Vaccination Opportunities at Specialty Addiction Programs

Prevention, Practicality, Possibility

SE AETC October 20th, 2021

Hermione Hurley, MBChB
Assistant Professor, University Colorado
Infectious Disease, Addiction Medicine
Denver Health Center for Addiction Medicine

DENVER HEALTH
CENTER FOR ADDICTION MEDICINE™

Hermione Hurley Disclosures

- H. Hurley provides waiver training courses for clinicians to become buprenorphine prescribers through the Providers Clinical Support System
- No other financial disclosures

Contributors to OBHS vaccination clinic and analysis

Alejandra Santisteban, Programs Specialist, Public Health Institute Denver Health

Susanne Lederer-Graham, Clinic Administrator, Public Health Institute Denver Health

Brooke Bender, Administrative Director, Center for Addiction Medicine

Ethan Hawkins, Senior Data Applications Analyst, Public Health Institute Denver Health

Mohammad Toseef, EIS Officer, Center for Disease Control Prevention

Judith Shlay, Associate Director, Public Health Institute Denver Health

Mindy Paddock, Supervisor, Denver Health and Hospital Authority

Hermione Hurley, Physician, Denver Health and Hospital Authority

DENVER HEALTH
CENTER FOR ADDICTION MEDICINE

Objectives

- Describe vaccine preventable diseases experienced by people with substance use disorders
- Recommend a vaccination schedule for individuals seen for substance use disorder based on the 2021 Recommended Adult Immunization Schedule for ages 19 years or older, Advisory Committee on Immunization Practices (ACIP).
- Evaluate opportunities in your practice environment to expand vaccination offerings through expansion of capabilities or collaborative partnerships.

Client story: a person experiencing homelessness

- 48yr female, experiencing homelessness, influencer for peers
- Sober from heroin, on methadone, uses methamphetamine
- Identified non-immune to hepatitis A/B during annual labs
- Accepted Hep A vaccination in DPH campus clinic in 2019
- Street sleeping friends were hospitalized with acute hepatitis A
- She remained well, is a strong peer advocate for vaccination
- 2020 hospitalized with shigellosis, discharged after 48 hours
- Fearful of shelters during COVID-19 “they are too dangerous”
- Declined COVID-19 vaccination at clinic, “street sleepers are OK”

DENVER HEALTH
CENTER FOR ADDICTION MEDICINE™

Vaccine preventable diseases experienced by people with SUD

ACIP Adult Immunization Schedule United States 2021

Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2021

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Influenza inactivated (IIV) or **Influenza recombinant** (RIV4)	1 dose annually			
or	or			
Influenza live, attenuated (LAIV4)	1 dose annually			
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			
Measles, mumps, rubella (MMR)	1 or 2 doses depending on indication (if born in 1957 or later)			
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	
Zoster recombinant (RZV)			2 doses	
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal conjugate (PCV13)	1 dose			1 dose
Pneumococcal polysaccharide (PPSV23)	1 or 2 doses depending on indication			1 dose
Hepatitis A (HepA)	2 or 3 doses depending on vaccine			
Hepatitis B (HepB)	2 or 3 doses depending on vaccine			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication, see notes for booster recommendations			
Meningococcal B (MenB)	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations			
	19 through 23 years			
***Haemophilus influenzae* type b** (Hib)	1 or 3 doses depending on indication			

Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection

Recommended vaccination for adults with an additional risk factor or another indication

Recommended vaccination based on shared clinical decision-making

No recommendation/ Not applicable

Table 2 Recommended Adult Immunization Schedule by Medical Condition and Other Indications, United States, 2021

Vaccine	Pregnancy	Immuno-compromised (excluding HIV infection)	HIV infection CD4 count <200 mm³	HIV infection CD4 count ≥200 mm³	Asplenia, complement deficiencies	End-stage renal disease; or on hemodialysis	Heart or lung disease, alcoholism[1]	Chronic liver disease	Diabetes	Health care personnel[2]	Men who have sex with men
IIV or RIV4	1 dose annually										
or										or	
LAIV4	Not Recommended						Precaution			1 dose annually	
Tdap or Td	1 dose Tdap each pregnancy	1 dose Tdap, then Td or Tdap booster every 10 years									
MMR	Not Recommended*	Not Recommended	1 or 2 doses depending on indication								
VAR	Not Recommended*	Not Recommended		2 doses							
RZV			2 doses at age ≥50 years								
HPV	Not Recommended*	3 doses through age 26 years	2 or 3 doses through age 26 years depending on age at initial vaccination or condition								
PCV13		1 dose									
PPSV23		1, 2, or 3 doses depending on age and indication									
HepA			2 or 3 doses depending on vaccine								
HepB			2, 3, or 4 doses depending on vaccine or condition						<60 years ≥60 years		
MenACWY	1 or 2 doses depending on indication, see notes for booster recommendations										
MenB	Precaution	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations									
Hib		3 doses HSCT[3] recipients only	1 dose								

Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection

Recommended vaccination for adults with an additional risk factor or another indication

Precaution—vaccination might be indicated if benefit of protection outweighs risk of adverse reaction

Recommended vaccination based on shared clinical decision-making

Not recommended/ contraindicated—vaccine should not be administered.

*Vaccinate after pregnancy.

No recommendation/ Not applicable

1. Precaution for LAIV4 does not apply to alcoholism. **2.** See notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations. **3.** Hematopoietic stem cell transplant.

But what person with substance use disorder? Person who injects drugs? Person who experiences homelessness?

- Hepatitis A outbreaks in 2019 (CO Springs →Denver)
- Hepatitis B in non-immune individuals who inject
- Increased rate of hospitalization for pneumonia
- Increased rate of hospitalization for influenza
- Higher rates of meningococcal disease for PEH
- Low rates of cervical screening if not engaged with PCP or victim of violence or trauma
- Risk of tetanus for persons who inject (and botulism)

Harris A, et al. Increases in Acute Hepatitis B Virus Infections — Kentucky, Tennessee, and West Virginia, 2006–2013. Weekly. Vol. 65, 2016:47-50.
Peak CM, et al. Homelessness and Hepatitis A San Diego County, 2016-2018. Clinical infectious diseases: publication of the Infectious Diseases Society of America 2019
Wiese AD, Griffin MR, Schaffner W, Stein CM, Grijalva CG. Opioid Analgesic Use and Risk for Invasive Pneumococcal Diseases. Annals of internal medicine 2018; 169:355

Notes

Recommended Adult Immunization Schedule for ages 19 years or older, United States, 2021

For vaccine recommendations for persons 18 years of age or younger, see the Recommended Child/Adolescent Immunization Schedule.

Additional Information

COVID-19 Vaccination

ACIP recommends use of COVID-19 vaccines within the scope of the Emergency Use Authorization or Biologics License Application for the particular vaccine. Interim ACIP recommendations for the use of COVID-19 vaccines can be found at www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/covid-19.html

Haemophilus influenzae type b vaccination

Special situations

- **Anatomical or functional asplenia (including sickle cell disease):** 1 dose if previously did not receive Hib; if elective splenectomy, 1 dose, preferably at least 14 days before splenectomy
- **Hematopoietic stem cell transplant (HSCT):** 3-dose series 4 weeks apart starting 6–12 months after successful transplant, regardless of Hib vaccination history

Hepatitis A vaccination

Routine vaccination

- **Not at risk but want protection from hepatitis A** (identification of risk factor not required): 2-dose series HepA (Havrix 6–12 months apart or Vaqta 6–18 months apart [minimum interval: 6 months]) or 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])

Special situations

- **At risk for hepatitis A virus infection:** 2-dose series HepA or 3-dose series HepA-HepB as above
  - **Chronic liver disease** (e.g., persons with hepatitis B, hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice the upper limit of normal)
  - **HIV infection**
  - **Men who have sex with men**
  - **Injection or noninjection drug use**
  - **Persons experiencing homelessness**
  - **Work with hepatitis A virus** in research laboratory or with nonhuman primates with hepatitis A virus infection
  - **Travel in countries with high or intermediate endemic hepatitis A** (HepA-HepB [Twinrix] may be administered on an accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months)
  - **Close, personal contact with international adoptee** (e.g., household or regular babysitting) in first 60 days after arrival from country with high or intermediate endemic hepatitis A (administer dose 1 as soon as adoption is planned, at least 2 weeks before adoptee's arrival)
  - **Pregnancy** if at risk for infection or severe outcome from infection during pregnancy
  - **Settings for exposure, including** health care settings targeting services to injection or noninjection drug users or group homes and nonresidential day care facilities for developmentally disabled persons (individual risk factor screening not required)

