DISCLOSURES

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COMPLETING THIS ACTIVITY

Successful completion of this continuing education activity includes the following:

- Attending the entire CE activity;
- Completing the online evaluation;
- Submitting an online CE request.

Your certificate will be sent via email
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Faculty: Jorge Mera, MD, FACP

CME Committee: David Couch; Kathleen Clanon, MD; Johanna Rosenthal, MPH; Pat Blackburn, MPH; Richard Fischer, MD; Sharon Adler, MD

CNE Committee: David Stephens, BSN, RN; Erin Edelbrock MPA; Ginny Cassidy-Brinn MSN, ARNP; Carolyn Crisp, MPH

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CONFLICT OF INTEREST

Richard Fischer, MD is a member of an Organon speaker's bureau.

Dr. Fischer does not participate in planning in which he has a conflict of interest, and he ensures that any content or speakers he suggests will be free of commercial bias.

Dr. Jorge Mera has been on advisory boards for Gilead Sciences and AbbVie Pharmaceuticals.

Dr. Mera will present all treatment alternatives without bias.

None of the other planners or presenters of this CE activity have disclosed any conflict of interest including no relevant financial relationships with any commercial companies pertaining to this CE activity.

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Acknowledgement

This presentation is funded in part by:

The Indian Health Service HIV/AIDS & Hep C Program
and
The Secretary's Minority AIDS Initiative Fund

There is no commercial support for this presentation

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Outcomes and Objectives:

Conference Objective: At the completion of this activity, the learner will be able to explain the steps that would be necessary to begin to screen for and treat patients with the Hepatitis C Virus (HCV) at their practice sites.

By the end of this learning event participants will be able to:

- Define elimination as it relates to infectious disease
- Identify interventions required to achieve HCV elimination
- Describe Cherokee Nation Health Services HCV elimination program

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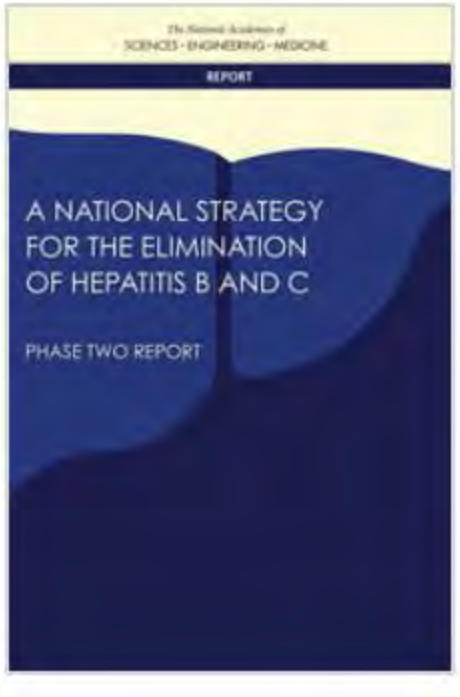
Elimination Program at Cherokee

Jorge Mera, MD, FACP

Objectives

- Define elimination as it relates to infectious diseases
- Identify interventions required to achieve HCV elimination
- Describe the CNHS HCV Elimination program

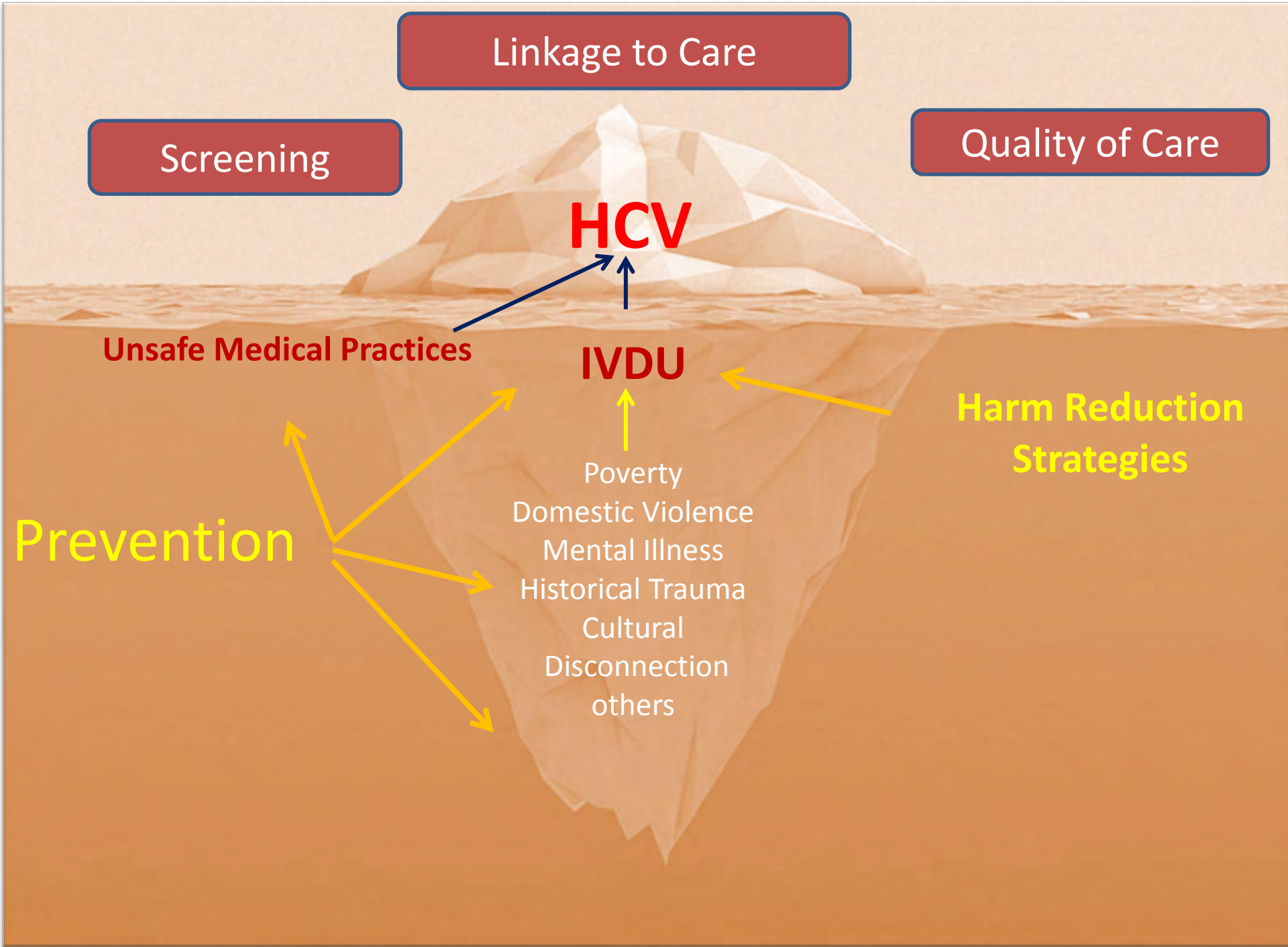
Considerations: Elimination



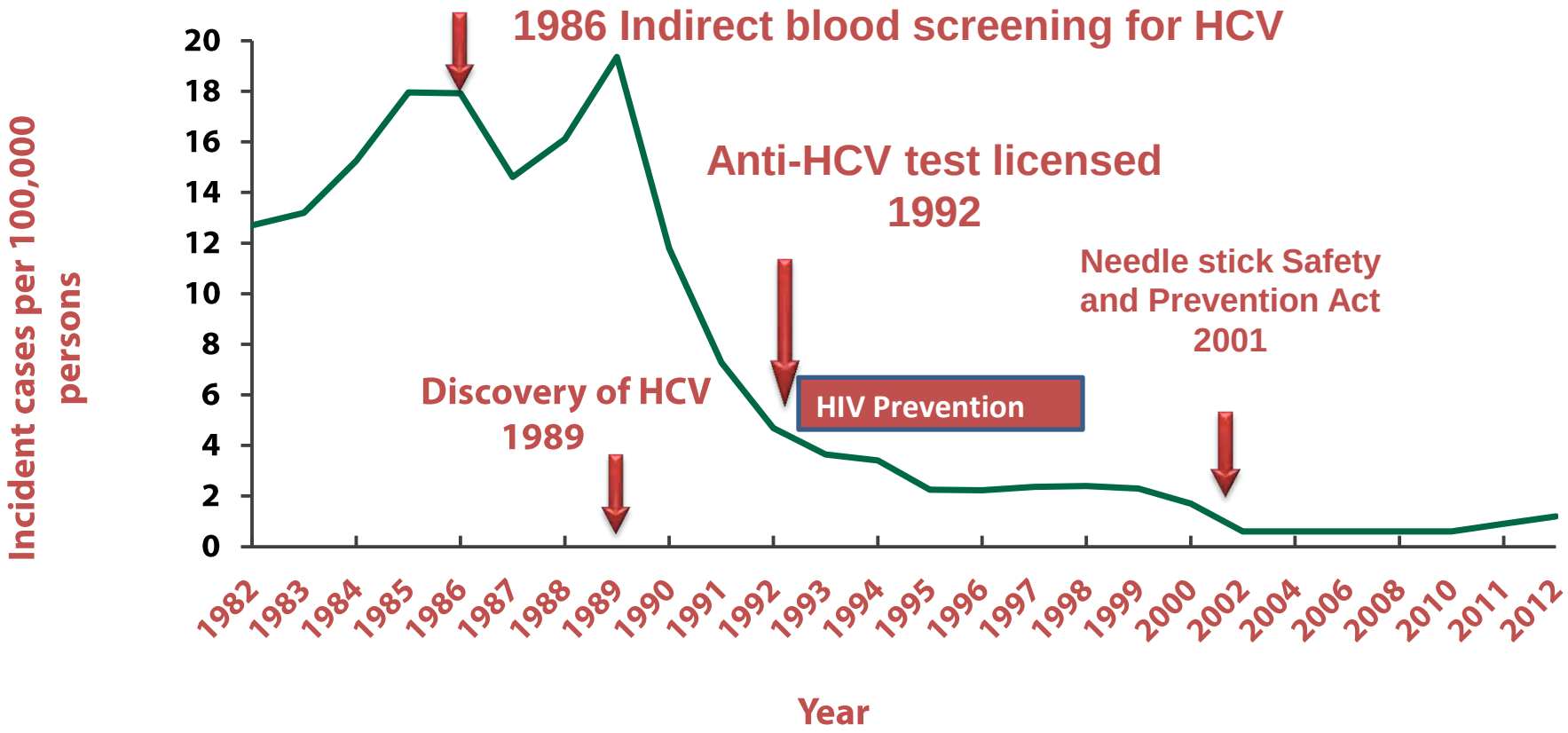
Available at: nas.edu/hepatitiselimination

- National Academies of Sciences, Engineering and Medicine *(formerly IOM)*
  - Released report on April 11, 2016
  - Committee determined that:
    - Both hepatitis B and C could be rare diseases in the US
    - Considerable will and resources would be required to do this
  - Released report in April 2017 addresses what steps must be taken

Decrease the incidence of HCV by 90 % and mortality by 65 % by the year 2030


Linkage to Care
Screening
Quality of Care
HCV
Unsafe Medical Practices
IVDU
Harm Reduction Strategies
Prevention
Poverty
Domestic Violence
Mental Illness
Historical Trauma
Cultural Disconnection
others

