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Real-time Flu Tracking at South End Community Health Center

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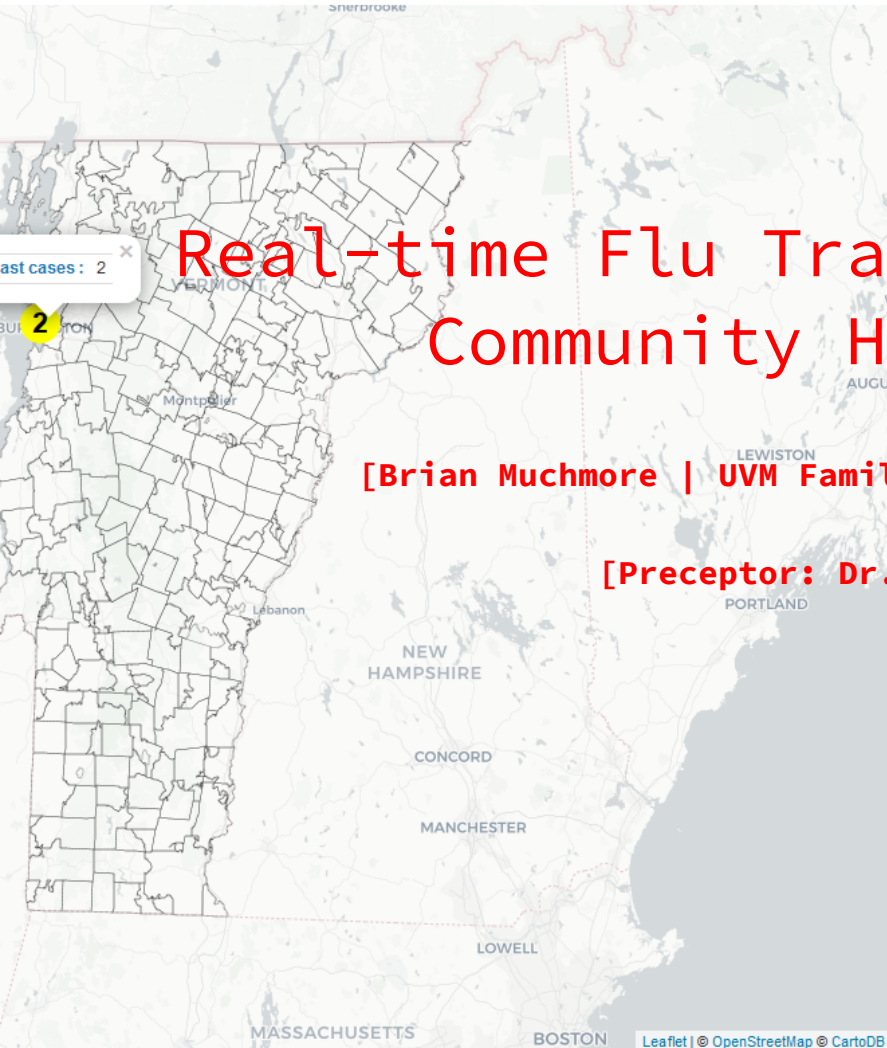
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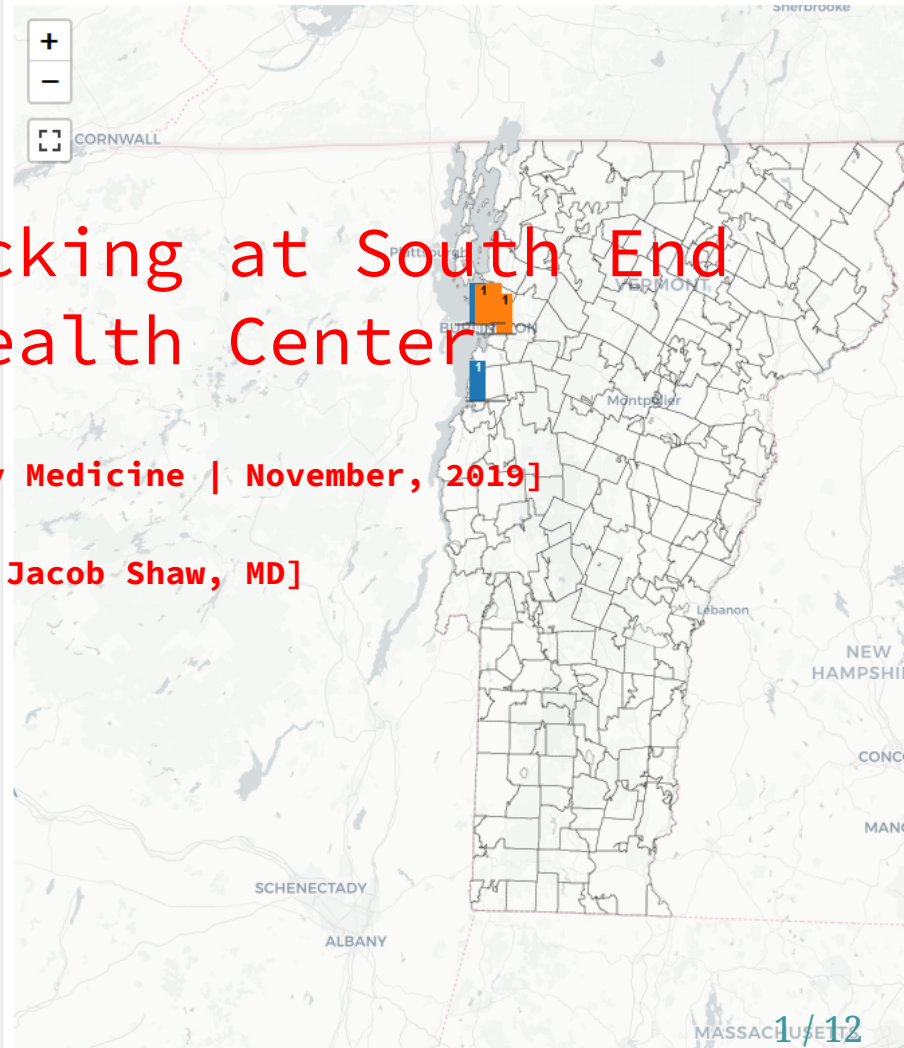


