Immunization in 2025: Protecting Health 'Along the Storm Fromt

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Vermont Immunization & Infectious Disease Conference Hotel Champlain, Burlington, VT May 21, 2025



In support of improving patient care, this activity has been planned and implemented by The Robert Larner College of Medicine at the University of Vermont is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME) and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

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This activity was planned by and for the healthcare team, and learners will receive 5.0 Interprofessional Continuing Education (IPCE) credit for learning and change.

- Current vaccination environment and ecosystem
- Local Data
- Stagnation has consequences
 - ► Measles
 - ► Pertussis
 - ► Influenza+
- ► Turning the tide: Communication for Successful Immunization

PRESENTATION MAP

CONFRONTING HEALTH MISINFORMATION

The U.S. Surgeon General's Advisory on Building a Healthy Information Environment



Quantifying the impact of misinformation and vaccineskeptical content on Facebook

JENNIFER ALLEN (D), DUNCAN J. WATTS (D), AND DAVID G. RAND (D) Authors Info & Affiliations

We find that flagged misinformation does causally lower vaccination intentions, conditional on exposure. However, given the comparatively low rates of exposure, this content had much less of a role in driving overall vaccine hesitancy compared with vaccine-skeptical content, much of it from mainstream outlets, that was not flagged by fact-checkers. Our work suggests that while limiting the spread of mis-

STORM OF MIS- AND DIS-INFORMATION

https://www.hhs.gov/sites/default/files/surgeon-general-misinformation-advisory.pdf

https://www.who.int/health-topics/infodemic/understanding-the-infodemic-and-misinformation-in-the-fight-against-covid-

19#tab=tab 1

https://www.kff.org/the-monitor/vaccine-misinformation-spreads-as-children-head-back-to-school/ https://www.science.org/doi/10.1126/science.adk3451

► Vermont

- \$7 million redaction in pandemic funds, much of which was directed to vaccine/underserved populations
- ► Federal
 - ► Reductions in HHS workforce including CDC, FDA, NIH
 - National Vaccine Program [NVPO/OIDP and NVAC] est. 1986 Sec 2105 of Public Health Service Act [Webpages still exist, but not maintained...]
 - ► Vaccines National Strategic Plan for US 2021-2025
 - Reductions in grant support for research

GOVERNMENT

https://www.vermontpublic.org/local-news/2025-04-03/vaccine-access-underserved-communities-vermont-riskcdc-funding-cuts https://www.hhs.gov/sites/default/files/HHS-Vaccines-Report.pdf

- Majority of early phase development for new vaccine products has historically come from NIH/academia, supported by government funding
 - ► This paradigm may shift, by necessity...
 - Phase 3 studies, manufacturing and commercialization generally are private/industry ventures
- Multiple vaccine manufacturers, most are multinational
 - ► A/O 4/21/2025: 97 vaccines licensed for use in US
 - ► Historically US has seen many vaccines introduced ahead of other countries...
- Innovation and development of innovations
- Regulatory environment [see prior slide]
- Cost of new and existing products

INDUSTRY

https://www.fda.gov/vaccines-blood-biologics/vaccines/vaccines-licensed-use-united-states

- Vermont is a universal vaccine program for children and adults 19-64 years
 - Robust access through FQHC, Primary Care
 - Gaps: Specialty care, Pharmacy
- Medicare is mandated to cover recommended preventive services [including vaccines] under ACA and IRA
 - Medicare Part B vs Part D Vaccines are an ongoing challenge...
 - Current Supreme Court case [Kennedy v. Braidwood Management]...

to be decided

LOCAL SITUATION

https://www.healthvermont.gov/disease-control/immunization-health-care-professionals/vaccine-financing https://www.vtvaccine.org/ui https://www.cdc.gov/vaccines-for-children/php/awardees/current-cdc-vaccine-pricelist.html?CDC_AAref_Val=https://www.cdc.gov/vaccines/programs/vfc/awardees/vaccine-management/price-list/