Discovery of HCV and Impact on HCV Incidence in US



22,000 cases of incident HCV infection reported in 2012

Division of Viral Hepatitis

Definitions

- **Control:**
  - The reduction of disease incidence, prevalence, morbidity or mortality to a ***locally acceptable level*** as a result of deliberate efforts; continued intervention measures are required to maintain reduction. *Example:* diarrheal diseases
- **Elimination:**
  - Reduction to zero of the incidence of infection caused by a specific agent in a ***defined geographical area*** as a result of deliberate efforts; continued measures to prevent re- establishment of transmission are required. *Example*: measles, poliomyelitis.
- **Eradication**
  - ***Permanent reduction to zero of the worldwide*** incidence of infection caused by a specific agent as a result of deliberate efforts; ***intervention measures are no longer needed***. *Example*: Smallpox

Miller M. et al. In Disease Control Priorities in Developing Countries: 2nd Edition 2006

Feasibility Criteria for Elimination

In General[1]	Hepatitis C Virus	Check list
No non- human reservoir and the organism can not multiply in the environment	No human reservoir	✓
There are simple and accurate diagnostic tools	Serology widely available	✓
Practical interventions to interrupt transmission	Treatment as prevention Needle exchange programs Opioid substitution programs	✓
The infection can in most cases be cleared from the host	Treatment is 95 % curative	✓

1. Hopkins DR NEJM 2013. 368;1

Essential Goals to Eliminate HCV

- **Prevent sequelae of advancing liver disease in those already infected**
  - Baby Boomers, born 1945 -1965
- **Prevent new or "incident" infections**
  - Persons who inject drugs
  - Unsafe healthcare practices
  - Sexual exposures in Immunocompromised individuals

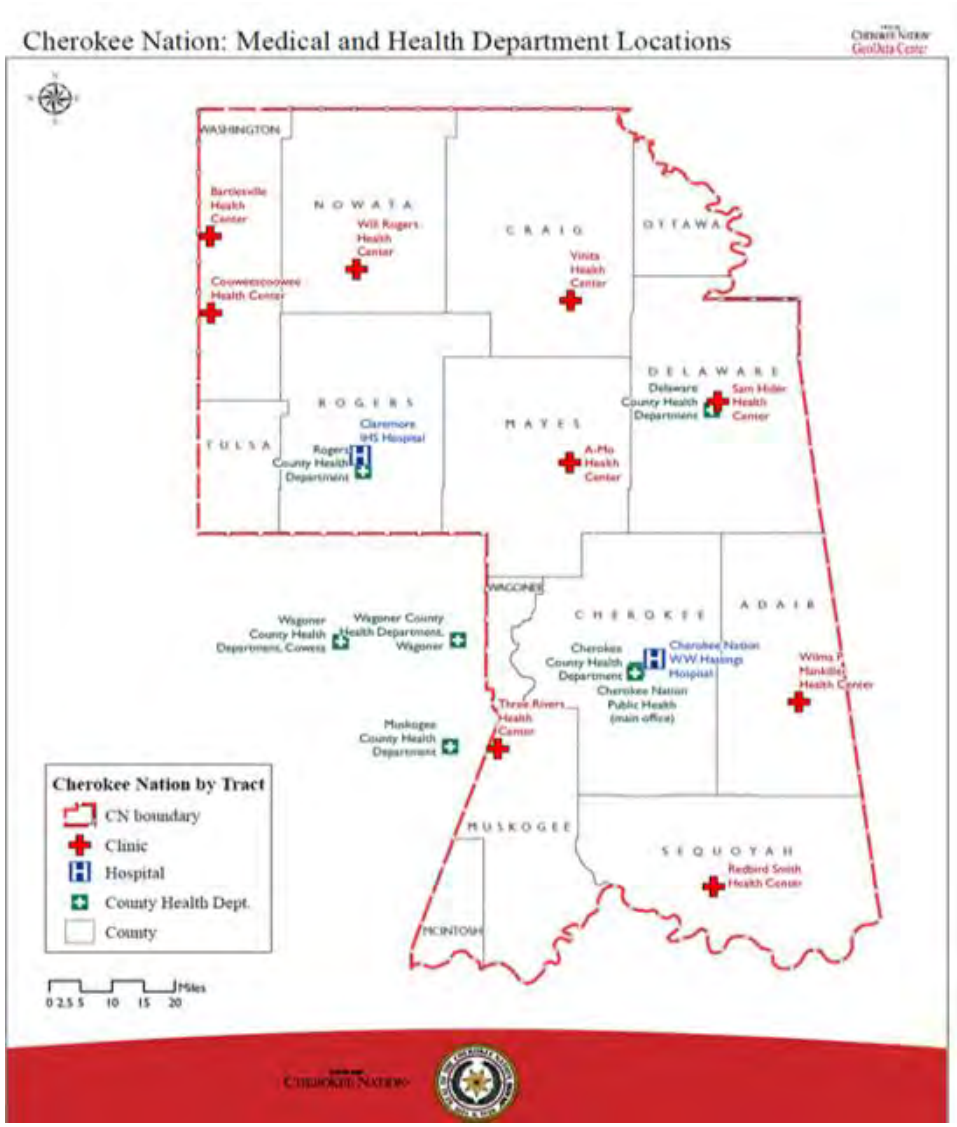
Cherokee Nation Jurisdiction

Sovereign Nation within a Nation

- 14 county area (over 9,200 sq mi.)
- Largest tribal operated health system (U.S.)
- Second largest Indian Nation in the U.S.
- 322,855 Registered citizens world-wide
- Medically serves 130,000 AI/AN

AI/AN: American Indians/ Alaskan Natives

Cherokee Nation Jurisdiction



- Rural area with high HCV prevalence
- 130,000 AI/AN
- 80,928 citizens ***ages 20 – 69***
- HCV program since in 2012
  - ECHO model for delivery of HCV care
  - Clear pathways for medication procurement

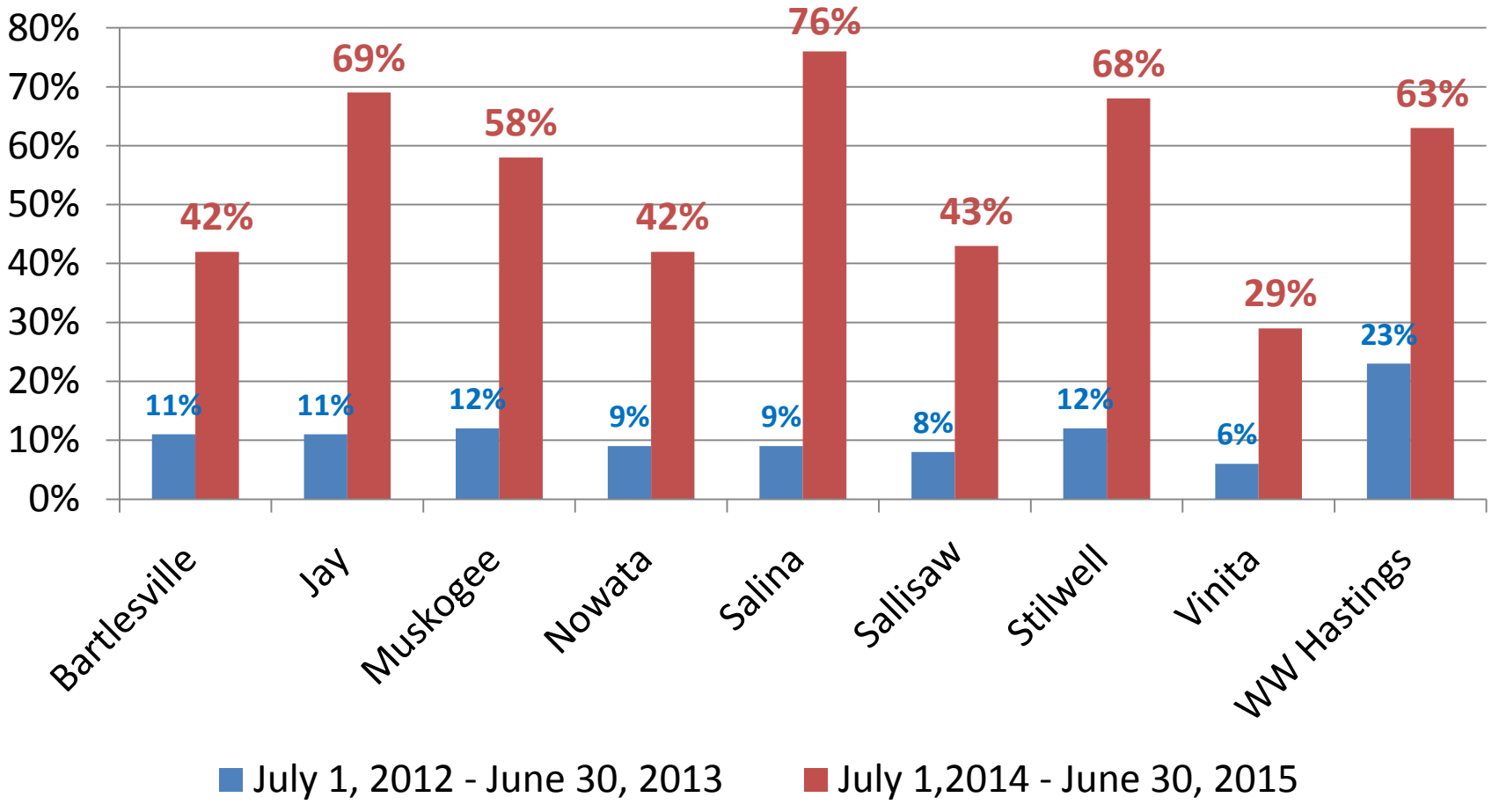
Source: Cherokee Nation, 2017

CNHS HCV Clinic 2012-2014

- 262 HCV infected patients waiting to be treated
- Prevalence unknown, possibly 5.8 %
- Possibly 3,285 patients!!!!!!

- How do we increase screening?
- How we do we engage and treat more patients?