Hepatitis B vaccination

Routine vaccination

- **Not at risk but want protection from hepatitis B** (identification of risk factor not required): 2- or 3-dose series (2-dose series Heplisav-B at least 4 weeks apart [2-dose series HepB only applies when 2 doses of Heplisav-B are used at least 4 weeks apart] or 3-dose series Engerix-B or Recombivax HB at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 8 weeks / dose 1 to dose 3: 16 weeks]) or 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])

Special situations

- **At risk for hepatitis B virus infection:** 2-dose (Heplisav-B) or 3-dose (Engerix-B, Recombivax HB) series or 3-dose series HepA-HepB (Twinrix) as above
  - **Chronic liver disease** (e.g., persons with hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice upper limit of normal)
  - **HIV infection**
  - **Sexual exposure risk** (e.g., sex partners of hepatitis B surface antigen [HBsAg]-positive persons; sexually active persons not in mutually monogamous relationships; persons seeking evaluation or treatment for a sexually transmitted infection; men who have sex with men)
  - **Current or recent injection drug use**
  - **Percutaneous or mucosal risk for exposure to blood** (e.g., household contacts of HBsAg-positive persons; residents and staff of facilities for developmentally disabled persons; health care and public safety personnel with reasonably anticipated risk for exposure to blood or blood-contaminated body fluids; hemodialysis, peritoneal dialysis, home dialysis, and predialysis patients; persons with diabetes mellitus age younger than 60 years, shared clinical decision-making for persons age 60 years or older)
  - **Incarcerated persons**
  - **Travel in countries with high or intermediate endemic hepatitis B**
  - **Pregnancy** if at risk for infection or severe outcome from infection during pregnancy (Heplisav-B not currently recommended due to lack of safety data in pregnant women)

Human papillomavirus vaccination

Routine vaccination

- **HPV vaccination recommended for all persons through age 26 years:** 2- or 3-dose series depending on age at initial vaccination or condition:
  - **Age 15 years or older at initial vaccination:** 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months; repeat dose if administered too soon)
  - **Age 9–14 years at initial vaccination and received 1 dose or 2 doses less than 5 months apart:** 1 additional dose
  - **Age 9–14 years at initial vaccination and received 2 doses at least 5 months apart:** HPV vaccination series complete, no additional dose needed
- **Interrupted schedules:** If vaccination schedule is interrupted, the series does not need to be restarted
- **No additional dose recommended after completing series with recommended dosing intervals using any HPV vaccine**

Shared clinical decision-making

- **Some adults age 27–45 years: Based on shared clinical decision-making,** 2- or 3-dose series as above

Special situations

- **Age ranges recommended above for routine and catch-up vaccination or shared clinical decision-making also apply in special situations**

Notes Recommended Adult Immunization Schedule, United States, 2021

- **Immunocompromising conditions, including HIV infection**: 3-dose series as above, regardless of age at initial vaccination
- **Pregnancy**: HPV vaccination not recommended until after pregnancy; no intervention needed if vaccinated while pregnant; pregnancy testing not needed before vaccination

Influenza vaccination

Routine vaccination

- **Persons age 6 months or older:** 1 dose any influenza vaccine appropriate for age and health status annually
- For additional guidance, see www.cdc.gov/flu/professionals/index.htm

Special situations

- **Egg allergy, hives only:** 1 dose any influenza vaccine appropriate for age and health status annually
- **Egg allergy–any symptom other than hives** (e.g., angioedema, respiratory distress): 1 dose any influenza vaccine appropriate for age and health status annually. If using an influenza vaccine other than RIV4 or ccIIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions.
- Severe allergic reactions to any vaccine can occur even in the absence of a history of previous allergic reaction. Therefore, all vaccine providers should be familiar with the office emergency plan and certified in cardiopulmonary resuscitation.
- A previous severe allergic reaction to any influenza vaccine is a contraindication to future receipt of the vaccine.
- **LAIV4 should not be used** in persons with the following conditions or situations:
  - History of severe allergic reaction to any vaccine component (excluding egg) or to a previous dose of any influenza vaccine
  - Immunocompromised due to any cause (including medications and HIV infection)
  - Anatomic or functional asplenia
  - Close contacts or caregivers of severely immunosuppressed persons who require a protected environment
  - Pregnancy
  - Cranial CSF/oropharyngeal communications
  - Cochlear implant
  - Received influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours, peramivir within the previous 5 days, or baloxavir within the previous 17 days
  - Adults 50 years or older
- **History of Guillain-Barré syndrome within 6 weeks after previous dose of influenza vaccine:** Generally, should not be vaccinated unless vaccination benefits outweigh risks for those at higher risk for severe complications from influenza

