Hepatitis B and Tuberculosis Elimination Programs at North East Medical Services

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Director of Immigrant Health
Hep B United/TB Elimination Alliance Summit
November 2, 2021
North East Medical Services (NEMS) was founded in 1968 and began serving patients in 1971 in response to the lack of adequate health care services for uninsured and underprivileged Asians in San Francisco, California.

Over the last 50 years, NEMS has grown from a small primary care clinic in San Francisco’s Chinatown to one of the largest community health centers in the United States serving medically underserved Asian Americans and other marginalized populations, with 13 clinic locations across the San Francisco Bay Area.
# NEMS Services

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<th>Pharmacy</th>
<th>Health Education</th>
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<tr>
<td>成人內科</td>
<td>藥房</td>
<td>健康教育部</td>
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<th>Pediatrics</th>
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<tr>
<td>兒科</td>
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<td>會員服務部</td>
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<th>Obstetrics &amp; Gynecology</th>
<th>Radiology</th>
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<tr>
<td>婦產科</td>
<td>放射部/X光</td>
<td>脊椎神經科</td>
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<th>Behavorial Health Services</th>
<th>Acupuncture</th>
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<tr>
<td>牙科</td>
<td>心理健康服務部</td>
<td>針灸科</td>
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<tr>
<th>Optometry</th>
<th>Social Services</th>
<th>Physical Therapy</th>
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<tbody>
<tr>
<td>驗眼/配鏡科</td>
<td>社會服務部</td>
<td>物理治療中心</td>
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## Medical Specialties 醫療專科
- Cardiology 心臟科
- Endocrinology 內分泌科
- Gastroenterology 腸胃科
- Hand Surgery Consultation 手外科
- Hepatology 肝臟科
- Neurology 神經內科
- Ophthalmology 眼科
- Otolaryngology 耳鼻喉科
- Podiatry 足科
- Psychiatry 精神科
- Surgery 外科
Who We Serve

NEMS Patient Demographics 2020

- ~65-70K patients served each year
- 89% Asian
- 80% Limited English Proficient
- 74% Medi-Cal (California’s Medicaid program; including 16% dual eligible Medi-Cal/Medicare)

Percentage of elderly patients age 65+ is higher than San Francisco city (14%) and California state (13%)

Source: 2020 UDS Report
Immigrant Health Disparities at NEMS

As a NEMS service provider, what risk-based health screening needs to be considered for our patients?

What health conditions/diseases disproportionately impact our Asian immigrant population?

- Hepatitis B infection and liver cancer
- Tuberculosis infection
- Smoking and lung cancer
- H pylori infection and stomach cancer
Prevalence of Most Common Chronic Conditions among NEMS Patients

- **Diabetes**: 10% (NEMS UDS 2020) vs. 14% US average (CDC 2018)
- **Hypertension**: 21% (NEMS UDS 2020) vs. 47% US average (CDC 2018)
- **Latent tuberculosis infection**: 20% vs. 4.7% US average (NHANES 2011-2012)
- **Chronic Hepatitis B infection**: 8% vs. 0.3% US average (NHANES 2011-2012)

- 38% of persons infected with hepatitis B (HBsAg-positive) were also infected with tuberculosis (TST- or IGRA-positive)

Selected health conditions and risk factors, by age: United States, selected years 1988–1994 through 2017–2018
Tuberculosis at NEMS

• Reactivation of LTBI is the main source fueling active TB.
• ~75% of active TB cases are likely due to reactivation

1 in 5 NEMS patients infected with tuberculosis in their lifetime
TB Among Residents in Single Room Occupancy (SRO) Housing

Among 60,856 NEMS patients in San Francisco with at least one UDS eligible medical visit as of 1/1/2019:

- 3,434 (5.6%) reported living at a Single Room Occupancy (SRO) building or apartment
- 582 (17%) of SRO patients have had a positive PPD or QFT (compared to 12.5% of SF patients)
- 304 (51.3%) of SRO patients have been treated ever for TB

Image Source: Robert Wood Johnson Foundation (www.rwjf.org)
San Francisco Bay Area: A High TB-incidence Region

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>2019 TB incidence per 100,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>2.7</td>
</tr>
<tr>
<td>California</td>
<td>5.3</td>
</tr>
<tr>
<td>San Francisco</td>
<td>11.9</td>
</tr>
<tr>
<td>San Mateo</td>
<td>8.5</td>
</tr>
<tr>
<td>Santa Clara</td>
<td>8.4</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Data source: CDPH TB Control Branch provisional data tables 2019
cdph.ca.gov/Programs/CID/DCDC/Pages/TB-Disease-Data.aspx
86% of San Francisco TB Cases are Born Outside of the U.S. (~50% Born in Asia)

2018 TB Cases by national origin, San Francisco
• Reactivation of LTBI is the main source fueling active TB.

• ~75% of active TB cases are likely due to reactivation
Untreated LTBI – A Prevention Opportunity!