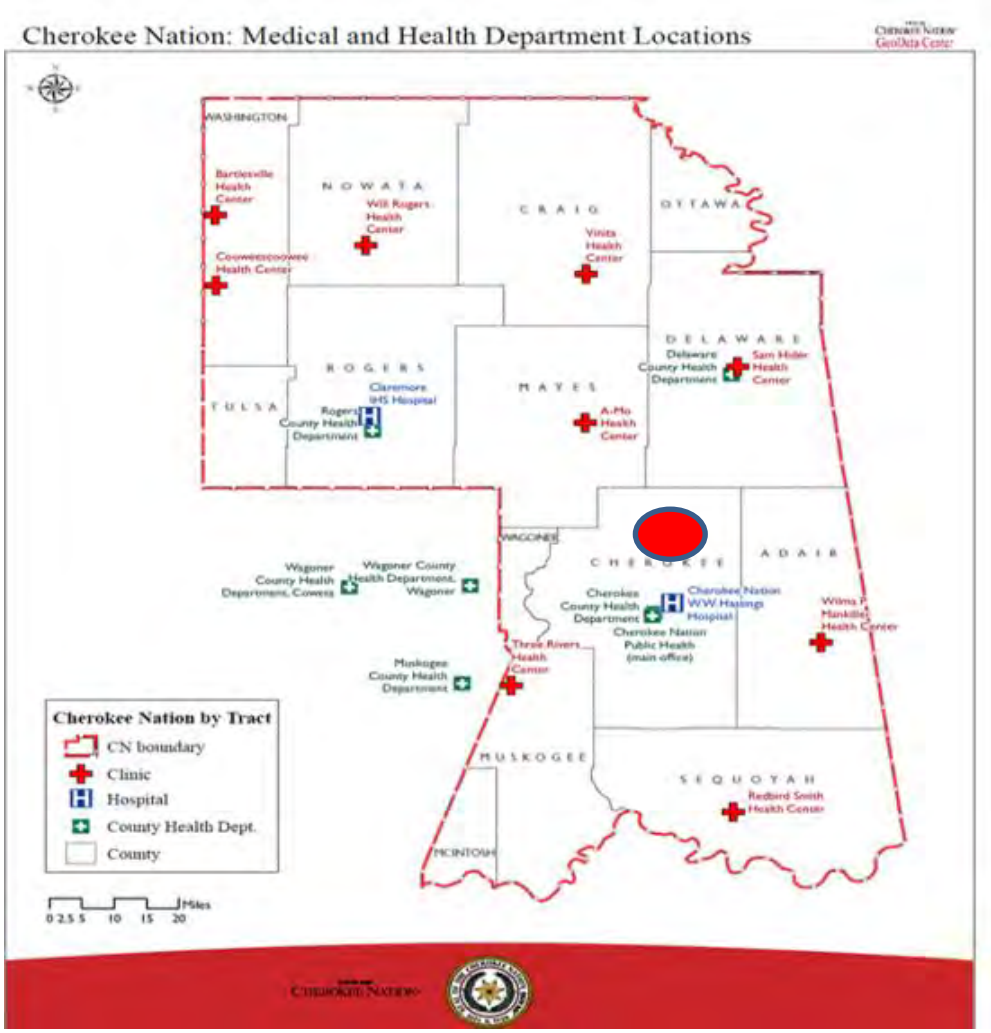
Hepatitis C Screening
Electronic Health Reminders Work!!!!!!



Moving Knowledge Instead of Patients

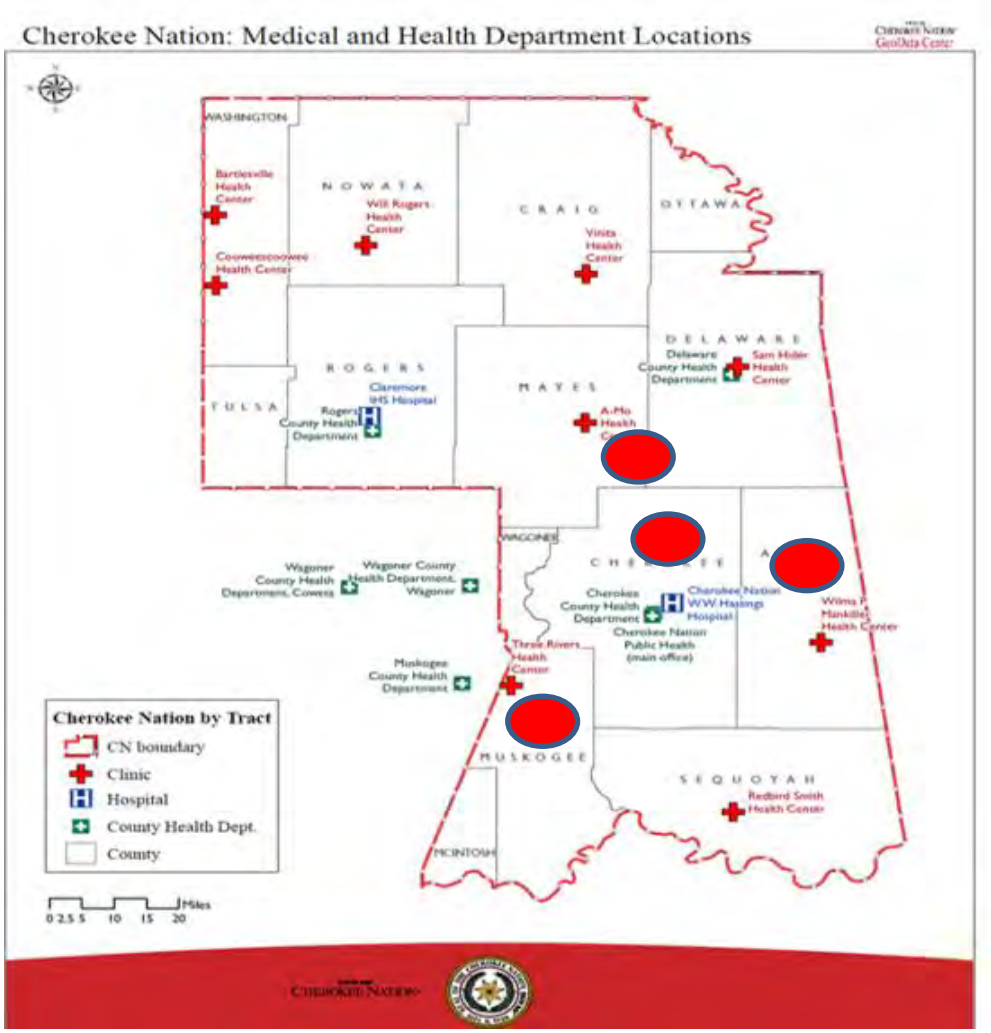
- **GOALS:**
  - Develop capacity to safely and effectively treat HCV in all areas and to monitor outcomes
  - Develop a model to treat complex diseases in rural locations and developing countries

HCV Services Available at CNHS 1/2012 -6/2014



HCV Clinics

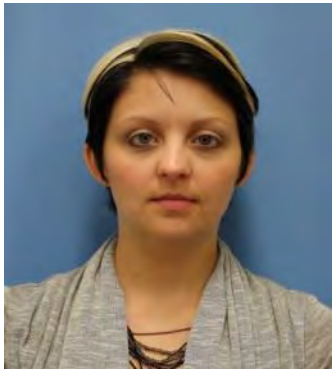
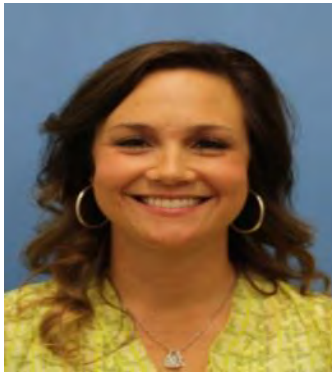
HCV Services Available at CNHS 7/2014 – 7/2015



HCV Clinics

First ProjectECHO HCV Team 2014



CNHS HCV Elimination Program Goals
8/2015 – 10/2018

1. Secure political commitment for HCV elimination

2. Expand the HCV screening program

3. Establish robust programs to link to care, treat, and cure patients with HCV.

4. Reduce the incidence of new HCV infections

CNHS: Cherokee Nation Health Services

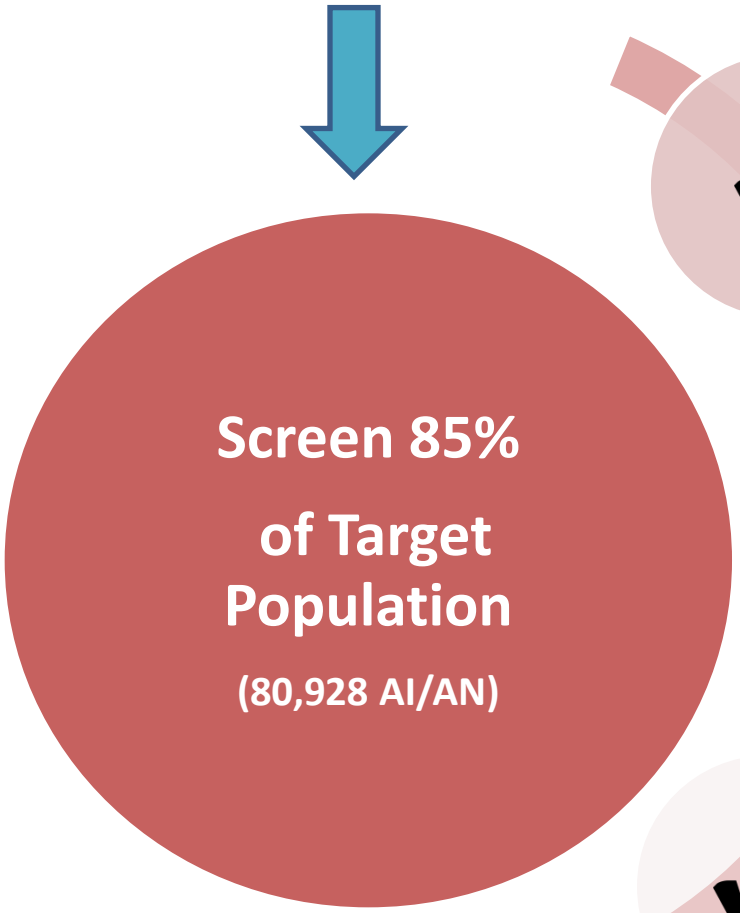
Goal #1: Political Commitment

October 30, 2015, CNHS HCV Awareness Day

"As Native people and as Cherokee Nation citizens, we must keep striving to eliminate hepatitis C from our population."
Chief Bill John Baker