Measles, mumps, and rubella vaccination

Routine vaccination

- **No evidence of immunity to measles, mumps, or rubella:** 1 dose
  - **Evidence of immunity:** Born before 1957 (health care personnel, see below), documentation of receipt of MMR vaccine, laboratory evidence of immunity or disease (diagnosis of disease without laboratory confirmation is not evidence of immunity)

Special situations

- **Pregnancy with no evidence of immunity to rubella:** MMR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose
- **Nonpregnant women of childbearing age with no evidence of immunity to rubella:** 1 dose
- **HIV infection with CD4 count ≥200 cells/mm³ for at least 6 months and no evidence of immunity to measles, mumps, or rubella:** 2-dose series at least 4 weeks apart; MMR contraindicated for HIV infection with CD4 count <200 cells/mm³
- **Severe immunocompromising conditions:** MMR contraindicated
- **Students in postsecondary educational institutions, international travelers, and household or close, personal contacts of immunocompromised persons with no evidence of immunity to measles, mumps, or rubella:** 2-dose series at least 4 weeks apart if previously did not receive any doses of MMR or 1 dose if previously received 1 dose MMR
- **Health care personnel:**
  - **Born in 1957 or later with no evidence of immunity to measles, mumps, or rubella:** 2-dose series at least 4 weeks apart for measles or mumps or at least 1 dose for rubella
  - **Born before 1957 with no evidence of immunity to measles, mumps, or rubella:** Consider 2-dose series at least 4 weeks apart for measles or mumps or 1 dose for rubella

Meningococcal vaccination

Special situations for MenACWY

- **Anatomical or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:** 2-dose series MenACWY-D (Menactra, Menveo or MenQuadfi) at least 8 weeks apart and revaccinate every 5 years if risk remains
- **Travel in countries with hyperendemic or epidemic meningococcal disease, microbiologists routinely exposed to *Neisseria meningitidis*:** 1 dose MenACWY (Menactra, Menveo or MenQuadfi) and revaccinate every 5 years if risk remains
- **First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) and military recruits:** 1 dose MenACWY (Menactra, Menveo or MenQuadfi)
- For MenACWY **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting (e.g., in community or organizational settings and among men who have sex with men) and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm

Shared clinical decision-making for MenB

- **Adolescents and young adults age 16–23 years (age 16–18 years preferred) not at increased risk for meningococcal disease:** Based on shared clinical decision-making, 2-dose series MenB-4C (Bexsero) at least 1 month apart or 2-dose series MenB-FHbp (Trumenba) at 0, 6 months (if dose 2 was administered less than 6 months after dose 1, administer dose 3 at least 4 months after dose 2); MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series)

Special situations for MenB

- **Anatomical or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use, microbiologists routinely exposed to *Neisseria meningitidis*:** 2-dose primary series MenB-4C (Bexsero) at least one month apart or

Notes

- MenB-4C (Bexsero) at least 1 month apart or 3-dose primary series MenB-FHbp (Trumenba) at 0, 1–2, 6 months (if dose 2 was administered at least 6 months after dose 1, dose 3 not needed); MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series); 1 dose MenB booster 1 year after primary series and revaccinate every 2–3 years if risk remains
- **Pregnancy:** Delay MenB until after pregnancy unless at increased risk and vaccination benefits outweigh potential risks

- For MenB **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting (e.g., in community or organizational settings and among men who have sex with men) and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm

Pneumococcal vaccination

Routine vaccination

- **Age 65 years or older** (immunocompetent—see www.cdc.gov/mmwr/volumes/68/wr/mm6846a5.htm?s_cid=mm6846a5_w): 1 dose PPSV23
  - If PPSV23 was administered prior to age 65 years, administer 1 dose PPSV23 at least 5 years after previous dose