COVID-19



VERMONT: COVID-19 AND INFLUENZA

https://www.healthvermont.gov/stats/surveillance-reporting-topic/respiratory-virus-vaccination-data

Download 4/7/2025

Influenza

Infants





VERMONT: RSV

https://www.healthvermont.gov/stats/surveillance-reporting-topic/respiratory-virus-vaccination-data

Download 4/7/2025



VERMONT: IMMUNIZATION BACKGROUND

US Adult Vaccine Uptake Dashboard. 2024. National Foundation for Infectious Diseases (NFID) and Fraym. Accessed [April 28, 2025]. Available at: <u>https://www.nfid.org/us-vaccine-uptake-dashboard/</u>

Version Gamma Powered by Fraym Data US Vaccination Intent Dashboard	lational State-Level	County-Level	Immunization Outreach	Community Summary	fraym
Community Summary This page Population Segment*	e provides a high-level synthesi Disease*	is of the data found with _{State} +	hin the dashboard. •Required Selecti	ion Zip Code	
Adults (18+)	√ Flu	✓ Vermont	V Au		Clear Selections
The best way to increase intent to get vaccinate Vermont is to focus on the following strategies:	ed against Flu among adults	(18+) in	Intent to Get Vaccinated	Population	Totals
MESSAGE			COVID-19	Adult Population	527K
The top Access Concern when deciding to get va vaccinated. Roughly 19% of the population of ad top motivation concern when deciding to get va severe side effects. Roughly 34% of the populat adults (18+) in Vermont have this concern. If an	accinated is the overall cost ults (18+) in Vermont have the ccinated is believing vaccine ion of outreach campaign address	of getting his concern. The may cause es one or both of	High	Adults (18+)	527K
these top concerns, it can significantly improve	vaccine uptake probability.		Influenza		
MESSENGER			Med	Characteris	stics
When deciding whether to receive a vaccine, the community trusts Health Care Professionals me Additionally, viewpoints and opinions about vace Providers will resonate effectively.	e population of adults (18+) i ost for information about vac cines from Doctors or Prima	n this ccines. I ry Care	RSV (65+) Med	Social Vulnerability M	ed
MEDIUM			Pneumococcal (45+)	Access M	ed
Most of the population of adults (18+) in Vermon advertising on Facebook , Netflix , or YouTube wo audience in this community.	It gets their news from Tele ould be the best way to react	vision , and h the widest	Med	Motivation M	ed

VT: VACCINATION INTENT, MESSAGING/

US Adult Vaccine Uptake Dashboard. 2024. National Foundation for Infectious Diseases (NFID) and Fraym. Accessed [April 28, 2025]. Available at: <u>https://www.nfid.org/us-vaccine-uptake-dashboard/</u>

STAGNATION HAS CONSEQUENCES

MEASLES 2025 AND 2024

U.S. Cases in 2025

Total cases

1001 a/o 5/8/2025

Age

Under 5 years: **266 (30%)** 5-19 years: **338 (38%)** 20+ years: **261 (30%)** Age unknown: **19 (2%)**

Vaccination Status

Unvaccinated or Unknown: **97%** One MMR dose: **1%** Two MMR doses: **2%**

U.S. Hospitalizations in 2025

11%

11% of cases hospitalized (94 of 884).

Percent of Age Group Hospitalized Under 5 years: 20% (53 of 266)

5-19 years: **7% (22 of 338)** 20+ years: **7% (17 of 261)** Age unknown: **11% (2 of 19)**

U.S. Deaths in 2025

3

There have been 3 confirmed deaths from measles.