CNHS: Cherokee Nation Health Services

Goal #2: Expand Screening Program



Universal Screening

- Ages 20-69

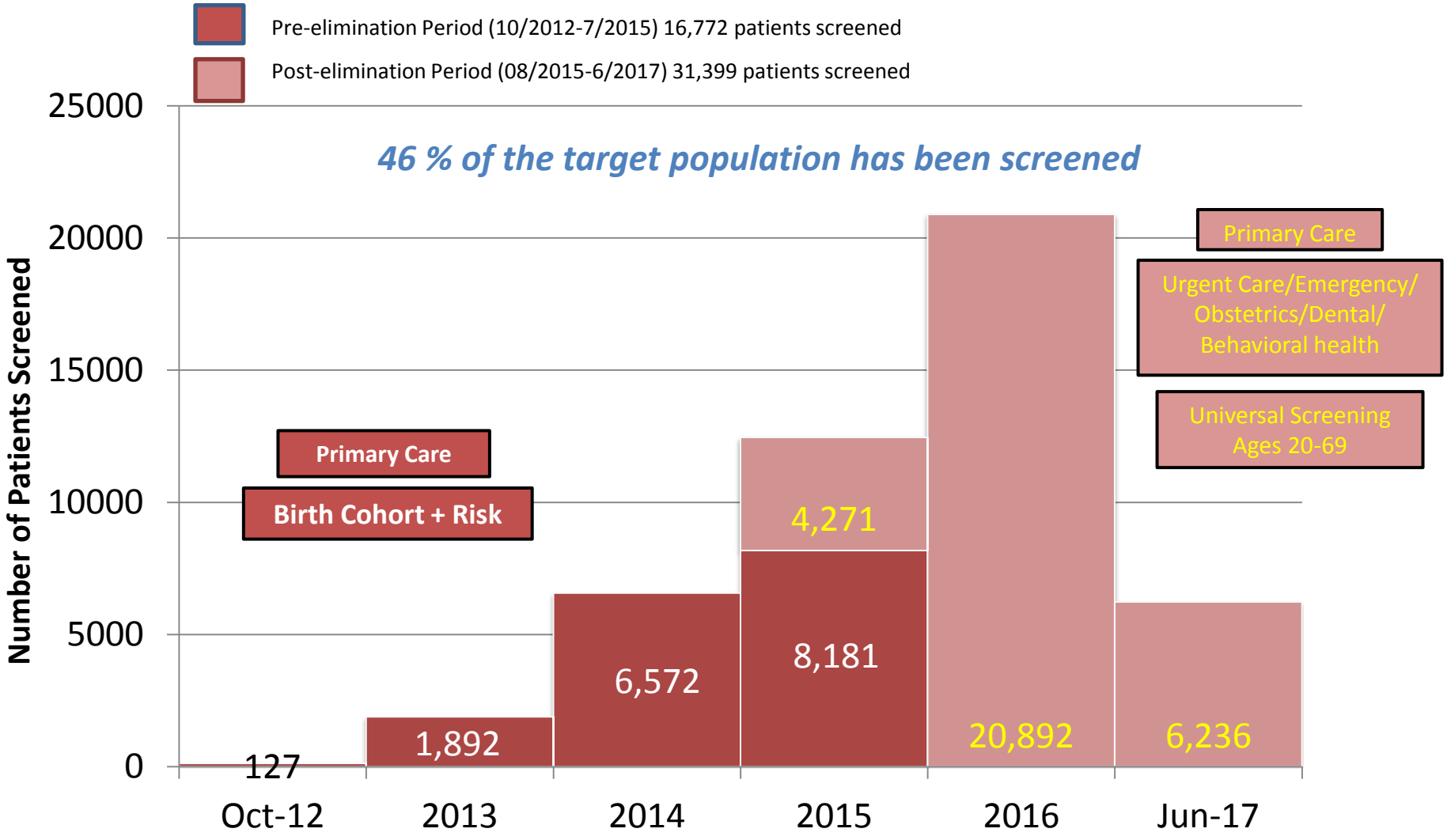
Non-Traditional Screening Sites

- Emergency Department
- Urgent Care
- Dental Clinics
- Behavioral Health
- OBGYN

Screening Modalities

- EHR Reminders
- Rapid Tests
- Lab Triggered screening

HCV Screening in CNHS*
10/2012 – 6/2017



CNHS: Cherokee Nation Health Services

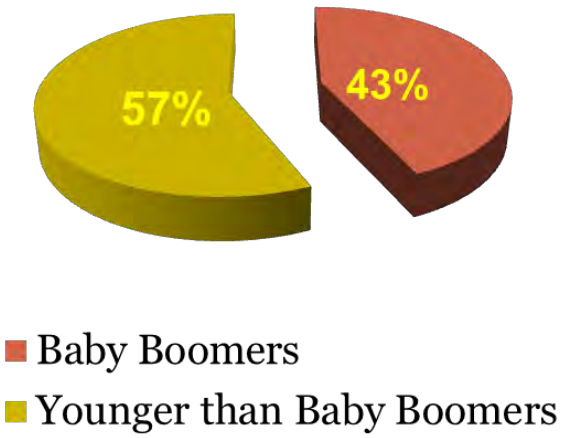
*preliminary data

HCV: Prevalence and Age Distribution*
Post Elimination Period, 8/2015 – 5/2017

Prevalence

- 31,399 patients screened
- 1,076 HCV seropositive
  - Overall Prevalence ~ 3.4%
    - Male 4.4%
    - Female 2.9%
  - Baby boomers
    - 3.7% (12,540)
  - Younger than Baby Boomers
    - 3.3% (18,319)