9

Number Reporting



Flu Vaccines Given within the Last Year



Real-time Flu Tracking at South End Community Health Center

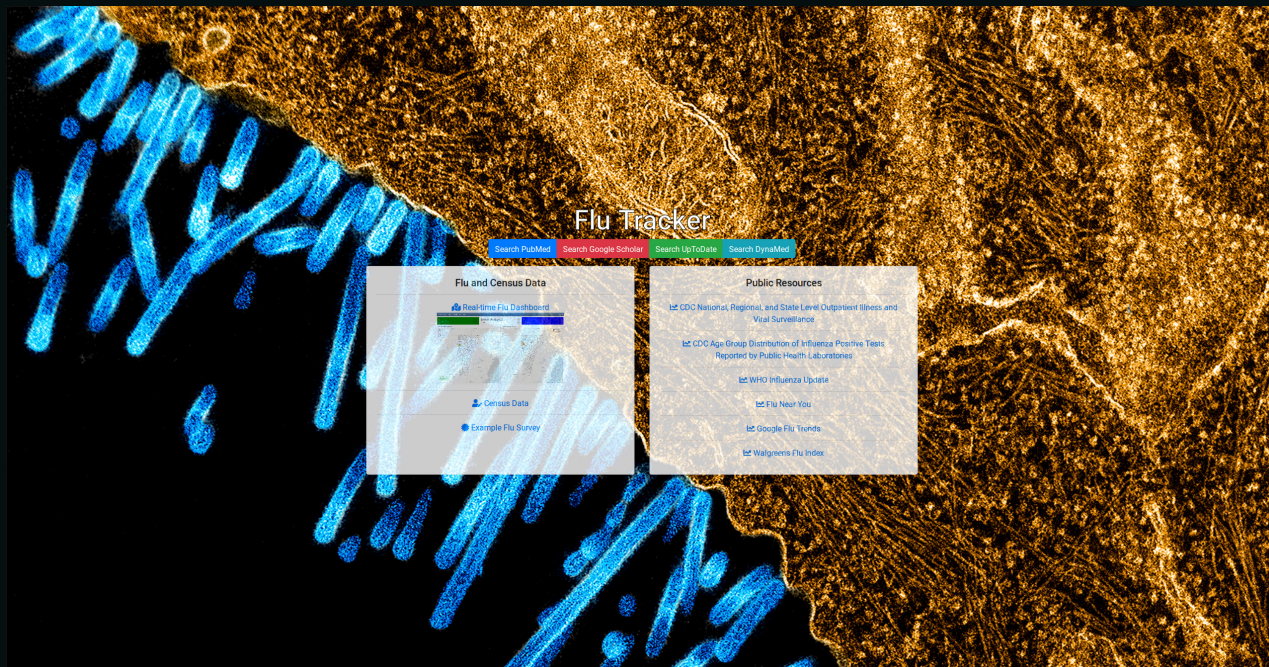
[Brian Muchmore | UVM Family Medicine | November, 2019]

[Preceptor: Dr. Jacob Shaw, MD]

Note to Reader

This work is meant to be interactively explored, and this PDF report is only a brief synopsis of ongoing work. To engage with the concept and most up-to-date results and data please visit:

flutracts.org



Problem Identification and Description of Need

There is no real-time tracking of influenza or influenza vaccination in the United States

- A physician will rarely know their rates of vaccination:
 - This could reflect poor interventional awareness.
 - Limits ability to change encounter habits.
 - Limits ability to recognize institutional failure.
- Were a true epidemic to occur real-time data would:
 - Allow faster recognition of the epidemic.
 - Foster faster and more efficient resource allocation.
 - Most effectively elicit transmission patterns.