- ▶ Median 79 cases/year [range 13-1274] 2001-23
 - Outbreak= 3+ related cases
- MMR Vaccine Coverage [Kindergarten]
 - Estimated ~95% coverage needed to stop outbreaks
 - ► 2019-20: 95.2%
 - ▶ 2022-23: 93.1% (2023-24 VT 93-97%)
- ► Communities with lower rates remain @ risk
- Ongoing misinformation and vaccine hesitancy
 Nutrition, supplements do NOT prevent measles
 - A dece 020/ effective 0 decee 070/ effective
- ► 1 dose 93% effective, 2 doses 97% effective
- ► Recommended in all 1 year and older <u>except</u>:
 - ► Pregnant
 - Immune suppressed

https://www.cdc.gov/measles/data-research/index.html

https://www.healthvermont.gov/stats/surveillance-reporting-topic/school-vaccination-data [Data downloaded 4/28/2025]

U.S. Cases in 2024

Total cases

285

Age Under 5 years: **120 (42%)**

5-19 years: **88 (31%)** 20+ years: **77 (27%)**

Vaccination Status

Unvaccinated or Unknown: **89%** One MMR dose: **7%** Two MMR doses: **4%**

U.S. Hospitalizations in 2024

40%

40% of cases hospitalized (114 of 285) for isolation or for management of measles complications.

Percent of Age Group Hospitalized Under 5 years: 52% (62 of 120) 5-19 years: 25% (22 of 88) 20+ years: 39% (30 of 77)

PERTUSSIS

- Highly contagious respiratory illness
 - Classic illness '100 days cough' in children/adolescents/adults
 - Rarely causes death EXCEPT in neonates/infants
- Vaccination is best tool for prevention but imperfect...declines with time
 - All children/adolescents/adults should be vaccinated
 - Intrapartum vaccination of all pregnant women recommended for infant protection
- ► Reporting is passive, so likely underestimates impact
- ▶ 2024 had over 6 FOLD increase from 2023, highest case count since 2019
- 2025 has started out with a 'bang': 6600 cases by 5/1 [4x same date 2024] per CNN...

https://www.cdc.gov/pertussis/php/surveillance/index.html https://www.cnn.com/2025/05/01/health/whooping-cough-pertussis-vaccine-wellness

2024 Provisional Pertussis Surveillance Report

Notice to Readers:

Provisional 2024 Reports of Notifiable Diseases

https://wonder.cdc.gov/nndss/static/2024/52/2024-52-table990.html

NOTE: The pertussis case definition was modified by CSTE effective January 1, 2020. Criteria were modified increasing sensitivity for case ascertainment such that case counts may increase. The 2020 CSTE case and here: https://ndc.s definition can be uit and an

	Re 2023: 7.0	ported Pe	ertussis Cases 2024: 35.4 3	15		
Reported Pert Hospitalizatio	cussis Cases and n by Age Group	d Percent		Reported Pertussis Dea	aths	
Age	No. of Cases (% of total)	Age Inc /100,000	% Hospitalized by age**	Age	Deaths	
< 6 mos	1,573 (4.4)	85.4	33.4	Cases, aged	6	
6-11 mos	1,150 (3.2)	62.4	11.2	< 1 yr		
1-6 yrs	6,539 (18.5)	28.7	3.5	Cases, aged ≥ 1 yr	4	
7-10 yrs	4,945 (14.0)	30.7	1.4	Total	10	
11-19 yrs	15,194 (42.9)	39.5	1.1	*Confirmation of da	aths is	
20+ yrs	6,026 (17.0)	2.4	10.3	 Conternation of deaths is ongoing and may result in changes to the final count for 		
Unknown Age	8 (0.0)	N/A	N/A	2024.		
Total	35,435 (100)	10.6	4.9			

Reported DTaP Vaccine Status of Children with Pertussis, Ages 6 months through 6 years

Age	Vaccine History Unknown	Unvaccinated	Undervaccinated (1-2 doses)	Completed Primary DTaP Series (3+ doses)	Total
	No. (%)	No. (%)	No. (%)	No. (%)	No.
6-11 mo	774 (67.3)	84 (7.3)	103 (9.0)	189 (16.4)	1,150
1-4 yrs	2,992 (62.3)	370 (7.7)	212 (4.4)	1,232 (25.6)	4,806
5-6 yrs	978 (56.4)	118 (6.8)	65 (3.8)	572 (33.0)	1,733
Total	4,744 (61.7)	572 (7.4)	380 (4.9)	1993 (25.9)	7,689