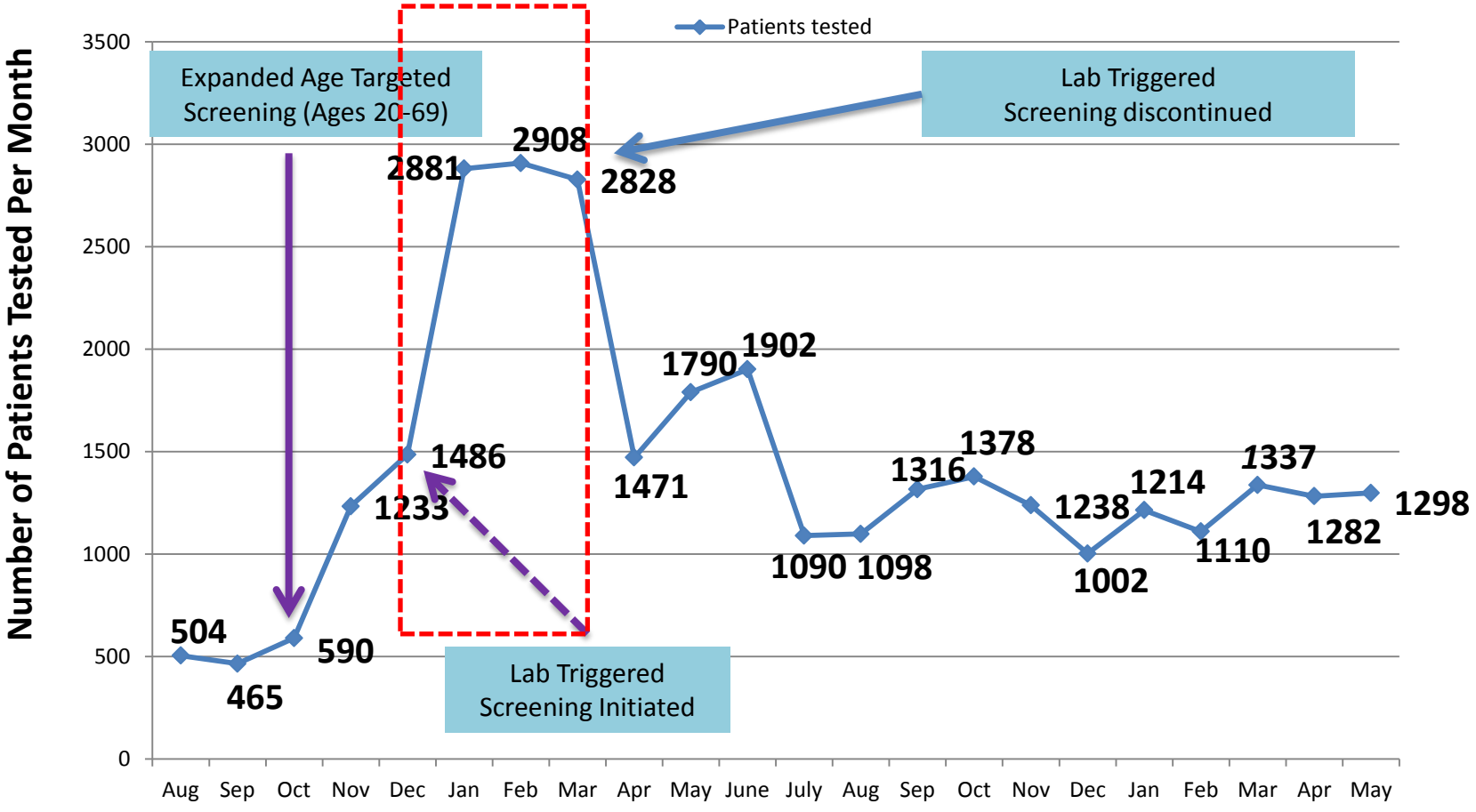
Age Distribution of HCV Ab (+) patients



*preliminary data

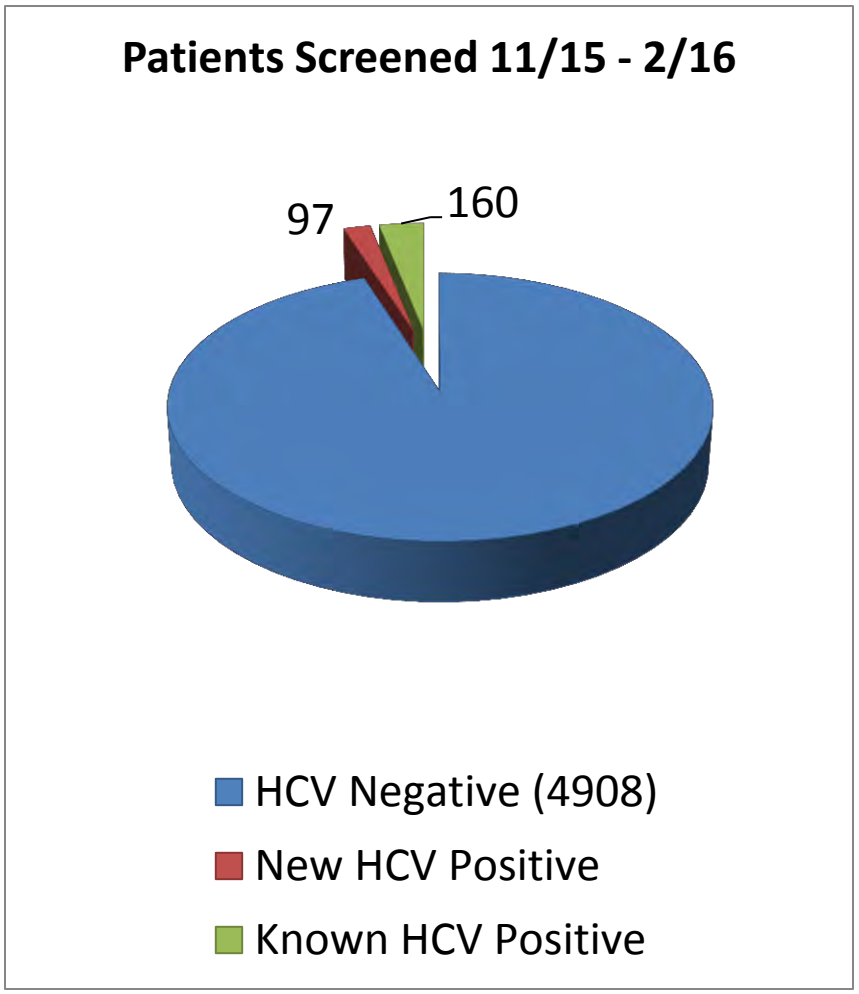
HCV Screening in Cherokee Nation*

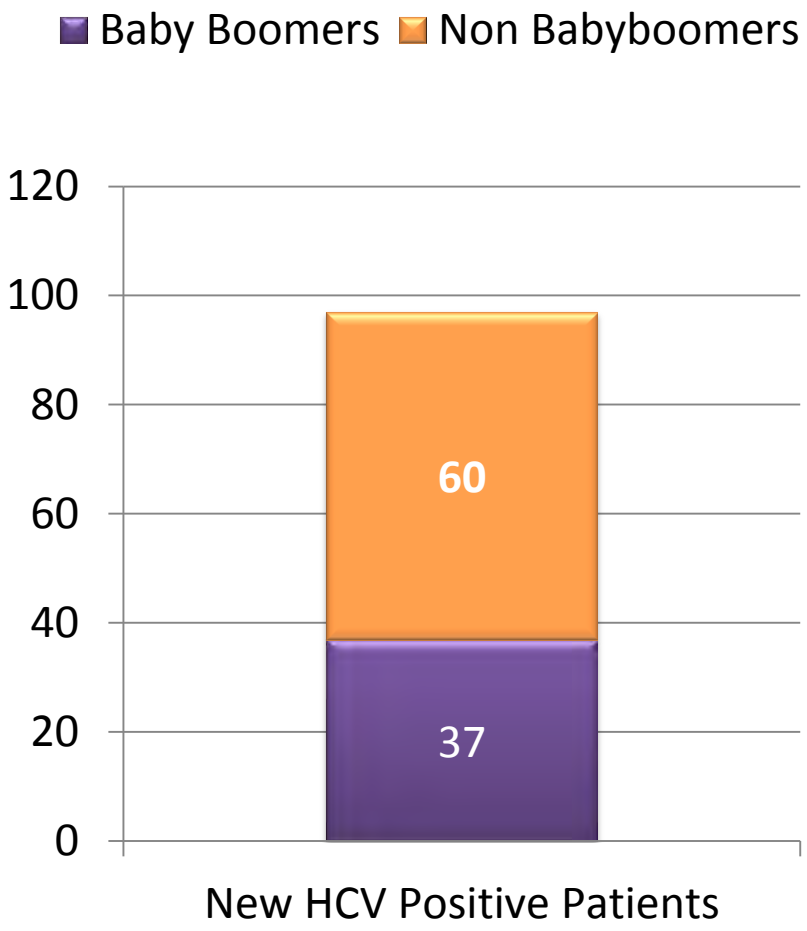
8/2015 – 5/2017



*preliminary data

HCV "Lab Triggered" Screening*
WW Hastings Hospital



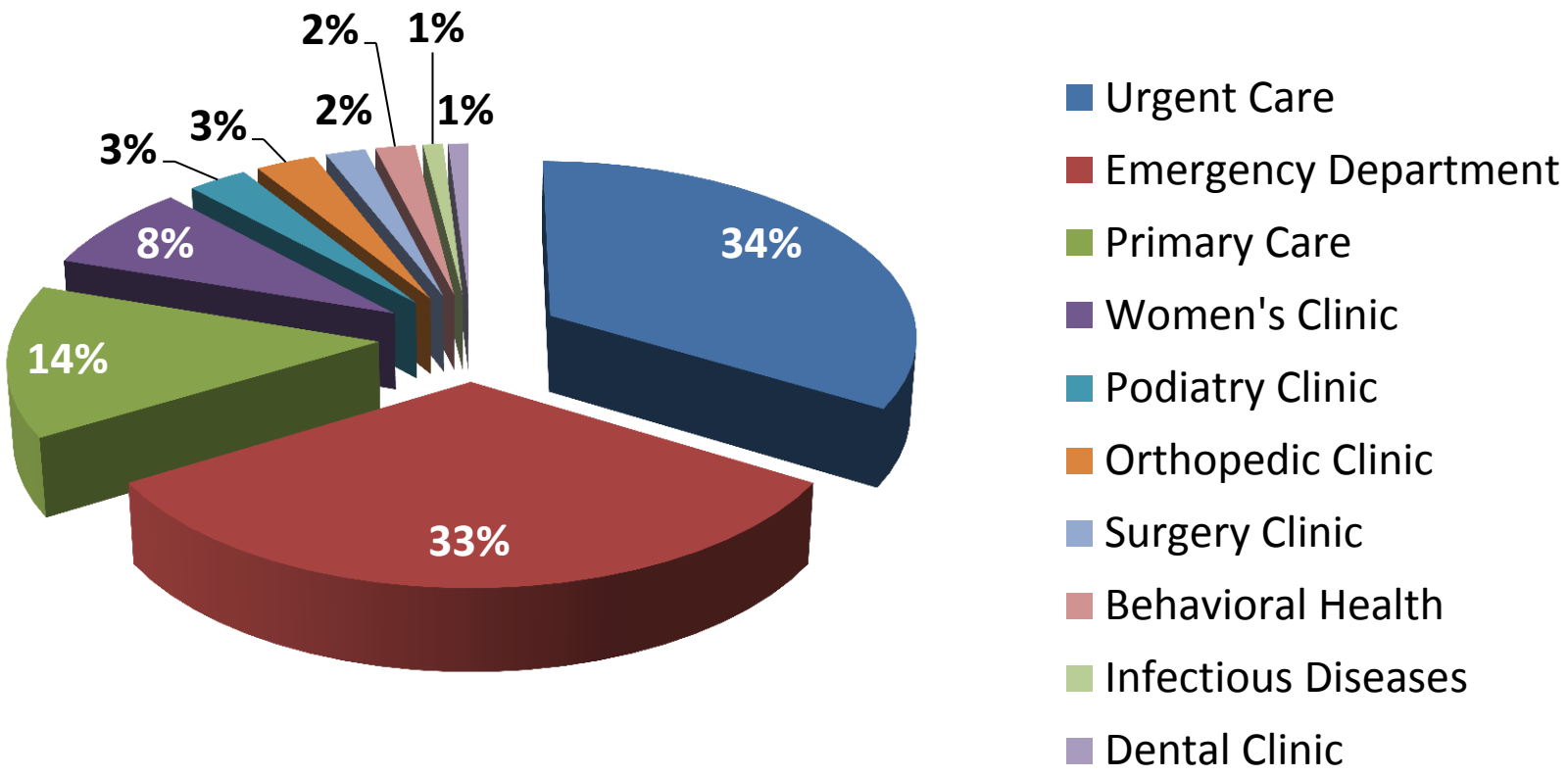


*preliminary data

Lab Triggered Screening:

Location Where Patients Were Screened

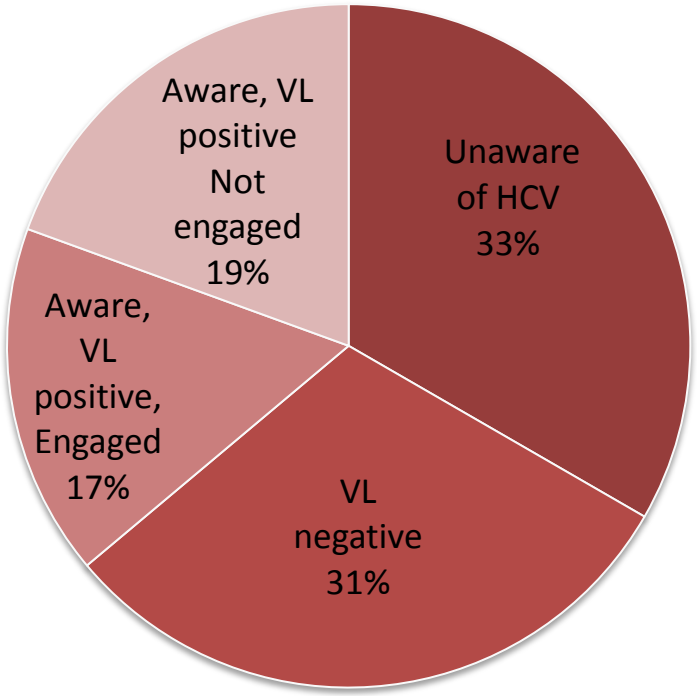
97 patients with new HCV antibody screen at WW Hastings Hospital



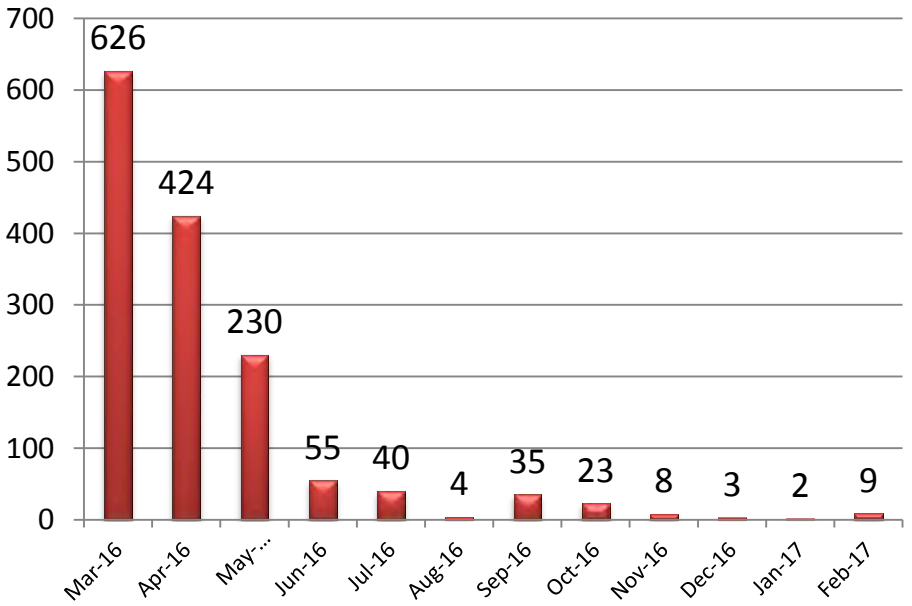
67 % of the HCV seropositive patients were detected in the Urgent Care/Emergency Department