Estimated 65,111 San Franciscans with LTBI

LTBI prevalence: 1.8M

Aware of LTBI: 20%

Treated for LTBI: 12%

NHANES 2011-2012 applied to California population
Estimates from 2018 CDPH TB Control Branch Report
NEMS LTBI Care Cascade

1. Prior Screening Treatment PPD
2. Prior Screening Treatment QFT
3. Prior Treatment (Tx)
4. Prior Treatment for Active TB
5. Family with active Tx with active TB

Initial Template (In EHR or Cloud)

CTCA Risk Assessment Questionnaire

If at risk

Standing order
- PPD
- QFT

If positive

Order CXR

If:

1. Consider Tx: LTBI
2. Treatment & Tracking
3. ??

Public Health Consult

Meds Rx INH or Rifampin

Data

Public Health

Compliance Report
EMR TB risk assessment based on the CTCA/CDPH TB Risk Assessment Questionnaire

Patients on hemodialysis and sheltered/homeless were added as risk factors per local SFDPH guidance
Place of Birth collected upon patient registration to assist with TB risk stratification.

A place of birth outside of the US, Canada, Australia, New Zealand, or western/northern Europe will automatically notify provider patient is at-risk and to complete the risk assessment to indicate any prior history of TB and/or order TB screening test if not previously ordered.

Patient does not have TB Risk Assessment and is at risk due to place of birth.
Date

Date of QFT Test

Dear [Name],

The result of your QuantiFERON test (QFT) was **ABNORMAL**. The test result showed that you may have been exposed to tuberculosis. It is important for you to follow up with your primary care provider for additional testing.

Please call us at the phone number listed below to schedule an appointment to see your primary care provider to discuss about additional testing.

Thank you for choosing North East Medical Services (NEMS) for your care.

尊敬的東北會員，

我們想通知您最近在東北醫療中心所做的QuantiFERON測試(結核菌測試，簡稱QFT)的結果**不正常**。這意味著您可能受到結核菌感染。跟您的主診醫生作進一步檢查是非常重要的。

請致電以下的電話號碼預約時間和您的主診醫生討論進一步的檢驗。
1. Last LTBI discussed
   - Date indicates if LTBI treatment is necessary
   - Patients who are +LTBI, but don’t have a “Last LTBI discussed” date will require the following steps

2. LTBI Additional Info
   - Clicking on “Additional Info” will open up the “LTBI Treatment Info” box

3. LTBI Treatment Info
   - LTBI Treatment Info box will display all the necessary follow-up statuses to help providers keep track of LTBI patients.
   - Status Options:
     - Will Rx Today
     - Pt Refuse Tx, risks and benefits discussed
     - Already Treated (Report this only if you are confident that duration and treatment was appropriately done)
     - Tx not indicated
     - Refer to PCP for Evaluation
     - Other:

4. Provider Note
   - Once LTBI Treatment Info is filled out, the provider note will display the LTBI Treatment Info’s selected status
Individualized Provider Report

Patients who had visits between 01/1/16-12/31/16

LTBI Provider Progress Report (Report Run Date: 05/15/2017)
Current LTBI Statistic: Patient who had a visit between: 01/01/2016 to 12/31/2016

High Priority vs Medium Priority
- 22 / 56 = 39.29%
- 34 / 56 = 60.71%

Overall Med Prescribed
- 24 / 56 = 42.86%
- 32 / 56 = 57.14%

Overall Summary Med Prescribed

<table>
<thead>
<tr>
<th>Overall Summary Med Prescribed</th>
<th>32 / 56</th>
<th>57.11%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grand Total</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>High Priority</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Priority Total</td>
<td>22 / 34</td>
<td>64.71%</td>
</tr>
<tr>
<td>&lt; 50, Diabetes, &amp; Smoking</td>
<td>1 / 1</td>
<td>100.00%</td>
</tr>
<tr>
<td>&lt; 50 &amp; Smoking</td>
<td>6 / 8</td>
<td>75.00%</td>
</tr>
<tr>
<td>Diabetes &amp; Smoking</td>
<td>1 / 1</td>
<td>100.00%</td>
</tr>
<tr>
<td>&lt; 50 only</td>
<td>11 / 17</td>
<td>64.71%</td>
</tr>
<tr>
<td>Diabetes only</td>
<td>1 / 3</td>
<td>33.33%</td>
</tr>
<tr>
<td>Smoking only</td>
<td>2 / 4</td>
<td>50.00%</td>
</tr>
<tr>
<td><strong>Medium Priority</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium Priority Total</td>
<td>10 / 22</td>
<td>45.56%</td>
</tr>
<tr>
<td>Positive PPD/QFT</td>
<td>10 / 22</td>
<td>45.56%</td>
</tr>
</tbody>
</table>
Annual TB Provider Education by Local Public Health Department