Shared clinical decision-making

- **Age 65 years or older** (immunocompetent): 1 dose PCV13 based on **shared clinical decision-making** if previously not administered.
  - PCV13 and PPSV23 should not be administered during the same visit
  - If both PCV13 and PPSV23 are to be administered, PCV13 should be administered first
  - PCV13 and PPSV23 should be administered at least 1 year apart

Special situations

(www.cdc.gov/mmwr/preview/mmwrhtml/mm6140a4.htm)

- **Age 19–64 years with chronic medical conditions (chronic heart [excluding hypertension], lung, or liver disease, diabetes), alcoholism, or cigarette smoking:** 1 dose PPSV23
- **Age 19 years or older with immunocompromising conditions (congenital or acquired immunodeficiency [including B- and T-lymphocyte deficiency, complement deficiencies, phagocytic disorders, HIV infection], chronic renal failure, nephrotic syndrome, leukemia, lymphoma, Hodgkin disease, generalized malignancy, iatrogenic immunosuppression [e.g., drug or radiation therapy], solid organ transplant, multiple myeloma) or anatomical or functional asplenia (including sickle cell disease and other hemoglobinopathies):** 1 dose PCV13 followed by 1 dose PPSV23 at least 8 weeks later, then another dose PPSV23 at least 5 years after previous PPSV23; at age 65 years or older, administer 1 dose PPSV23 at least 5 years after most recent PPSV23 (note: only 1 dose PPSV23 recommended at age 65 years or older)
- **Age 19 years or older with cerebrospinal fluid leak or cochlear implant:** 1 dose PCV13 followed by 1 dose PPSV23 at least 8 weeks later; at age 65 years or older, administer another dose PPSV23 at least 5 years after PPSV23 (note: only 1 dose PPSV23 recommended at age 65 years or older)

Tetanus, diphtheria, and pertussis vaccination

Routine vaccination

- **Previously did not receive Tdap at or after age 11 years:** 1 dose Tdap, then Td or Tdap every 10 years

Special situations

- **Previously did not receive primary vaccination series for tetanus, diphtheria, or pertussis:** At least 1 dose Tdap followed by 1 dose Td or Tdap at least 4 weeks after Tdap and another dose Td or Tdap 6–12 months after last Td or Tdap (Tdap can be substituted for any Td dose, but preferred as first dose), Td or Tdap every 10 years thereafter
- **Pregnancy:** 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36

- **Wound management:** Persons with 3 or more doses of tetanus-toxoid-containing vaccine: For clean and minor wounds, administer Tdap or Td if more than 10 years since last dose of tetanus-toxoid-containing vaccine; for all other wounds, administer Tdap or Td if more than 5 years since last dose of tetanus-toxoid-containing vaccine. Tdap is preferred for persons who have not previously received Tdap or whose Tdap history is unknown. If a tetanus-toxoid-containing vaccine is indicated for a pregnant woman, use Tdap. For detailed information, see www.cdc.gov/mmwr/volumes/69/wr/mm6903a5.htm

Varicella vaccination

Routine vaccination

- **No evidence of immunity to varicella:** 2-dose series 4–8 weeks apart if previously did not receive varicella-containing vaccine (VAR or MMRV [measles-mumps-rubella-varicella vaccine] for children); if previously received 1 dose varicella-containing vaccine, 1 dose at least 4 weeks after first dose
  - Evidence of immunity: U.S.-born before 1980 (except for pregnant women and health care personnel [see below]), documentation of 2 doses varicella-containing vaccine at least 4 weeks apart, diagnosis or verification of history of varicella or herpes zoster by a health care provider, laboratory evidence of immunity or disease

Special situations

- **Pregnancy with no evidence of immunity to varicella:** VAR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose if previously received 1 dose varicella-containing vaccine or dose 1 of 2-dose series (dose 2: 4–8 weeks later) if previously did not receive any varicella-containing vaccine, regardless of whether U.S.-born before 1980
- **Health care personnel with no evidence of immunity to varicella:** 1 dose if previously received 1 dose varicella-containing vaccine; 2-dose series 4–8 weeks apart if previously did not receive any varicella-containing vaccine, regardless of whether U.S.-born before 1980
- **HIV infection with CD4 count ≥200 cells/mm³ with no evidence of immunity:** Vaccination may be considered (2 doses 3 months apart); VAR contraindicated for HIV infection with CD4 count <200 cells/mm³
- **Severe immunocompromising conditions:** VAR contraindicated