HCV Screening in the Hospital Dental Clinic*

AWARENESS AND ENGAGED IN CARE STATUS AT THE TIME OF SCREENING IN THE DENTAL CLINIC N=36



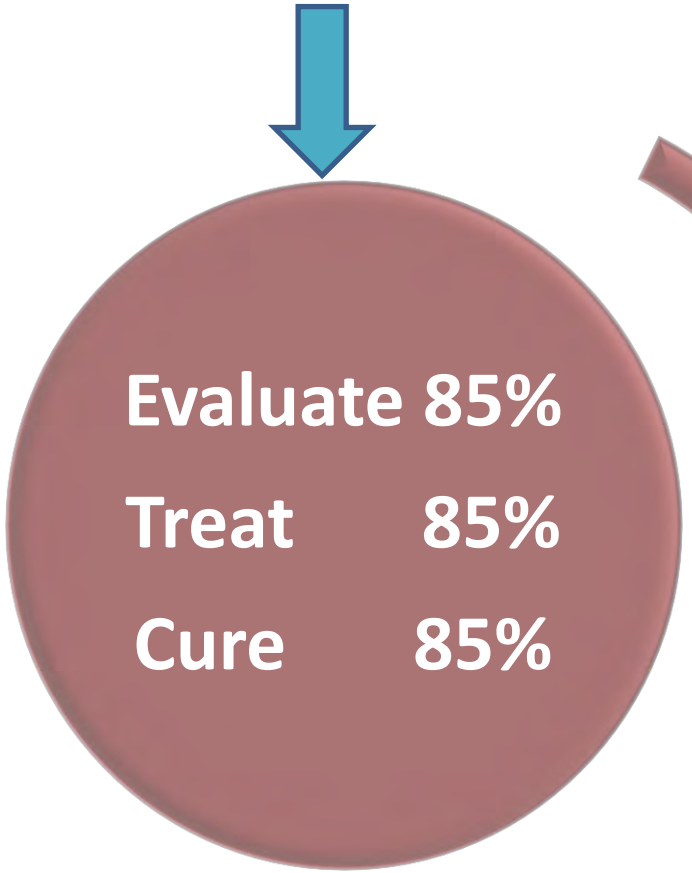
NUMBER OF PATIENTS SCREENED FOR HCV IN THE DENTAL CLINIC, MARCH 2016 – FEB 2017



Cherokee Nation Health Services

*preliminary data

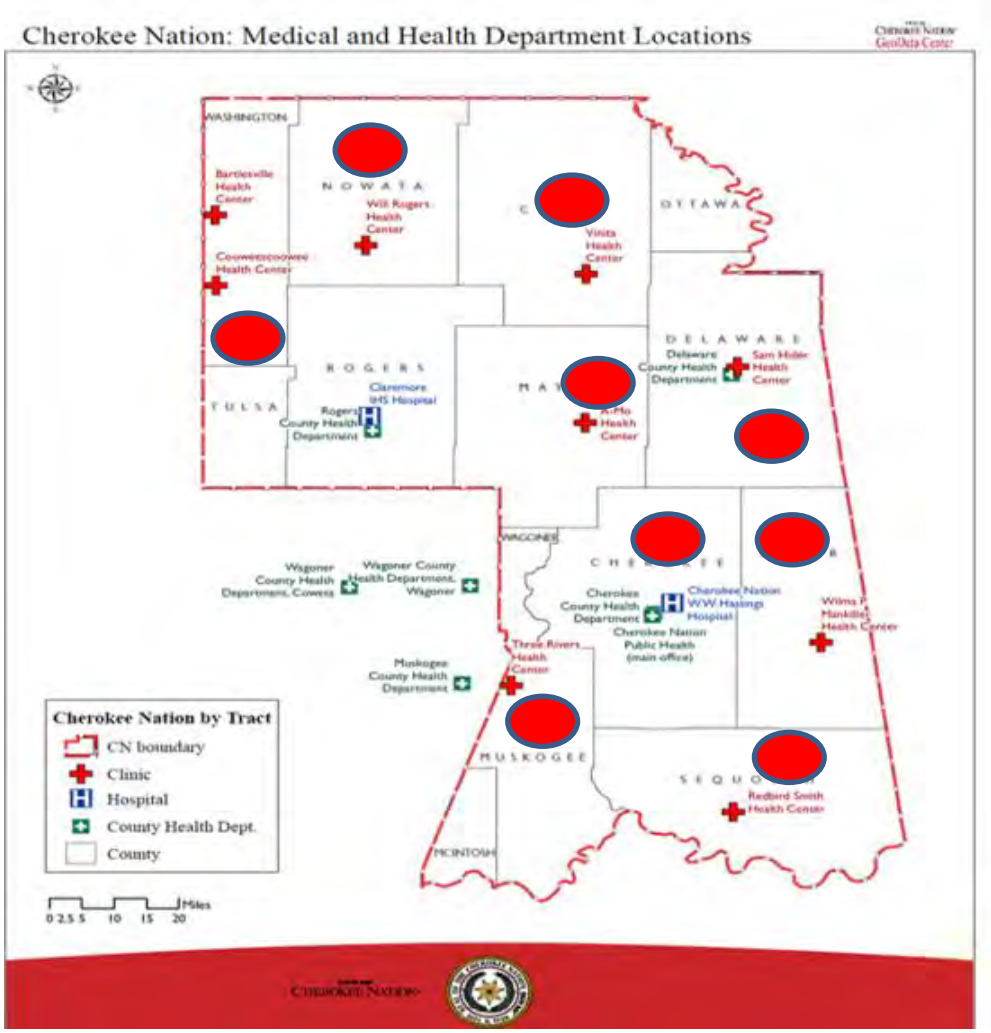
Goal #3: Link to Care, Treat, and Cure



Expand Clinical Capacity
- ProjectECHO

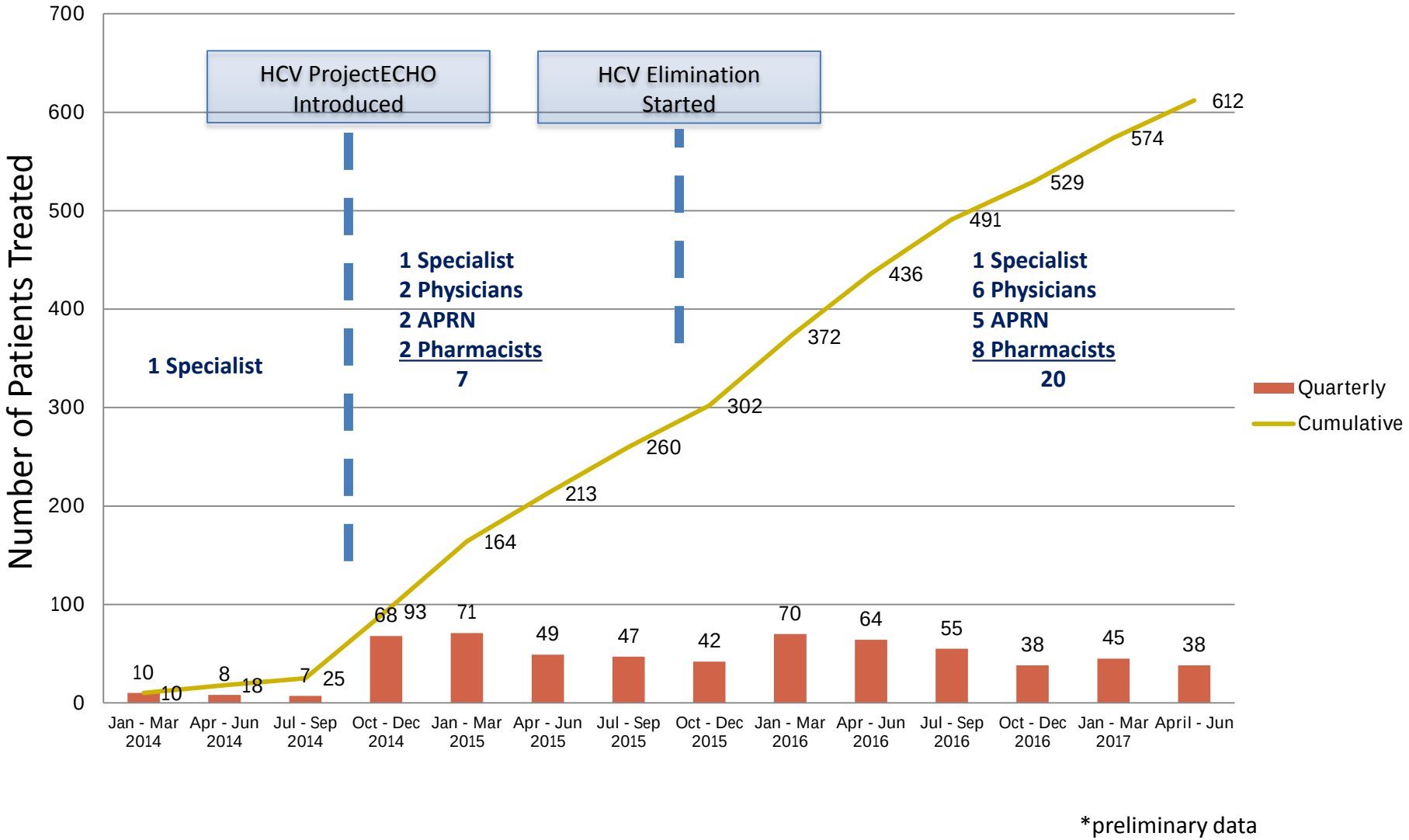
Expand Case Management
- Medication procurement
- Patient navigator
- Clinical case manager

HCV Services Available at CNHS 8/2015 – 9/2017



HCV Clinics

CNHS HCV Program: Clinical Capacity Expansion*
1/2014 – 6/2017



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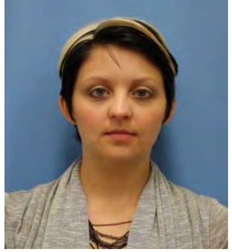
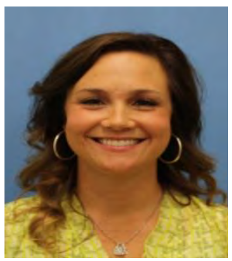
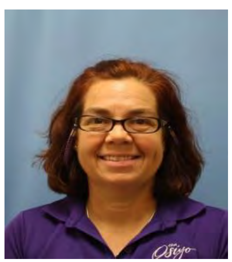
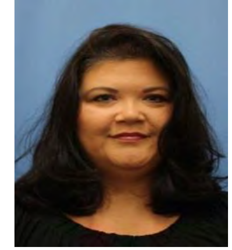
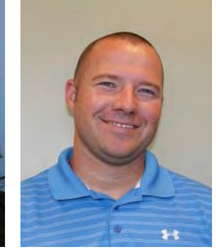
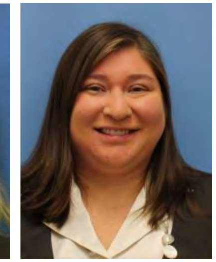
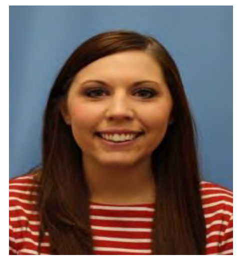
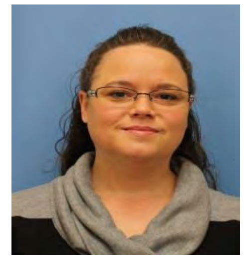
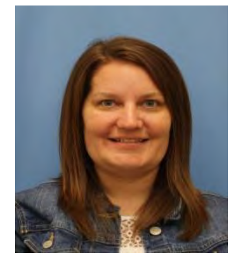
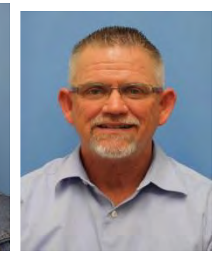
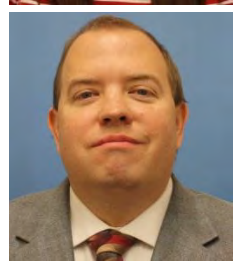
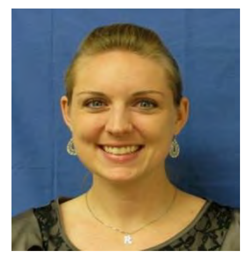
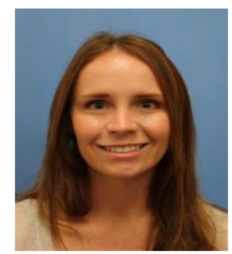
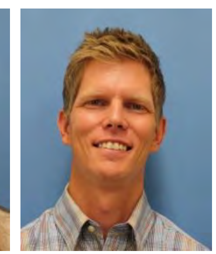
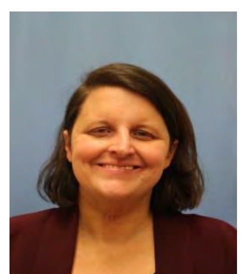
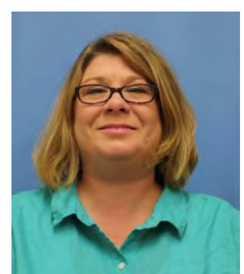
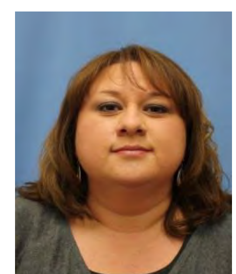
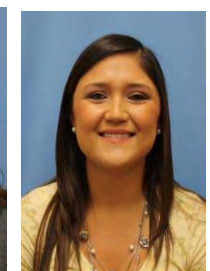