Public Health Cost

Vermont or Burlington-specific data regarding influenza-related public health costs is difficult to come by, but here are some sobering national statistics regarding the 2017-2018 flu season:

- 49,000,000 symptomatic illnesses that caused...
- 23,000,000 medical visits, which resulted in...
- 960,000 hospitalizations and...
- 79,000 deaths

the benefits of flu vaccination 2017-2018

The estimated number of flu **illnesses prevented by vaccination** during the 2017-2018 season:

7 million

About the population of New York City



The estimated number of flu **hospitalizations prevented by vaccination** during the 2017-2018 season:

109,000

About the number of vehicles crossing the Golden Gate Bridge each day



The estimated number of flu **deaths prevented by vaccination** during the 2017-2018 season:

8,000

Twice the number of hospitals in the United States



Community Perspective



Veronica Fialkowski, MPH, Surveillance Epidemiologist for the Division of Health Surveillance

- Influenza vaccinations are not being tracked.
- There is a weekly Vermont-specific report.
- A meaningful use certified EHR requires HL7 communications, which is one of the main ways data is being intermittently collected.



Dr. Heather Stein, MD, Medical Director for the Community Health Centers of Burlington (CHCB)


- All high-dose vaccine for people over 65 is bought by CHCB.
- Low-dose vaccine for people <65 is provided to CHCB by the government.
- Limited vaccine supply is due to manufacturer-level issues.

Intervention and Methodology

Clinic-based flu survey with real-time reporting

- As data is entered into survey by patient and medical assistant it goes real-time into a database.
- The database is then read by flutracts.org

Please see an example at: testflusurvey.formr.org



Did you receive a flu shot last year?

Yes No

Have you received a flu shot this year?

Yes No

Will you get one today?

Yes No Maybe

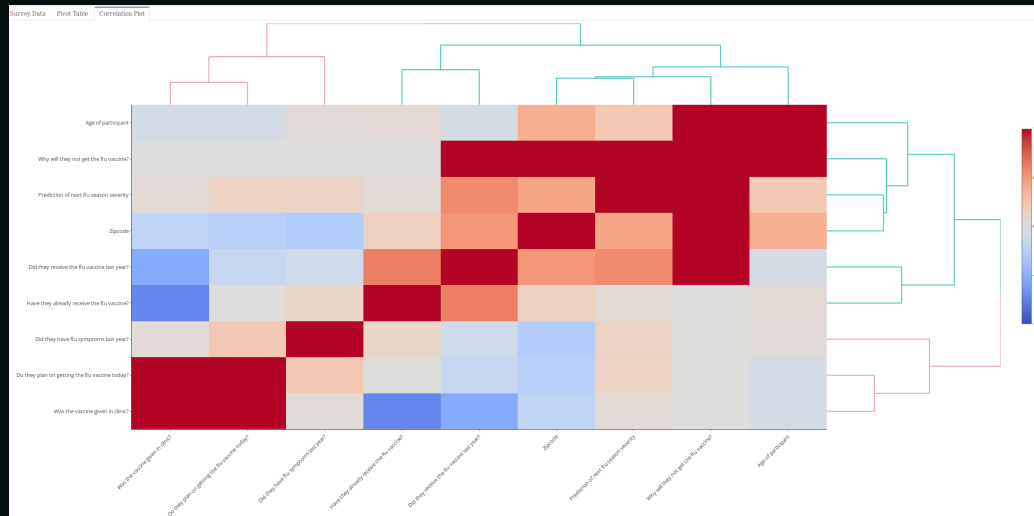
Why not?

[Next Question](#)

Results

Please see: flustracts.org/flu_dashboard.html#data-tables

- Currently, conclusions regarding the survey-response data can not be collated due to low response numbers.
- As the flu season progress and the observational data increases, however, patterns may emerge.
- Census data is also available at flustracts.org/census_trelliscope/index.html to help elucidate patterns between responses and socioeconomic data.



