Assessing Spatial Uptake of Syringe Service Programs and Harm Reduction Services among People with Injection Drug Use-Associated Infections in Maine
Rural Harm Reduction Access and Regional Trends (Rural HeART) Study: Maine, 2020

Introduction

- Injection drug use (IDU) has been linked to many viral and infectious outbreaks including HIV, Hepatitis B and C, and infectious endocarditis.[1-4]
- Numerous studies have linked prior opioid prescription with incident injection drug use.[5-6]
- Syringe Service Programs (SSP) have been associated with decreased risk of contracting the hepatitis B and hepatitis C viruses, and have been associated with a greater uptake of medications for opioid use disorder among visitors .[7-8]
- Access to SSPs is frequently limited in rural and suburban areas.[9]
- In a nationwide study with laboratory data, over 80% of young persons with hepatitis C lived over 10 miles from an SSP.[10]
- Maine, a highly rural state, was among the top 10 states in opioid overdose deaths and Hepatitis C and B virus transmission in 2017.[11]
- Little is known about the uptake of harm reduction services in relation to SSP location in Maine.
- The aim of this project is to spatially orient the uptake of SSP by patients hospitalized with IDU-associated infections to inform SSP placement.

Methods

- Data was accessed from Rural HeART. A study conducted in four hospitals across Maine from Feb 2019 to March 2020.
- Eligibility criteria included: aged 18 – 65, injection drug use history, English speaking, injection drug use-associated infection.
- Patients were surveyed using audio computer assisted self-interview software (ACASI).
- Sample included 92 individuals; 8 were removed due to absence of county, and 1 out of state.
- Key variables used: participant county, SSP utilization in past 3 months, MOUD uptake, naloxone uptake, hepatitis A vaccinated, use of clean works.
- Spatial data included 2019 US Census boundary shapefiles, 2019 Rural-Urban Commuting Area Codes (RUCA) and 2019 USDOT highways.
- Frequencies were conducted in SAS 9.4.
- GIS procedures included: mapping X-Y coordinates of hospitals and SSPs, clipping highway and RUCA codes to Maine counties, joining frequency tables to county shapefiles, normalizing distributions of harm reduction uptake by participant density, using Statistics functions, and creating Euclidean buffers.
- Choropleth maps display spatial distribution of SSP and harm reduction uptake.