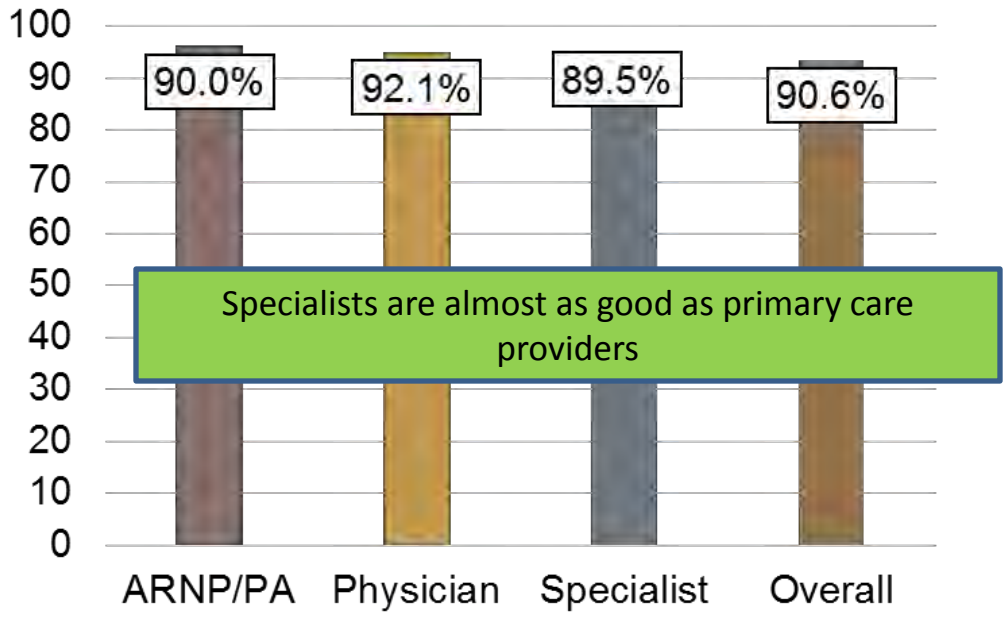





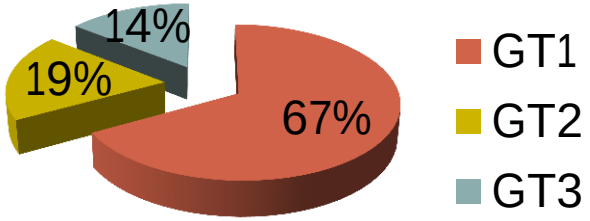














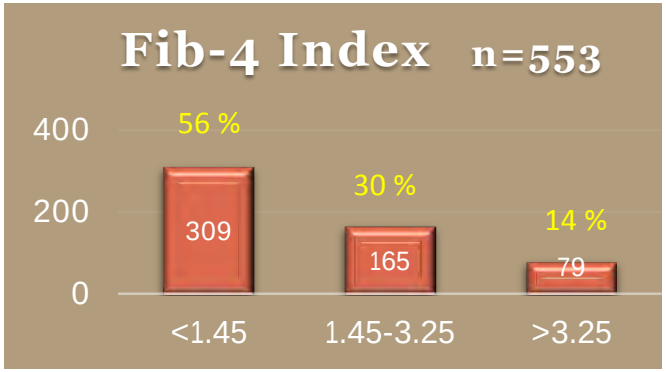
Treatment Group Characteristics*

No Difference in HCV Cure Rates between Provider Types at CNHS (n= 365)



Genotypes
n= 547



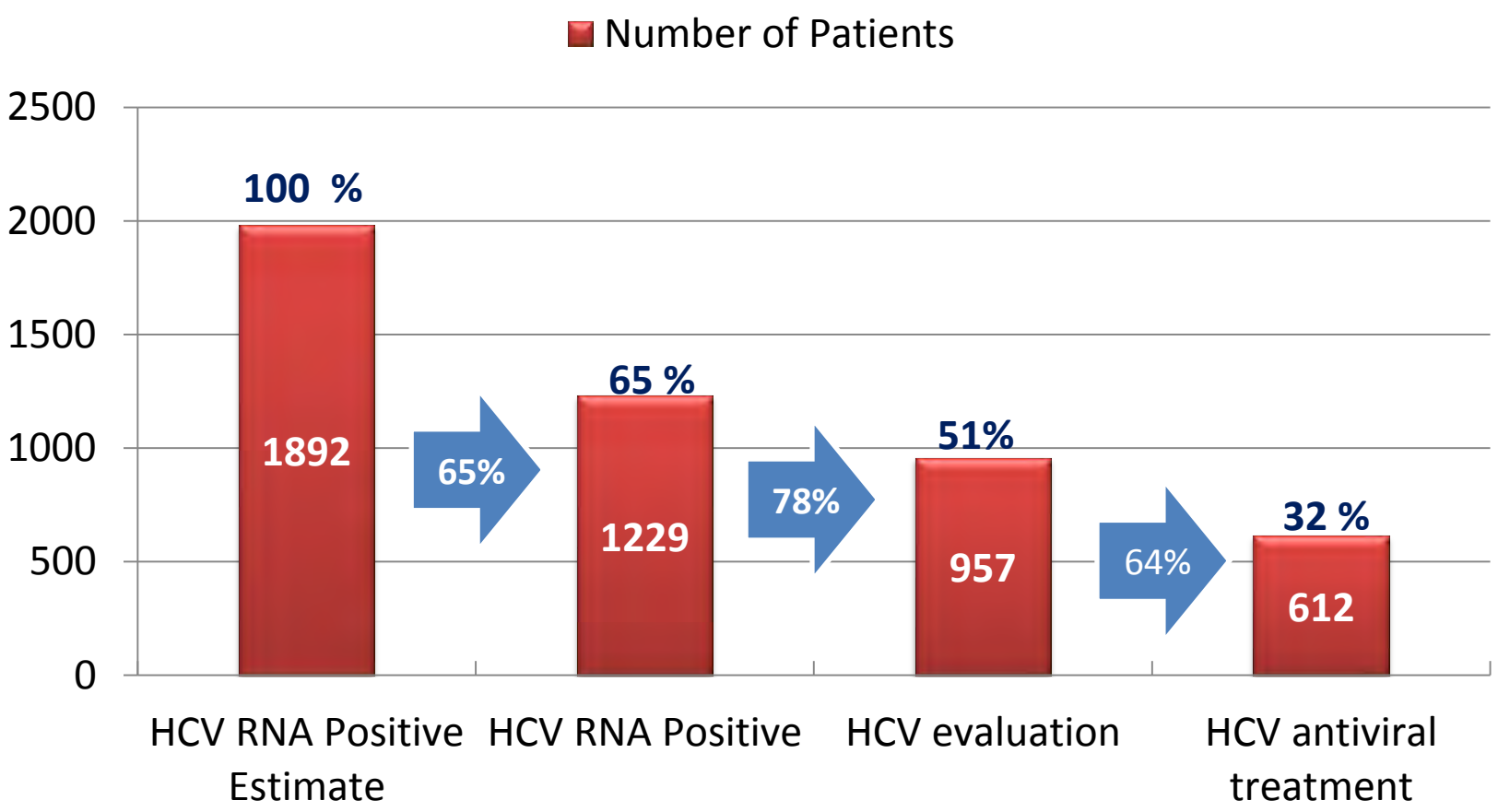


Cherokee Nation Health Services

*preliminary data

CNHS HCV Cascade of Care*

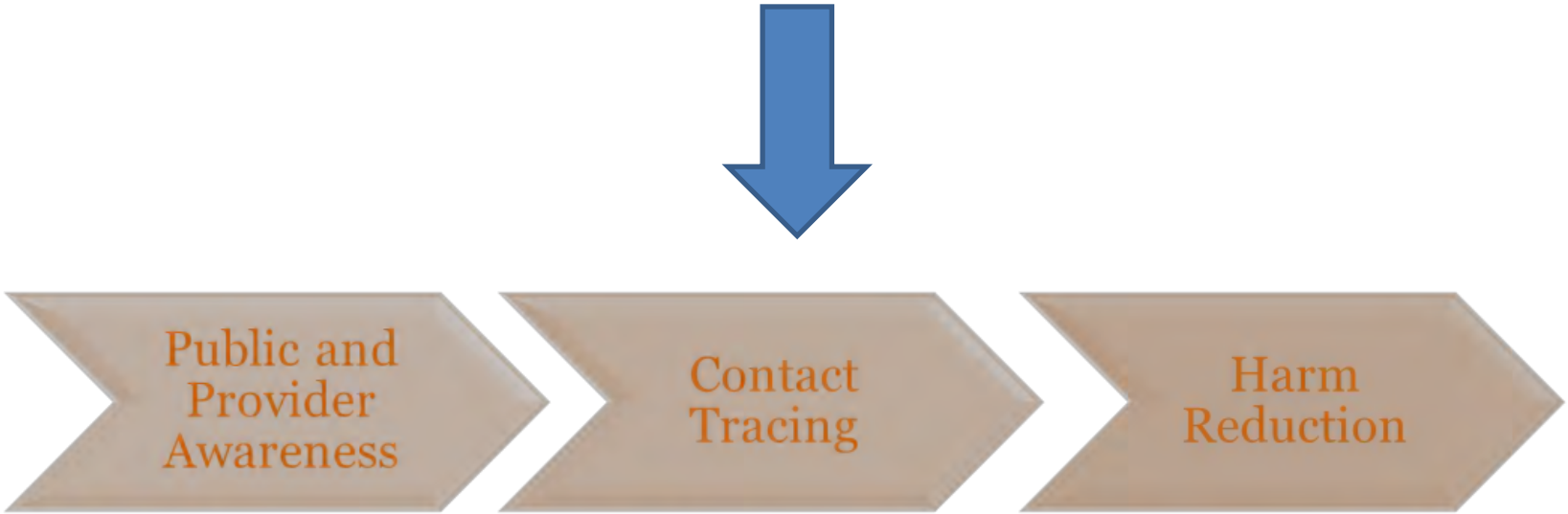
10/2012 - 6/2017



90% of patients who have completed treatment have achieved cure

*preliminary data

Goal #4: Reduce the Incidence of New HCV Infections



Cherokee Nation Health Services. PWID: People Who Inject Drugs
OST: Opioid Substitution Therapy, NSEP: Needle and Syringe Exchange Program

