 pills) plus 900 mg po Rifapentine (6 pills) **weekly**
  - Approved for **age 2 & up**
  - Can be given self administered but we prefer **directly observed therapy**
    - Belknap et al: directly observed 87% effective vs 74% effective for self administered
  - **OK for**
    - Dialysis
    - HIV (if on the correct antiretroviral drugs)
LTBI Management advice

- Rule out active TB before and during Rx for LTBI

- **Adverse reactions of 3HP**: hypersensitivity, rash, hypotension and thrombocytopenia and orange body fluids

- Monthly assessments of adherence and side effects

- Baseline LFTs for: HIV coinfection, liver disease, post partum, alcohol us, IDU, on interacting meds (opiates, OCPs, etc)

- F/U LFTs if baseline abnormal and stop 3HP if
  - AST > 5x ULN and asymptomatic
  - AST > 3x ULN and symptomatic
TB technicians work to integrate Western TB management with traditional Navajo medicine care.

- IHS/638 Offices of Native Medicine at facilities
- Local traditional healers with TB expertise
Navajo Nation vs US Tb Incidence per 100K: 1990-2017
(from the 2017 Navajo Nation TB Annual Report)
Secret to success in reaching the rural TB patient

- 100% DOT for TB Disease and for Latent TB Infection
- Bilingual care and contact investigations
- Traditional Navajo approach including traditional medicine
- Compassion and patience: treat patients like family members

Case presentation

- A 36 year-old woman was recently diagnosed with chlamydia cervicitis in the Emergency Department and is referred to you for primary care follow-up. You offer a test for syphilis, HIV and Gonorrhea/Chlamydia (throat, pharynx, rectum).

- The HIV test comes back positive.
Is HIV a problem in the IHS in 2019?
HIV diagnoses | 2016 | Ages 13 years and older | All races/ethnicities | Both sexes | All transmission categories | United States

Footnotes: HIV data for the year 2016 are preliminary and based on 6 months reporting delay.
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Footnotes: HIV data for the year 2016 are preliminary and based on 6 months reporting delay. Therefore, trend data should be based on data through the year 2015 to allow sufficient time (at least 12 months) for reporting of case information to accurately assess trends.
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IHS incidence data

- 2273 AI/AN newly diagnosed with HIV from 2005-2014
  - Average annual rate 15.1 per 100,000 population
  - Rate for males was double that of females
  - Rates were highest age 20-54
  - The Southwest had the highest rate at 19 per 100,000 population
  - Overall rates were flat from 2010 to 2014 except for:
    - Males
    - Age 15-19
    - Age 45-49
    - Age 50-54

HIV Disparity: Death Rates

- Death rates for AI/AN compared with Whites increased with time
  - 1990-1998: 4.2 vs 7 deaths per 100,000 population
  - 1999-2009: 3.6 vs 2

- Death Rates highest in AI/AN age 24-44 and 45-64 in 1999-2009

- Disparities were highest for females

HIV Disparities: Why?

- Rural Southwest American Indian Community (n=36) 2004-2006:
  - 58.3% male, 13.9% transgender, 27.8% female
  - 63.9% had history of ever being incarcerated
  - 41% had a household income < $1,000 per month
  - 61% were unemployed
  - 50% had a diagnosis of alcohol use disorder
  - 27.8% used traditional medicine in the last 12 months

- Alcohol was the factor most strongly associated with high viral load

- Low CD4 count was associated with recent incarceration and use of traditional medicine

HIV history in the IHS

- First case of HIV in Navajo Area IHS was in 1987
- NAIHS HIV Program began in 1995
- In 2000 we began a multidisciplinary team involving ID and Pharmacy at GIMC
  - Amy Peng and Mark Schuster
- Added psychiatry, nutritionist, traditional healing over the years
- Now rely on Navajo on HIV Home care
IHS Approach to HIV Prevention

- Treatment as Prevention
- Pre Exposure Prophylaxis
- Home Care
Treatment as Prevention

Treat all HIV positive patients regardless of CD4 count
Antiretroviral Regimens

Tenofovir/Emtricitabine/Bictegravir
1 po daily

Or

Abacavir/Lamivudine/Dolutegravir
1 po daily
Antiretroviral Therapy Basics

The goal: viral load < 200 at 4-6 months

U = U
PrEP- What is it?

- HIV anti-retroviral therapy taken to prevent HIV infection
  - Zidovudine taken during pregnancy and for 6 weeks after by the baby decreases transmission by 68%
  - Zidovudine taken within 72 hrs of an occupational needlestick injury decrease HIV acquisition rates by 81%

- Animal studies suggested PrEP might be efficacious

- Human Studies have focused on the combination pill Tenofovir difumarate-Emtricitabine
PrEP-The evidence

- iPrEx-
  - 1224 MSM given daily TDF/FTC:
    - 44% reduction in HIV acquisition
    - No transmission of resistant virus

- Partners PrEP-
  - 1572 heterosexual men and women given TDF and 1568 given TDF/FTC:
    - 66% reduction in women getting both drugs
    - 84% reduction in men getting both drugs
    - No transmission of resistant virus
Who Should get PrEP?

- **MSM:**
  - Adult man
  - No evidence for acute or established HIV infection
  - Any male partners in the past **six months**
  - Not in a monogamous partnership with a recently tested HIV – negative man
  - And **at least one** of the following
    - Anal sex without condoms in the last **six months**
    - Bacterial STI in the last 6 months (Syphilis, gonorrhea or chlamydia)
Who Should get PrEP?