Zoster vaccination

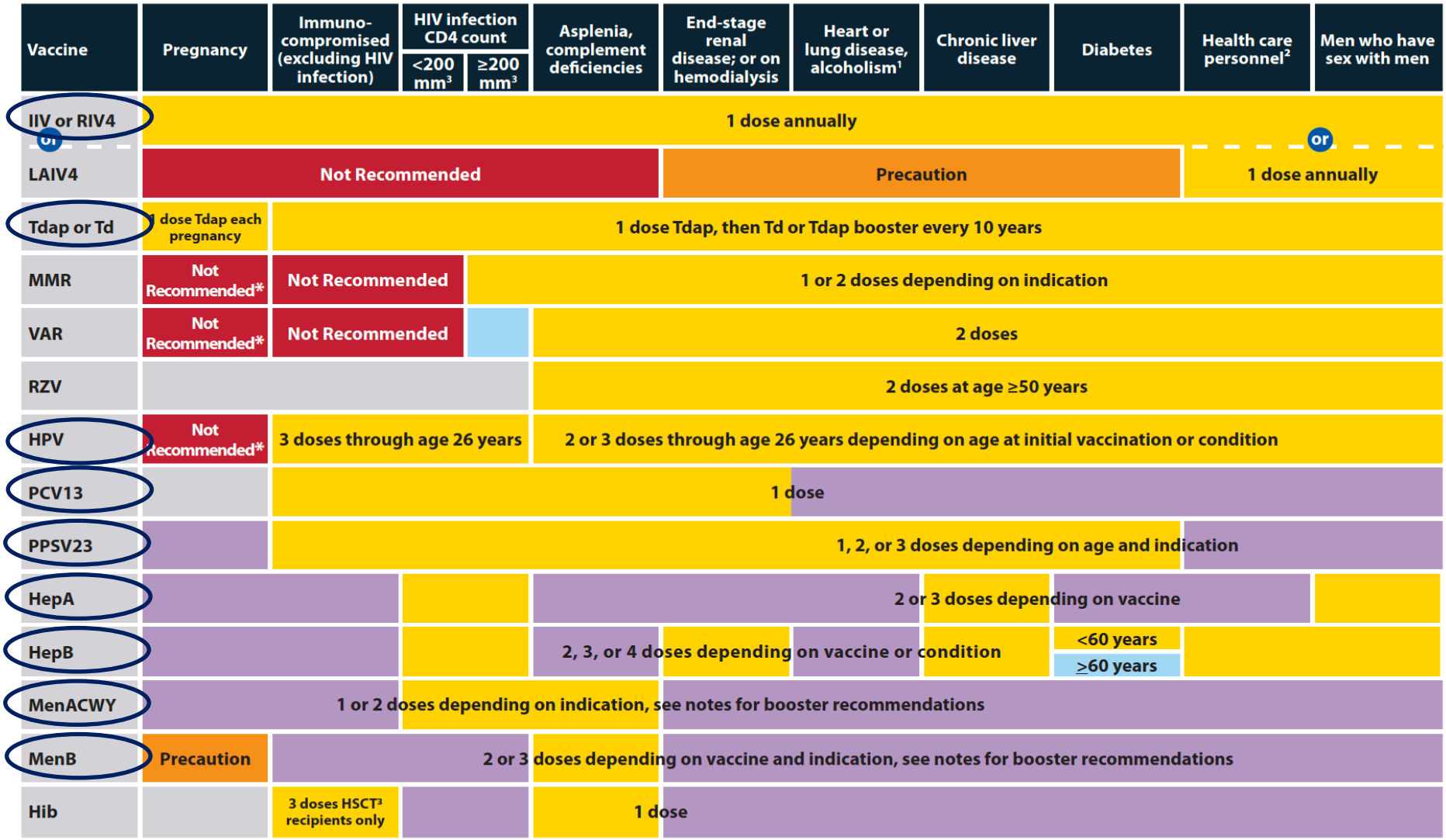
Routine vaccination

- **Age 50 years or older:** 2-dose series RZV (Shingrix) 2–6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon), regardless of previous herpes zoster or history of zoster vaccine live (ZVL, Zostavax) vaccination (administer RZV at least 2 months after ZVL)