Updates in LTBI Treatment

Susannah Graves, MD, MPH
Director, TB Prevention and Control Program, SFDPH
Assistant Adjunct Professor, Infectious Diseases, UCSD

Latent Tuberculosis Infection (LTBI) 101

Janice Louie, MD, MPH, Medical Director
Rocio Agraz-Lara, RN, PHN, Nurse Manager
San Francisco Tuberculosis Control and Prevention Program
2019
NEMS providers receive TB Free California’s LTBI treatment workflow algorithm, especially useful to new providers to reference.
Promoting TB Awareness Among Our Patients

1 in 7 Asian Americans in California is living with TUBERCULOSIS (TB) infection

Keep your family safe. Find our your TB status!

在加州，每7位美籍亞裔中就有1位

肺結核 (TB)

保護您的家人，確認您是否有肺結核感染
NEMS’ TB partners
Hepatitis B at NEMS

1 in 3 adult patients at NEMS were infected with hepatitis B in their lifetime and are at risk for hepatitis B reactivation and liver complications if immunosuppressed.

1 in 12 of adult patients at NEMS have chronic hepatitis B infection:
- Many did not know they were infected until tested by NEMS provider
- Globally, only 1 in 3 persons with chronic hepatitis B are aware of their diagnosis

1 in 4 persons with chronic hepatitis B will suffer liver complications such as liver cancer or cirrhosis if unmonitored or untreated.

1 in 4 pregnant women with hepatitis B in San Francisco receive their prenatal care at NEMS.
In the U.S. the highest burden of chronic HBV and HBV-related liver cancer is in the state of California and primarily in the San Francisco Bay Area, where the HBsAg(+) prevalence is ~4X higher than the general U.S. population (1.4%-1.8% vs. 0.4%).
## Hepatitis B/C Microelimination at NEMS

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<th>Screen</th>
<th>Vaccinate</th>
<th>Prevent</th>
<th>Mitigate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen all adult patients for HBV and HCV status</td>
<td>Vaccinate all HBV susceptible patients</td>
<td>Prevent HBV perinatal transmission</td>
<td>Minimize/prevent liver complications through routine monitoring, liver cancer surveillance, liver fibrosis staging, and treatment of patients with chronic HBV and HCV infection</td>
</tr>
</tbody>
</table>

### Educate
Educate providers on HBV/HCV care and patients about HBV/HCV transmission and risk factors

### Advocate
Advocate for policies to increase screening, vaccination and affordable treatment
Why screen all adult patients at NEMS for hepatitis B and C?

**Hepatitis B**
- USPSTF 2020: Test adolescents and adults at increased risk for infection
- > 90% of our patients are Asian or Pacific Islander and estimated > 80% foreign-born (based on preferred language)
- High HBV burden among adults at NEMS: 8% HBsAg+ (current infection) and 36% anti-HBc+ (ever infected)
- Test for *current or prior infection* –OR- need for vaccination (only ~25% U.S. adults are vaccinated)

**Hepatitis C**
- USPSTF 2020: One-time, routine, opt out HCV testing for asymptomatic adults aged 18 to 79 years (Grade B)
Next Gen Clinical Guidelines reminder for one-time HBV and HCV screening for all patients 18 years or older.
HBV Vaccinations at NEMS

- 2-dose (Heplisav-B) vaccine for non-pregnant adults*
- 3-dose (Engerix) HBV vaccines for high-risk pregnant women
- Birth dose for all infants, complete HBV vaccine series for all infants/children
- Hep B immune globulin and post-vaccination serologic testing for infants born to Hep B Moms
Perinatal HBV education and care coordination

Household contacts testing for HBV

Linkage to care with a NEMS HBV provider before and after pregnancy and HBV antiviral treatment to prevent mother-to-child transmission of HBV

Timely HBV immunoprophylaxis, complete HBV vaccinations, and post-vaccination serology testing for infants born to Hep B Moms.