- Heterosexual Men and Women
  - Adult
  - No sign of acute or established HIV infection
  - Not monogamous with a recently tested HIV negative partner
  - And at least one of the following:
    - Man who has sex with both men and women
    - Infrequently uses condoms with sex with one or more partners of unknown HIV status who are at high risk (PWID or bisexual male partner)
    - Ongoing sexual relationship with an HIV-positive partner
    - Bacterial STI (syphilis or gonorrhea) in the last 6 months
Who Should get PrEP?

- **Persons who Inject Drugs**
  - Adult
  - No sign of acute or established HIV infection
  - Any injection of un-prescribed drugs in last 6 months
  - And at least one of the following
    - Any sharing of injection or drug preparation equipment in last 6 months
    - Risk of sexual transmission
What baseline evaluation should be done?

- Document negative antibody test within 1 week of starting PrEP
  - Serology
  - Rapid oral test

- Review for signs/symptoms of Acute HIV infection in prior 4 weeks
  - Fever, fatigue, myalgia, HA, pharyngitis, adenopathy, arthralgia, night sweats, diarrhea
  - If ROS positive, send HIV antibody/antigen test and HIV viral load test

- Other tests
  - Renal function (don’t prescribe if eCrCl < 60)
  - Hepatitis serologies
  - Other STDs
How do you prescribe PrEP?

- Tenofovir difumarate/Emtricitabine (Truvada™) 1 po daily
  - Tenofovir alafenamide/Emtricitabine recently approved for men

- Interactions
  - Acyclovir, valacyclovir, cidofovir, ganciclovir, aminoglycosides, NSAIDS

- Side Effects
  - Start-up syndrome: HA, Nausea, Flatulence
  - Nephrotoxicity
  - Decreased bone mineral density (1% decline), no fragility change at 1-2 years
How do you follow-up PrEP patients?

**Quarterly**
- HIV testing and Review for signs and symptoms
- Pregnancy testing
- Give a 90 day supply with no refills
- Review side effects and adherence

**Semi-annually**
- Monitor eCrCl
  - Stop if eCrCl < 60, monitor if > 60
- Screen for syphilis, gonorrhea, chlamydia (urine, rectal, pharyngeal)
References

Project Hope

- Started collaboration with Partners in Health/Brigham and Women’s Hospital in 2005

- “Introduced” PACT model of home care to Navajo Nation
  - COPE: Community Outreach Patient Empowerment
  - Accompanateurs = Navajo CHRs
  - COPE spun off into Project HOPE
    - HIV Outreach Patient Empowerment
Project HOPE (HIV Outreach Patient Empowerment)
Navajo Area IHS HIV Home Treatment:
TEAM NIZHONI
Gallup Indian Medical Center
Team Nizhoni

- **Four Pharmacists**
  - Med refills
  - Adherence counseling in clinic at every visit
  - Interactions, prophylaxis, lipids, etc
  - Jail Detox visits

- **2 ID and 2 IM doctors**
  - HIV ID referral and HIV Primary Care
  - Transgender care
  - Suboxone for narcotic use and Naltrexone for alcohol use disorder
  - HCV-coinfection
Gallup Indian Medical Center
Team Nizhoni

- **HIV Nurse Specialist**
  - Home visits modeled after the Navajo Nation TB method for directly monitored therapy
  - Jail/Detox outreach visits
  - Nurse Clinic visits: STI care, counseling, crisis intervention

- **Two Health technicians**
  - Navajo Speakers
  - “Home” visits to established high risk and newly diagnosed patients
HOPE Program essential tools:
Flip Charts and Medi-planners

HIV Myths
Home visits to monitor challenging patients
Tsehootsooi Medical Center Mobile Health Program

- **Mobile Women’s clinic**
  - 2 x per month, walk-ins only
  - Nurse Midwife, RN, Lab tech
  - PAP/HIV/STI testing

- **Mobile Wellness Clinic**
  - Public Health nurse, lab tech
  - HIV/STI testing, BP check
Teen clinics held at two local high schools
  - Offer STI counseling and Rx
  - Treat students with PrEP!

Mobile Clinic
  - HIV patients seen monthly

Same Day Clinic
  - Urgent HIV visits
Transgender Healthcare

- Transgender Clinic at Gallup Indian Medical Center
  - Started in 2012 in Gallup, NM
  - Offers trans-affirmative primary care, hormone therapy, screening for STIs, PrEP
  - Monthly trans support group
  - Fax referral to 505 726 8557
  - Email jennie.wei@ihs.gov
Does this approach work?
NAIHS New HIV Diagnosis by Fiscal Year
(N=596)
Getting the medical community ready to provide HIV care and prevention...
Indian Country HIV ECHO

- Monthly IHS telemedicine telemedicine conference
  - Sponsored by University of New Mexico and IHS
  - Twenty minute didactic talk re HIV care
  - Participants present 2-3 active cases

- Results:
  - 60 individual attendees (165 attendees total)
  - 13.8 average attendance/clinic
  - 19 unique patients presented, 23 case presentations total
The future...

- Universal ER and Urgent Care clinic opt out HIV and HCV testing
- PrEP at all IHS sites in the USA
- HOPE home care for all American Indian patients with HIV
- Eliminate HIV Transmission in Indian Country
LET US RESPOND TO THE CHALLENGE OF HIV/AIDS WITH DIGNITY, RESPONSIBILITY & COMPASSION.

NAGALAND STATE AIDS CONTROL SOCIETY