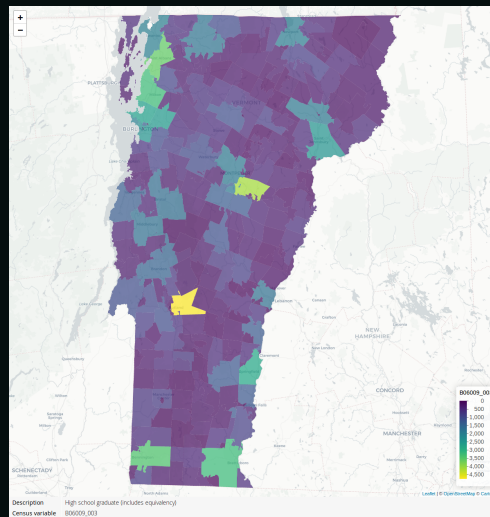
Evaluation of Effectiveness and Limitations

- The effectiveness of this project will be based on response numbers and incorporation of other databases.
- For example, the author has full access to the **Codonix EHR database**, which records around 10,000 patient visits a day for urgent cares across the country.
- Effectiveness of the project for the state of Vermont, however, will ultimately be determined by EPIC's willingness to participate.
- It should also be noted that the *survey* is self-reported illnesses and not laboratory confirmed. EHR database access will allow analysis and display of confirmed cases in addition to descriptive data.

Age of participant	Zipcode	Prediction of next flu season severity	Was the flu shot available?	Was the vaccine given in clinic?	Did they have flu symptoms last year?	Do they currently have flu symptoms?	Did they receive the flu vaccine last year?	Have they already receive the flu vaccine?	Do they plan on getting the flu vaccine today?	Why will they not get the flu vaccine?
All	All	All	All	All	All	All	All	All	All	All
50-64	05408	2	Yes	No	No	No	Yes	Yes		
50-64	05401	4	Yes	Yes	Yes	No	No	No	Yes	
18-49	05401	4	Yes	No	No	No	Yes	Yes		
18-49	05401	3	Yes	No	No	No	Yes	Yes		
18-49	05473	5	Yes	Yes	No	No	Yes	No	Yes	
18-49	05401	1	Yes	Yes	No	No	No	No	Yes	
65+	05401	3	Yes	Yes	No	No	No	No	Yes	
65+	05408	4	Yes	No	No	No	Yes	Yes		
18-49	05401	1	Yes	Yes	No	No	No	No	Yes	
18-49	05401	3	Yes	No	Yes	No	Yes	Yes		
18-49	05401	1	Yes	No	No	No	No	No	No	Healthy and not needed
18-49	05401	4	Yes	Yes	No	No	Yes	No	Yes	
50-64	05403	4	Yes	No	No	No	Yes	No	No	Other

Recommendations for Future Projects

- Continue the survey throughout the flu season at South End Community Health Center.
- Try to expand survey participants to other health centers and urgent cares across the state of Vermont.
- Try to gain EPIC's participation for a considerably more comprehensive picture of the state of Vermont.
- Incorporate Codonix's real-time EHR data to create a more national profile of influenza-like illnesses.



References

- Xu X, Blanton L, Elal AI, et al. **Update: Influenza Activity in the United States During the 2018–19 Season and Composition of the 2019–20 Influenza Vaccine.** *MMWR Morb Mortal Wkly Rep.* 2019;68:544–551. DOI: <http://dx.doi.org/10.15585/mmwr.mm6824a3external>
- Arslan, R.C., Tata, C.S. & Walther, M.P. **formr: A study framework allowing for automated feedback generation and complex longitudinal experience sampling studies using R.** *Behavior Research Methods.* 2018. DOI: 10.5281/zenodo.3229668
- Schmidt, C. **Real-time flu tracking.** *Nature.* Sep;573(7774):S58-S59. DOI: 10.1038/d41586-019-02755-6

Public Image References

- **Slide 3:** Unknown Author. **Fort Riley, Kansas, ill with Spanish flu at a hospital ward at Camp Funston.** *Wikipedia*. Otis Historical Archives Nat'l Museum of Health & Medicine, 1918, https://commons.wikimedia.org/wiki/File:Emergency_hospital_during_Influenza_epidemic,_Camp_Funston,_Kansas_-_NCP_1603.jpg
- **Slide 4:** Unknown Author. **The Benefits of Flu Vaccination 2017-2018 Infographic.** *Influenza (Flu)*. Centers for Disease Control and Prevention, 2018, <https://www.cdc.gov/flu/resource-center/freeresources/graphics/flu-vaccine-protected-infographic.htm>
- **Slide 5 top:** Unknown Author. **Vermont Department of Health.** *Burlington Partnership for a Healthy Community*. Vermont Department of Health, <http://www.burlingtonpartnership.org/2013/10/vermont-department-of-health/>
- **Slide 5 bottom:** Unknown Author. **Community Health Centers of Burlington.** *Tenth Crow Creative*. Community Health Centers of Burlington, <http://www.tenthcrowcreative.com/portfolio/community-health-centers-burlington/>
- **Slide 13:** Crane, Walter. **Beauty and the Beast.** *Emerging Infectious Diseases*. Metropolitan Museum of Art, 1875, https://wwwnc.cdc.gov/eid/article/21/12/ac-2112_article

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Zoonotic Infections

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