Departmental HBV Champions
Rena Hu, MD, Ob/Gyn
Cami Le, MD, Pediatrics

HBV Provider Site Champions
Sandar Htun, MD, Eastmoor
Priscilla Tang, NP, Stockton
Jason Owyang, NP, Noriega
Connie Tran, NP, San Bruno

Perinatal HBV Care Management Specialist
Lixin Zhang, CPSP Provider & GI/UM Specialist
# NEMS Hep B Moms Roadmap

## If You Have Hepatitis B

### Protect Your Baby

#### & Your Health

Use this chart to track your care and your baby's care:

<table>
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<tr>
<th>1st Trimester &amp; 2nd Trimester</th>
<th>3rd Trimester</th>
<th>At Birth</th>
<th>1-2 Months</th>
<th>6 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>If needed, your doctor may talk to you about taking hepatitis B medication.</td>
<td>Your doctor will check your hepatitis B virus level before or at 28 weeks to decide if you need to start hepatitis B medication to prevent infection of your baby.</td>
<td>Tell the staff at the hospital you have hepatitis B.</td>
<td>Follow-up with your doctor for hepatitis B care if you were started on treatment during pregnancy.</td>
<td>Follow-up with your doctor for hepatitis B monitoring at least every 6 months.</td>
</tr>
</tbody>
</table>

### During Pregnancy

- Make sure your spouse and those living with you are tested for hepatitis B during your pregnancy.

### At Birth

- Baby must receive 2 shots within 12 hours of birth to protect from infection.
  - One shot of hepatitis B immunoglobulin (HBIG).
  - 1st shot of the hepatitis B vaccine.
- Once your baby gets the HBIG shot and hepatitis B vaccine, it is safe to breastfeed. You cannot give your baby hepatitis B from breast milk. Ask your doctor if you should still breastfeed if you have cracked nipples or open sores on your breast.
- Hospital staff will give you an immunization card to track baby's shots. Bring this card to all of your baby's doctor visits.

### 1-2 Months

- Your baby is due for their 2nd hepatitis B vaccine.

### 6 Months

- Your baby is due for their 3rd hepatitis B vaccine.

### 9-12 Months

- Your baby needs a blood test to check their hepatitis B status.
  - This is special for babies born to mothers with hepatitis B.

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Acknowledgements: The creation of this material was funded by the Prevent Cancer Foundation and modeled after Charles B. Wang Community Health Center's Hep B Roadmap.

NEMS - Rev. 10/2020
Hepatitis B Registry

- ~7000 patients with HBsAg(+), HBV DNA positive, or ICD-code B18.1 chronic hepatitis B
  - 96% Asian; 51% female
- ~3175 with a medical visit within the last year
- ~60 with a prenatal visit within the last year

**Mitigate**

Minimize/prevent liver complications through routine monitoring, liver cancer surveillance, liver fibrosis staging, and treatment of patients with chronic HBV infection

Increased liver cancer risk among Asian M > 40yo, Asian F > 50yo

#HBV Patients by Age (range 5 to 108 years)
How do we risk-stratify patients for HBV complications?

Every 6 months Lab Monitoring

Viral load (HBV DNA)

Liver inflammation (ALT)

Fibrosis Staging

Liver fibrosis (METAVIR score)
NEMS Liver Fibrosis Staging Program

- Fibroscan Clinic twice monthly at Stockton Clinic
- No longer need to refer to CPMC/UCSF for Fibroscan
- All viral hepatitis B and C patients recommended to have baseline fibrosis assessment
- Can also consider Fibroscan for patients with NAFLD/NASH, alcoholic liver disease/steatosis, persons with elevated ALT of unknown etiology, diabetes
Hepatitis B Liver Cancer Surveillance Program

NEMS Radiology began using **Ultrasound Liver Imaging Reporting And Data System (US LI-RADS)** in Fall 2020 to standardize liver cancer surveillance recommendations.

Liver US recommended every 6 months (twice yearly) for HBV and HCV patients with cirrhosis and HBV Asian M > 40yo, Asian F > 50yo, or family history liver cancer.

However, only ~30% of M> 40 and F > 50 in NEMS’ HBV Registry have had at least 1 liver imaging study in the last year.
HBV ECHO hosted by SF Hep B Free—Bay Area, case-based learning sessions between Bay Area HBV specialists and primary care providers
Hep B/C Elimination Advocacy and Policy

California AB 789 (Low/Gibson) Hep B and C Screening and Referral to Care

• This bill requires routine hep B and C screening in primary care healthcare settings and referral to care as appropriate
Where we fall short on reaching hepatitis B and C elimination goals

- Liver cancer surveillance ultrasounds
- HBV and HCV treatment, referral out and lost to f/u
- HBV household contacts and community screening
- HBV vaccination, not vaccinating all susceptible, incomplete vaccinations
NEMS’ Hepatitis B Partners