Footnets: CDC recommends all children receive at least 3 doses of DTaP by age 6 months. DTaP coverage in the United States is very high. Over 95% of all children 19-35 months of age have received at least 3 doses of DTaP. This table illustrates a similar trend imong the pertussis cases reported during 2024-the majority have received at least 3 doses of DTaP. Because protection from DTaP wanes over time, even children who are up to date with their pertussis vaccines may contract pertussis. Unvaccinated children are more likely to contract pertussis and have more severe disease than those who are fully vaccinated. These data cannot be used to interpret vaccine effectiveness or to assess risk, as the data are incomplete and there is no healthy comparison group.

Weeks 1-52, 2024 00C/9CIR0/040/04798



National Center for Immunization and Respiratory D	iseas
Division of Bacterial Diseases	

C5292279

publication.

PERTUSSIS 2024

1.56 MISSISSIPPI 12.51 773 MISSOURI 10.24 MONTANA 115 21.29 419 NEBRASKA 0.25 -8 NEVADA.

3.87

4.57

4.78

15.30

11.62

7.08

17.71

14.53

11.67

24.50

22.27

9.14

5.24

29.46

5.03

3.85

7.78

14.99

9.07

26.06

1.97

44.92

0.00

10.63 35,435

Reported Pertussis

Incidence

7.67

81.11

10.35

9.82

4.55

11.22

7.89

5.20

3.27

3.29

2.58

4.86

54.10

18.31

6.85

11.03

8.61

10.44

2.81

12.85

3.81

12.05

16.77

33.15

(per 100,000)

No. of

Cases

389

595

762

299

1,775

655

286

53

22

732

280

1,049

2,304

468

353

253

471

129

178

235

841

1,683

1,895

46

54

423

101

1,735

969

757

138

1,708

1,039

2,889

100

277

268

355

1,156

263

97

788

35

0

2,029

2,647

46.9

70

Incidence and Cases

STATES

ALABAMA

ALASKA

ARIZONA

ARKANSAS

CALIFORNIA

COLORADO

DELAWARE

FLORIDA

GEORGIA

HAWAII

IDAHO.

ILLINOIS

INDIANA

KANSAS

MAINE

KENTUCKY

LOUISIANA

MARYLAND MASSACHUSETTS

MICHIGAN

MINNESOTA

NEW HAMPSHIRE

NEW JERSEY

NEW YORK

OKLAHOMA

OREGON

OHIO

NEW MEXICO

NEW YORK CITY

NORTH DAKOTA

PENNSYLVANIA RHODE ISLAND

SOUTH CAROLINA

SOUTH DAKOTA

TENNESSEE

VERMONT

VIRGINIA

WASHINGTON

WEST VIRGINIA

Source: Single Race Vintage 2022

postcensal estimates; 2023 and 2024

WISCONSIN

WYOMING.

TOTAL

TEXAS

UTAH

NORTH CAROLINA

AWOI

D.C.

CONNECTICUT

January, 2025

estimates were not available at the time of

POLIO



Wastewater surveillance [pro and retrospective] and positive samples in 2022-23 in response to imported VAPP case in NY in 2022. Highlights ongoing risk for polio importation into US and unvaccinated communities...

https://wwwnc.cdc.gov/eid/article/30/11/24-0771_article

INFLUENZA: ANNUAL IMPACT, 2024-25 HISTORICALLY SEVERE



Influenza Positive Tests Reported to CDC by Clinical Laboratories,

Season: 2024-25

National Summary, 2024-25 Season, week ending Mar 01, 2025

Surveillance Area: National



216 Pediatric deaths as of 5/2/2025 [most since 2009-10 H1N1]

https://www.cdc.gov/fluview/surveillance/2025-week-09.html#cdc_data_surveillance_section_2-u-s-virologic-surveillance

- Predominantly Influenza A H1N1 and H3N2 [close to 50% each]
- Preliminary Vaccine Effectiveness
 - Children and Adolescents: 32-60% OP care across 3 networks 63-78% HOSP across 2 networks
 - ► Adults:

36-54% OP care across 2 networks 41-55% HOSP across 2 networks

Similar to average vaccine effectiveness in recent years

INFLUENZA 2024-25 SEASON

- ► Many conflate any respiratory illness with 'Flu' [minimize severity] and do not understand risk
- Serious illness causes thousands of deaths annually [direct + worsening chronic disease] 9/10 hospitalized with influenza have at least 1 pre-existing risk/health condition
- Greatest benefit of Influenza vaccines is reduction in risk for severe disease.
 - Secondary benefit: reduction in risk for influenza infection.
- ► Seasonal influenza vaccine effectiveness varies:
 - ► TIMING of vaccination

[10-14 days to be effective and durability varies: by vaccine + 'human substrate']

ROBUSTNESS of individual immune response

[immune senescence, comorbidities, immune suppression,...]

- MATCH between the vaccine strain and circulating virus
- ► Inadequate and worsening vaccine uptake means less immunity/protection from disease
- ► Seasonal vaccine has little [if any] direct benefit against pandemic influenza viruses

INFLUENZA: WHY STILL A PROBLEM?

Situation summary of confirmed and probable human cases since 2024

Confirmed Cases Probable Cases



National

National Total Cases: 70

Cases Exposure Source

- 41 Dairy Herds (Cattle)*
- 24 Poultry Farms and Culling Operations*
- 2 Other Animal Exposure[†]
- 3 Exposure Source Unknown[‡]

NOTE: One additional case was previously detected in a poultry worker in Colorado in 2022. Louisiana reported the first H5 bird flu death in the U.S.

*Exposure Associated with Commercial Agriculture and Related Operations ¹Exposure was related to other animals such as backyard flocks, wild birds, or other mammals ¹Exposure source was not able to be identified





 \star Human Cases in 2025

March 7, 2025



Wastewater Surveillance [week ending March 01, 2025] 453 sites reported results for avian influenza A(H5) in wastewater 8 (1.8%) sites from 4 states (CA, MA NV, NJ) reported H5 detections. <u>Update 5/6/2025:</u> Cases in cattle, poultry flocks and backyard birds have slowed. 4 WW Sites + [NJ, MN, CA]. Continue surveillance, H1 subtyping.

NEW, EMERGING THREAT: HAPI H5Ń1

https://www.cdc.gov/bird-flu/situation-summary/index.html https://www.cdc.gov/coca/hcp/trainings/h5n1 influenza a virus surveillance.html

- Know your biases [recognize your 'blind spots'] your-biases
- Identify gaps in your knowledge [and fill them]
- Determine where you will place your energies/efforts
- ► ACT!!
 - Take care of/vaccinate your own
 - Speak to others in your circle
 - Join a coalition
 - Evaluate information and post facts
 - It takes a village...and more...
 - Engage with elected representatives and make your position known...

INDIVIDUAL PREREQUISITES

- Wash your hands frequently with soap/water [60+% alcohol hand sanitizers= backup]
- Avoid touching your face
- Cover your mouth and nose when you cough or sneeze [sleeve, tissue, cloth]
- Situational awareness and wearing a well-fitting mask in high risk situations
- Stay home from work/school if sick [and contact your Healthcare professional]

NONSPECIFIC PREVENTION STRATEGIES: SUPPLEMENT BUT CANNOT REPLACE VACCINATION AS/ BEST PREVENTION STRATEGY.



IMMUNIZATION COMMUNICATION MATRIX

Challenge for as long as we have had vaccines Dynamic state re: concerns, vaccine product, over time May NOT correlate with action [Accept vs. refuse vaccine] More volatile when presented with NEW: Information, policies, reports (scientific and misinformation) about vaccine risks, lack of clarity re: recommendations and vaccine benefits

Exploded with COVID-19 Pandemic

Increased health anxiety

- **Conspiracy/extremist beliefs**
- Hyperconnected digital landscape
- **Digital shared spaces (anti-science, libertarian communities)**