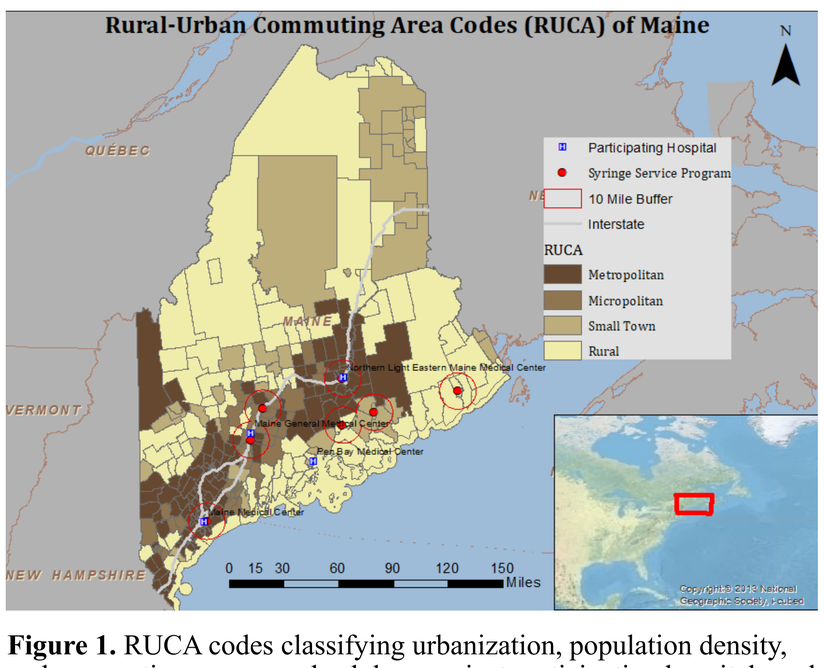
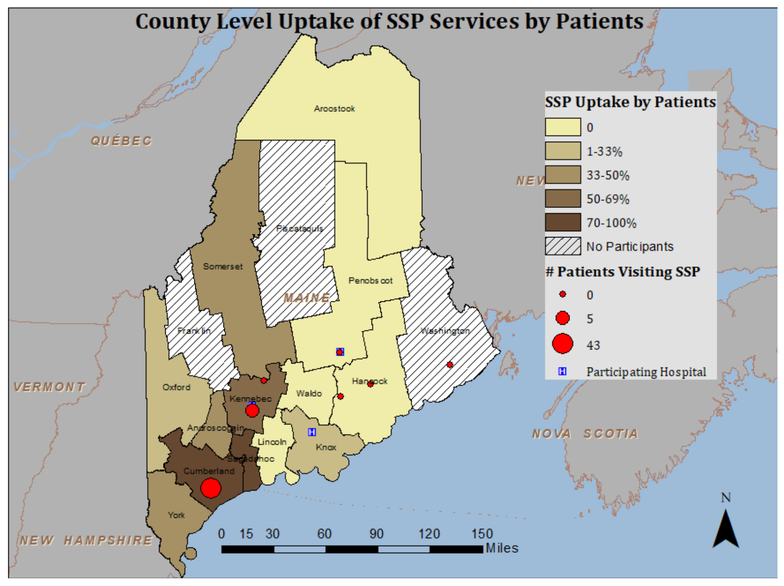
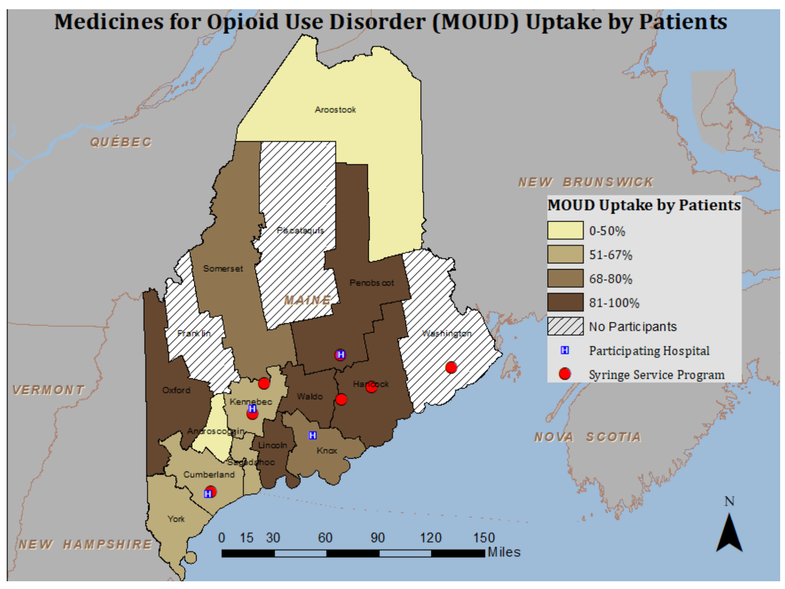
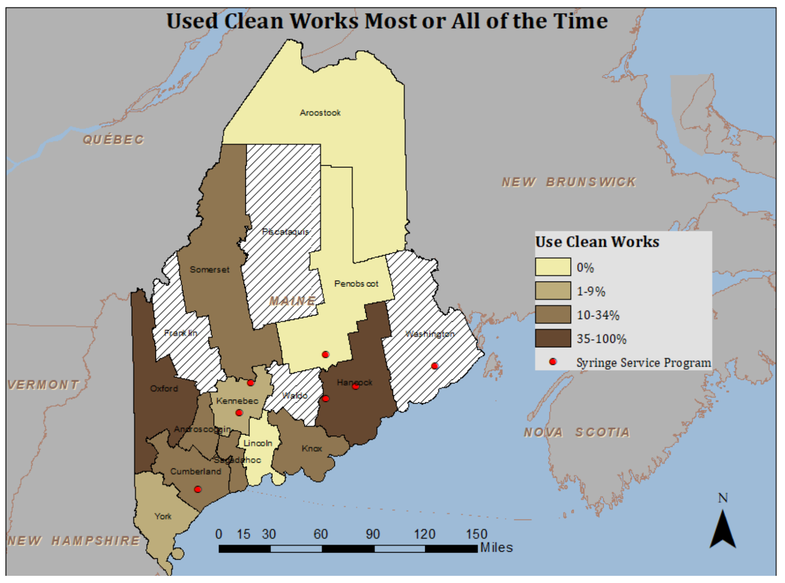
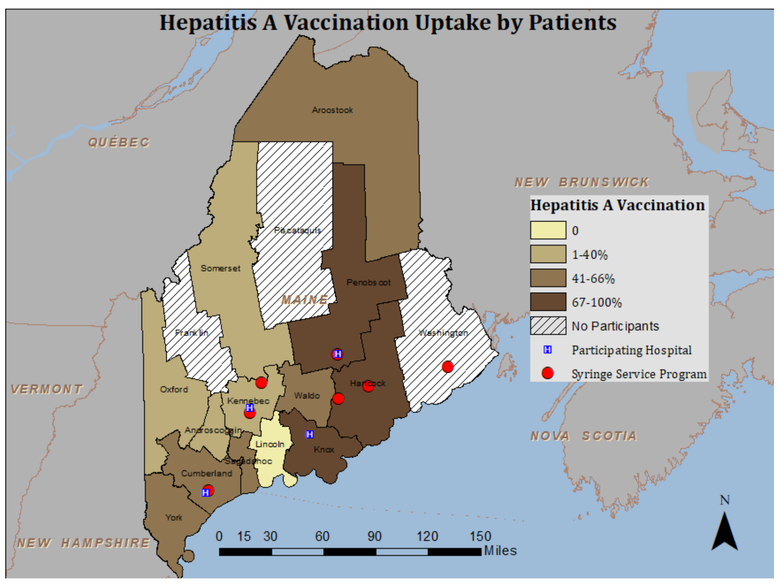