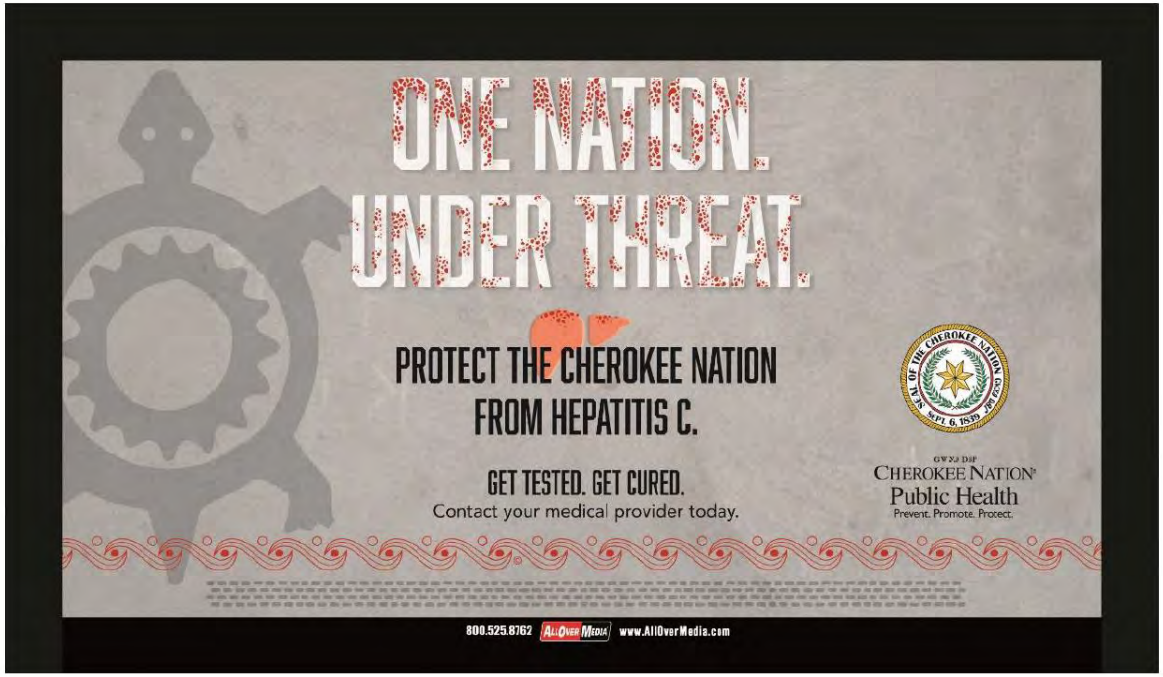
Public Campaign

September 20, 2016 - September 28, 2016.

Advertisement

- Gas pumping
- Indoor advertisement
- Radio advertisement
- Digital marketing
- Social media

Gas Pump Advertising



Provider Education

- ***HCV Providers***
  - University of Washington HCV Website
  - ½ day Preceptorship at the hub HCV clinic
  - Shadowing the provider on their first day of HCV clinic
  - Biannual workshops in the 8 outlying clinics
  - Bimonthly HCV projectECHO telehealth clinics

- ***All providers***
  - Biannual workshops in the 8 outlying clinics

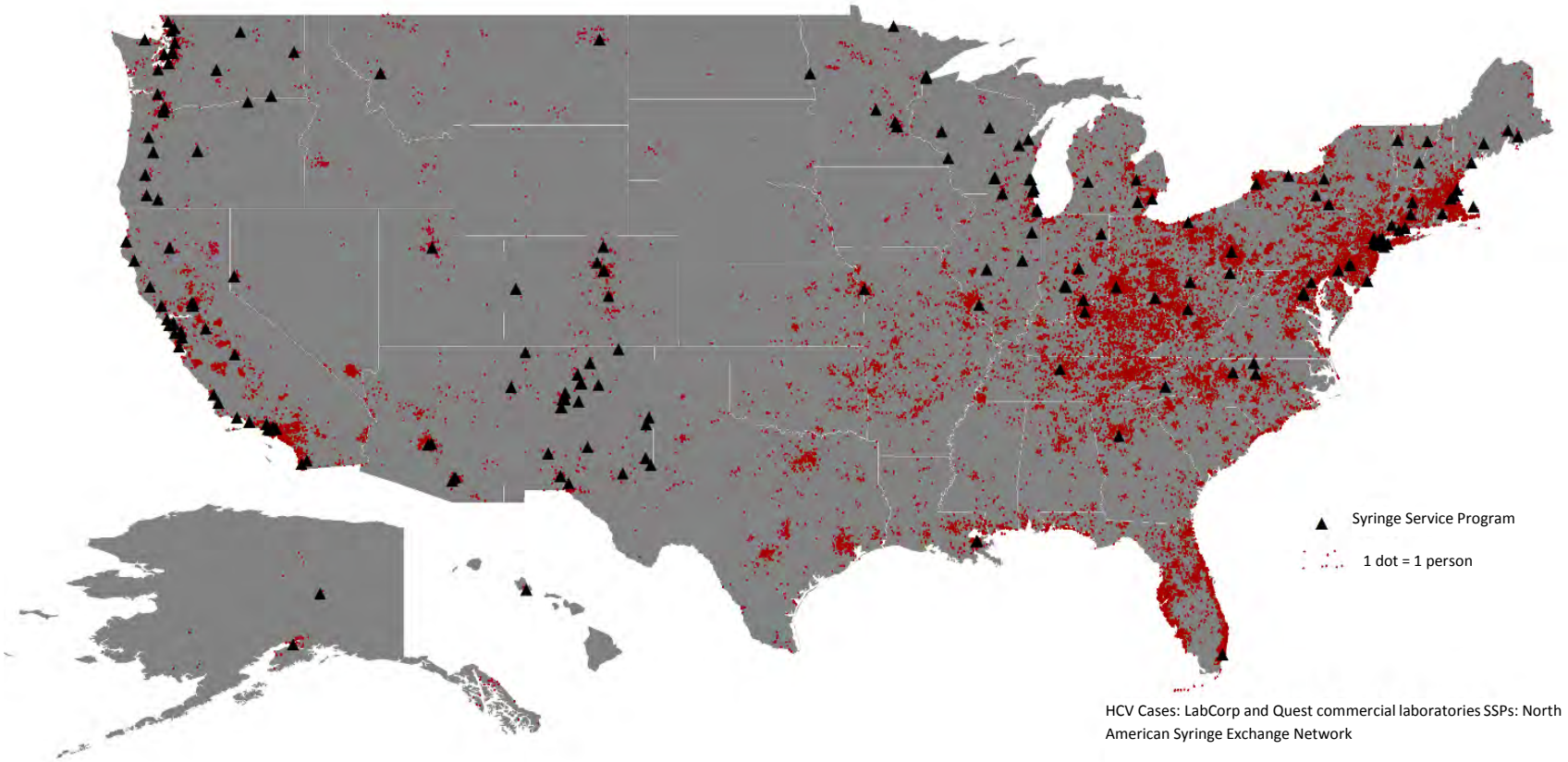
CNHS Buprenorphine Clinic*

- Buprenorphine Clinic started in March 2016 with 2 prescribers currently managing ~ 40 patients each
- Drop out rate has been < 10 % since March 2016
- No Emergency Department (ED) visits or hospitalizations due to buprenorphine misuse
- No ED visits or Hospitalizations for opioid overdose in patients managed with buprenorphine

*preliminary data

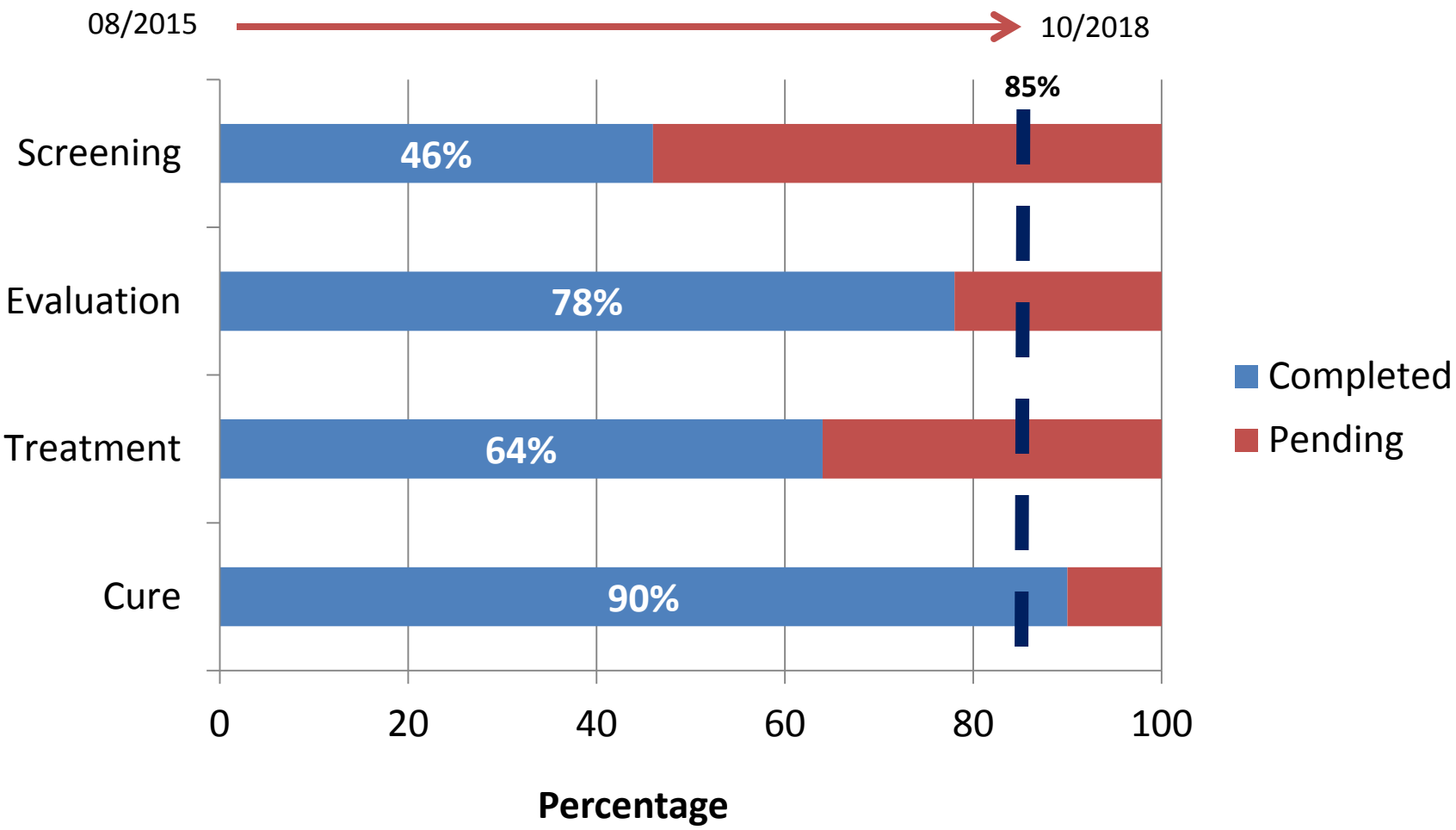
Distribution of HCV Among Young Persons and Location of Syringe Service Programs

Of 29,382 persons 15-29 yrs. with HCV, 20% lived within 10 miles of a syringe service program.



Canary L, Hariri S, Campbell C, et al. "Geographic disparities in access to syringe service programs among young people with hepatitis C virus infection in the U.S." November 2016. CID, in press

How are we doing with our 85% Goals?



Moving Forward

- Advocate for NSEP
- Expand OST to all CNHS clinics
- Increase public awareness
- Intensify HCV screening in “hot spots”
- Engage and retain in care difficult to reach populations
- Identify networks of transmission to implement focused interventions (GHOST program)
- Adapt program goals to the newly defined recommendations for HCV elimination in the United States
- Define measures to monitor program outcomes
  - HCV incidence
  - HCV related mortality

Thank You