Widespread decline in trust in expertise/authority

VACCINE HESITANCY: "STATE OF INDECISION OR UNCERTAINTY ABOUT VACCINATION"

Source: The Vaccine-Hesitant Moment | New England Journal of Medicine (nejm.org)

Contributing Factors:

Political polarization

Alternative healthcare 'advocacy'

- Don't share suspect claims or news stories online!
 - More shares= drives algorithms= increased likelihood of further spread [virality]
- ► Investigate suspect claims by ...
 - Search fact checking websites- has this already been confirmed/debunked??
 - ► If you cannot verify, shift to lateral reading strategy
 - Lateral reading: leave current webpage, open new browser tab and see what verified, trusted websites say about the unknown source <u>https://www.youtube.com/watch?v=GoQG6Tin-1E</u>
 - If you see a suspicious looking image- try reverse image searches <u>https://tineye.com/</u> or <u>https://www.youtube.com/watch?v=H7IF5Su9DZI</u>

If you are looking for a standard procedure with all of these [or similar] steps, consider the <u>SIFT Method</u> for evaluating information: <u>https://guides.lib.uchicago.edu/c.php?g=1241077&p=9082322</u>

ONLINE: ASSESSMENT AND ACTION

https://princetonlibrary.org/guides/misinformation-disinformation-malinformation-a-guide/ https://guides.lib.uchicago.edu/c.php?g=1241077&p=9082322 https://www.hhs.gov/sites/default/files/surgeon-general-misinformation-advisory.pdf

- BBC Disinformation Watch: <u>https://monitoring.bbc.co.uk/inside-bbcm/33</u>
- FactCheck.org <u>https://www.factcheck.org/</u>
- Google FactCheck Explorer <u>https://toolbox.google.com/factcheck/explorer/search/list:recent;hl=e</u>
- NewsGuard's 'Reality Check' <u>https://www.newsguardrealitycheck.com/</u>
- ► Politifact

https://www.politifact.com/

► Snopes

https://www.snopes.com/

FACT CHECKING WEBSITES

- MICRO: Listen/Observe, address motivation, question, and needs of the person(s) in front of you; stay within limits of your knowledge
 - > 'Person on the street'
 - Clinical setting
 - Small groups [<10]</p>
- MACRO: Address motivation, questions, and needs of a population; prepare ahead of time re: content and for questions; repeat critical points; know your 'touch points' and tolerance for conflict
 - Presentations to larger groups
 - Interviews/news media
 - Social media
 - > Manuscript

ADVOCATE COMMUNICATION: HOW TO BE MORE EFFECTIVE THAN OPPONENTS

Immunization is a **TEAM SPORT:** healthcare team members can change patient/family behaviors **Clinical leadership:** Inform/resource, support team member KSA* **Management:** Assure vaccines, processes, resources for vaccination **Team Goal**: Successful individual and community protection from vaccine-preventable diseases **Tools**: Standing orders, reminders, registry, collaboration across settings

STRONG PRESUMPTIVE PROVIDER RECOMMENDATION IS KEY

Emphasizes importance of immunization Simply 'OFFERING' implies low value BUT it does not happen EVERY TIME—as it should Patients hear it FAR less often than we think they do... Put simply: DON'T ASK, RECOMMEND! And give a reason WHY... The closer 'why' is to patient's motivations, more likely vaccine will be accepted Be prepared and act—Step onto the PATHe—for those who hesitate **CLINICAL SETTING** *KSA= Knowledge, Skills, and Attitudes

P: <u>Prepare yourself</u> for open and empathetic exchange [supportive words, voice, gestures, and facial expressions]

A: Approach the patient by asking: "Can we talk a minute about your concerns about _ vaccine?" or "Do you mind if I ask about your vaccine concerns?"