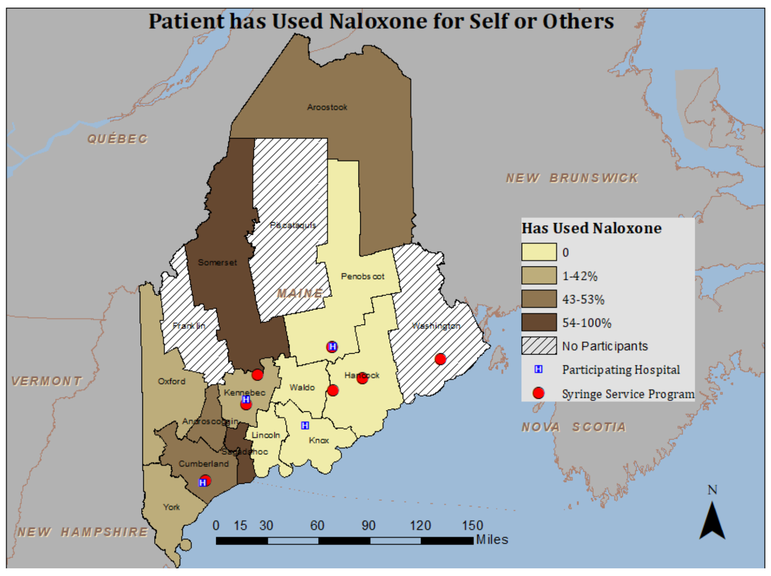
Figure 1. RUCA codes classifying urbanization, population density, and commuting serve as a backdrop against participating hospitals and SSPs across Maine with 10 mile buffers.











Figures 3-7: Patient uptake of SSP and various harm reduction services by county across Maine in relation to SSP locations.

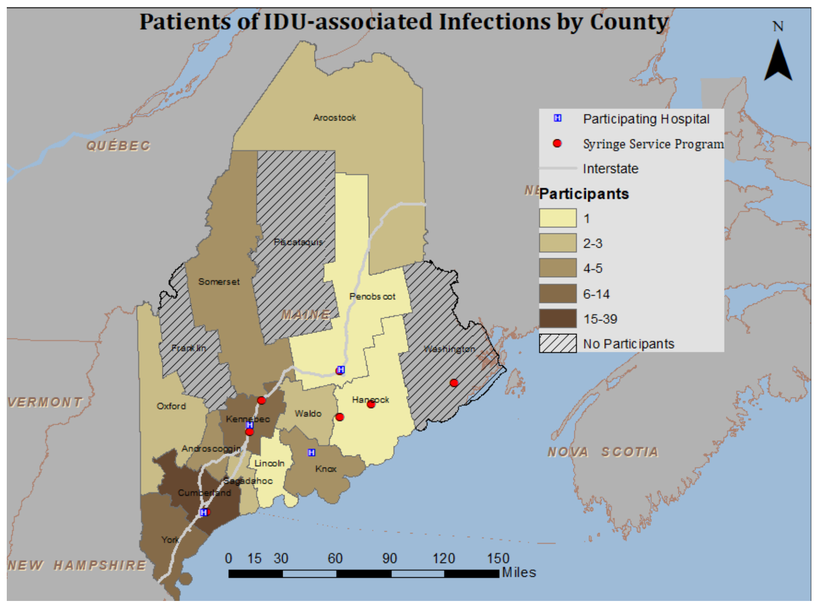


Figure 2: Distribution of participants by county.

Results

- Over half of Maine's 31,381 square miles is considered rural by RUCA codes.
- 64% of participants (n=59) had used SSPs in the past 3 months. Among non-users of SSPs 88% (n=29) either lived greater than 10 miles away or did not know the location of an SSP, and 54% lived in rural areas.
- The most common reasons stated for not accessing SSP included: too far (26%), no car (18%), and perceived stigma of going (15%).
- MOUD uptake, clean works, and Hepatitis A vaccine were higher among participants utilizing SSPs, and marginally higher for Naloxone uptake.
- Greatest numbers of participants, SSP uptake, and primary SSP site visited all occurred in Portland, the most metropolitan city in the state.
- The greatest percent of participants using MOUD and getting vaccinated for Hepatitis A occurred in or bordering less populated Central-eastern counties with SSPs.
- Northern rural areas have a moderate number of people who inject drugs (PWID), but are farthest from current SSPs.

Discussion

- Distance remains a barrier to uptake of SSP and harm reduction services in rural Maine.
- Placement of SSPs in the more rural North could reach a number of PWID with services.
- The small sample size of individuals with IDU-associated infections is a limitation in assessing the density of IDU and SSP utilization in Maine.
- Further analysis with a greater number of PWID could further clarify hotspots of need in Maine.

Citations

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Cartographer: Peter Balvanz
GIS for Public Health: PH 262
May 1, 2020: Spring Semester
Data Source: Maine Medical Center, US Census, USDOT
Projection: NAD_1983_UTM_Zone_19N

Maine Medical Center