T: Talk the Talk [be culturally humble as you know only part of patient's context or experiences] Provide brief positive messages re: vaccine safety or disease risk; identify misinformation without rebuttals/repeating falsehoods; acknowledge knowledge gaps

H: Humanize message

[put a 'face' on your message so patients know how important they are to you]

e: Embrace the long game

[ideal to vaccinate today, BUT not a loss IF you agree to revisit the issue at another time AND you follow through] Best practice: document plan to revisit vaccine in EMR, and do

to! ['e' is silent in PATHe: but 'e' is critical to achieving success for many]

PATHE TO ADDRESS VACCINE HESITANCÝ

>Vaccines have saved ~154 million lives in the last 50 years!

- > Equivalent of 6 lives every minute of every year...
- > Saving millions more is HUMANLY POSSIBLE
- > We have accomplished so much but still have many miles to walk

>WE CAN turn the tide back to confidence from hesitancy

- > It will not be easy, but COLLABORATIVELY we can (and must)!
- > Individuals in healthcare, public health
- > Individual advocates
- > Advocacy organizations
- > Professional organizations

VISION FORWARD

Source: www.who.int/news/item/24-04-2024-global-immunization-efforts-have-saved-at-least-154-million-lives-over-the-past-50-years

As an example... Let's look at how we might address RSV vaccination in older adults in this community...

US Vaccinatio	owered by Fraym Data National State-Lev	el County-Level Immunization Outr	Community Summary	S fraym
Immunizatio _{State} Vermont v	County Chittenden V All V Adults (18+)	t messages, leverage ugh optimal mediums. Clear Selections	Intent to Get Vaccinated Adults (18+) Vermont Chittenden 26% 29%	RSV V Please select a zip code within the selected county to view data here
how data relating to:	ACCESS	MOTIVATION		
Demographics	Concerns (i)	Concerns i		
Message	Overall cost of getting vaccinated 21%	Vaccine may not be effective		29%
Message	Knowing where to get vaccinated 15%	Vaccine may cause severe side effects		28%
Messenger	Knowing eligibility 12% Scheduling separate appointments 10%	Vaccine may not be safe		24%
Medium	Difficulty getting to a vaccination site 8%	Trusted people are not getting vaccine		17%
Healam	Scheduling appointments online 5%	Vaccine may cause disease		15%
	Vaccination site being open 3%		_	
Outline Your Findings	Medical Care (i)	Beliefs (i)	Worries (i)	
Synthesize dashboard data	Has a primary care physician 83%	Believes diseases won't infect them	15% Worried about Flu	45%
on the Community Summary page.	Has health insurance 79%	Believes diseases aren't spreading in community	15% Worried about COVID-19	41%
Generate		Believes not all diseases	13% Worried about Pneumococcal	33%
Summary	Has delayed medical care 23%	Believes friends/family not at risk	10% Worried about RSV	26%

EXAMPLE: CHITTENDEN COUNTY, VT [ADULT RSV]

US Adult Vaccine Uptake Dashboard. 2024. National Foundation for Infectious Diseases (NFID) and Fraym. Accessed [April 28, 2025]. Available at: <u>https://www.nfid.org/us-vaccine-uptake-dashboard/</u>



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For the public? For healthcare professionals? Who would be the best messengers? What would be good partnerships to get this done?

HOW SHOULD WE USE THIS INFORMATION TO RESPOND??

RSV DISEASE BURDEN: OVERALL

Testing is critical to distinguish RSV from other viral respiratory diseases Lack of current effective antiviral medications makes vaccine that much more important... CDC estimates* annual US impact of RSV disease

2.1 MILLION	outpatient visits among children
58-80 THOUSAND	hospitalizations among children
60-160 THOUSAND	hospitalizations among adults 65
6-10 THOUSAND	deaths among adults 65+ years
100-300	deaths among children < 5 years

*Significant uncertainty in rates
1-Suboptimal sensitivity of current tests
2-Testing not consistently performed in persons hospitalized with respiratory infections

< 5 years

< 5 years

+ years

ADULT RSV HOSPITALIZATION AND MORTALITY

 Ambrosch, et.al. RSV v. Influenza v. COVID [2020-21] GERMANY, 4 seasons Hospitalized pt: Mean age 75 y. RSV, 72 y. Flu A, 75 y. Flu B, 71 y. COVID >85% hospitalized with RSV had medical risk factors [COPD, CKD were most common] <u>RSV more likely to require ICU [13-17%], longer LOS, higher mortality than influenza</u> Caveat: GER Influenza vaccination recommended for 65+ but rate ~38.8% [vs US 70.2%]

McLaughlin, et.al. Sys Review, Meta analysis Med. Attended RSV, US adults 15 studies, mixed methods

Pooled estimate ~178 hospitalizations/100K adults 65+/year with CFR 6-8%

~159K hospitalizations, 119K ED visits [w/o admission], 1.4 million OP visits/year/

Hospitalization lower in 50-64 yr [~42K/yr] and 18-49 yr [~18K/yr], most with comorbidities

<u>Comorbidities increase risk medically-attended RSV by 1.2-28 fold over age matched</u> 'well'

RSV RISK MITIGATION: ADULTS, ONE DOSE Adults 60*-74 years at Highest risk

Adults aged 60-74 years at higher risk for RSV should get the RSV vaccine

Chronic cardiovascular disease	Severe obesity (body mass index ≥40 kg/m ²)	Diabetes mellitus complicated by chronic kidney disease, neuropathy, retinopathy or other end-organ damage		Chronic lung or respiratory disease	
End stage renal disease/dialysis dependence	Chronic hematologic conditions	Chronic liver disease	Neurological of causing impaired respiratory music	r neuromuscular conditions d airway clearance or cle weakness	
Residence in a nursing home Moderate or severe immunocompromise		Other factors that a of severe disease du frailty)	provider determin Je to viral respirato	nes would increase risk bry infection (e.g.,	

Data source: https://www.cdc.gov/mmwr/volumes/73/wr/mm7332e1.htm

https://www.cdc.gov/mmwr/volumes/73/wr/mm7332e1.htm#B1_down

*50-59 not yet approved by CDC Director

LIFESPAN STRATEGY: MITIGATE RISK FOR SEVERE RSV DISEASE

[GSK, Pfizer or Moderna RSV VACCINE] ACTIVE Immunization of adults ONCE: ALL 75+ years 6o*-74 years Risk-based ABRYSVO [Pfizer] INDIRECT ACTIVE Immunization ONCE in Pregnant Women at 32-36 weeks gestation: September-February Ongoing investigation of RSV vaccines in: "Younger" Adults at risk Immune compromised Children/Adolescents at ^ Risk Additional doses (or not)...

40

NIRSEVIMAB[®] PASSIVE Immunization of Infants: ALL (unprotected by maternal vaccination) in 1st RSV season Oct-March Risk-Based in 2nd RSV Season

*RSV Vaccine ACIP recommended in at risk adults 50-59 @ February 2025 Meeting- not yet approved by CDC director or published in MMWR...

RSV VACCINES: EFFECTIVENESS AND SAFETY

- Vaccine effectiveness [Real world]
 - VISION Network: 28271 RSV hosp, 36521 ED visits in adults 60+ 10/23-3/24 77% VE against RSV-associated ED visits No IC: 80% VE vs. RSV hospital admit, 81% vs. RSV ICU admit/death/both IC: 73% VE vs. RSV hospital admit
 - VA: 146852 vaccinated v 582936 controls, median 75.9 years
 VE 78.1% RSV illness, 78.7% v. RSV ED/UC visits, 80.3% v. RSV Hospitalization
- Vaccine safety
 - V-Safe, VAERS
 - Reactogenic: Pain, swelling, HA, Fatigue, Arthralgia, Redness= common AE
 - GBS reporting rate elevated [4.4, 1.8/million doses P and GSK vaccine]
 - FDA/CMS Collaboration: Self controlled case series CMS data
 - >3.2 million adults 65+: < 10 cases GBS/1 M doses either subunit vaccine</p>

https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(24)01738-0/fulltext https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(24)00796-5/fulltext https://www.cdc.gov/mmwr/volumes/73/wr/mm7321a3.htm https://www.medrxiv.org/content/10.1101/2024.12.27.24319702v1