Special situations

- **Pregnancy:** Consider delaying RZV until after pregnancy if RZV is otherwise indicated.
- **Severe immunocompromising conditions (including HIV infection with CD4 count <200 cells/mm³):** Recommended use of RZV under review

Table 2 Recommended Adult Immunization Schedule by Medical Condition and Other Indications, United States, 2021



Proposed schema for person with substance use

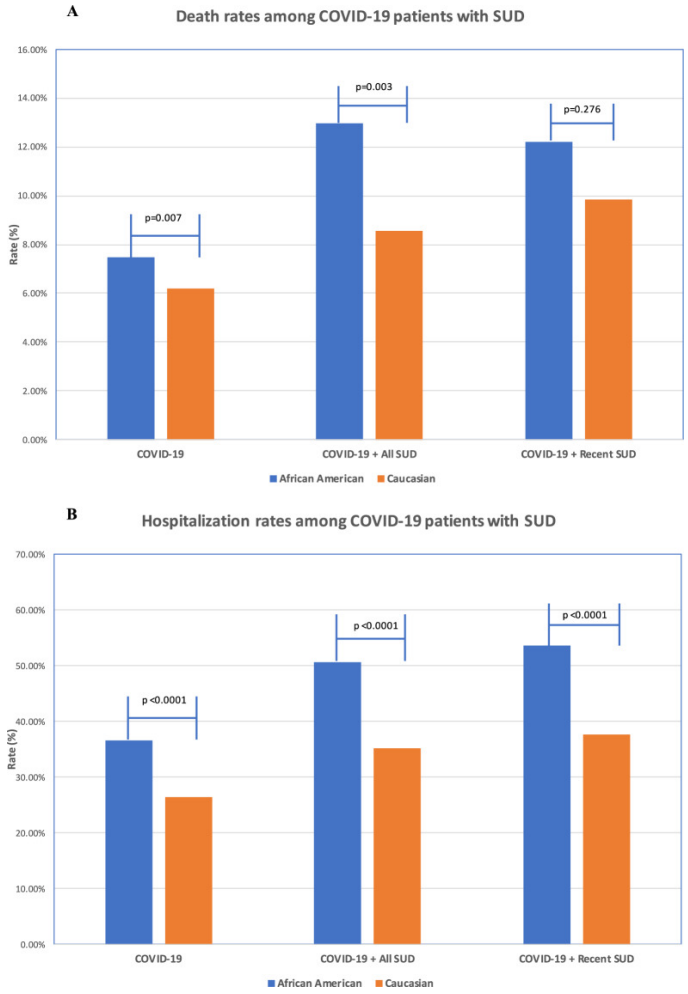
Open to argument, agreement, disagreement

Vaccine	Everyone with substance use disorder	Person who injects drugs	Person who experiences homelessness	Young people Transactional sex work, MSM	Elderly or people who smoke
COVID-19	✚				
Influenza	✚				
Hep A	✚	✚	✚		
Hep B	✚	✚	✚		
Tdap/Td		✚	✚		
MenACWY/B		✚	✚	✚	
HPV				✚	
PCV13/PPSV23					✚

Hurley, opinion – interpreted from ACIP notes

DENVER HEALTH
CENTER FOR ADDICTION MEDICINE

Among patients with recent diagnosis of SUD and COVID-19, African American people higher risk of death



- Retrospective case-controlled USA EHR
- COVID in 12,030/73,099,850 individuals
- Reviewed tobacco, SUD, comorbidities
- Those with SUD more likely to have untreated chronic disease
- African American individuals with recent SUD at higher risk of COVID (AOR 2.17, CI 2.01-2.34), and more likely to have hospitalization or death as consequence of COVID-19 infection

Wang QQ, Kaelber DC, Xu R, Volkow ND. COVID-19 risk and outcomes in patients with substance use disorders: analyses from electronic health records in the United States. Mol Psychiatry. 2021 Jan;26(1):30-39. doi: 10.1038/s41380-020-00880-7. Epub 2020 Sep 14. Erratum in: Mol Psychiatry. 2020 Sep 30;: PMID: 32929211; PMCID: PMC7488216.

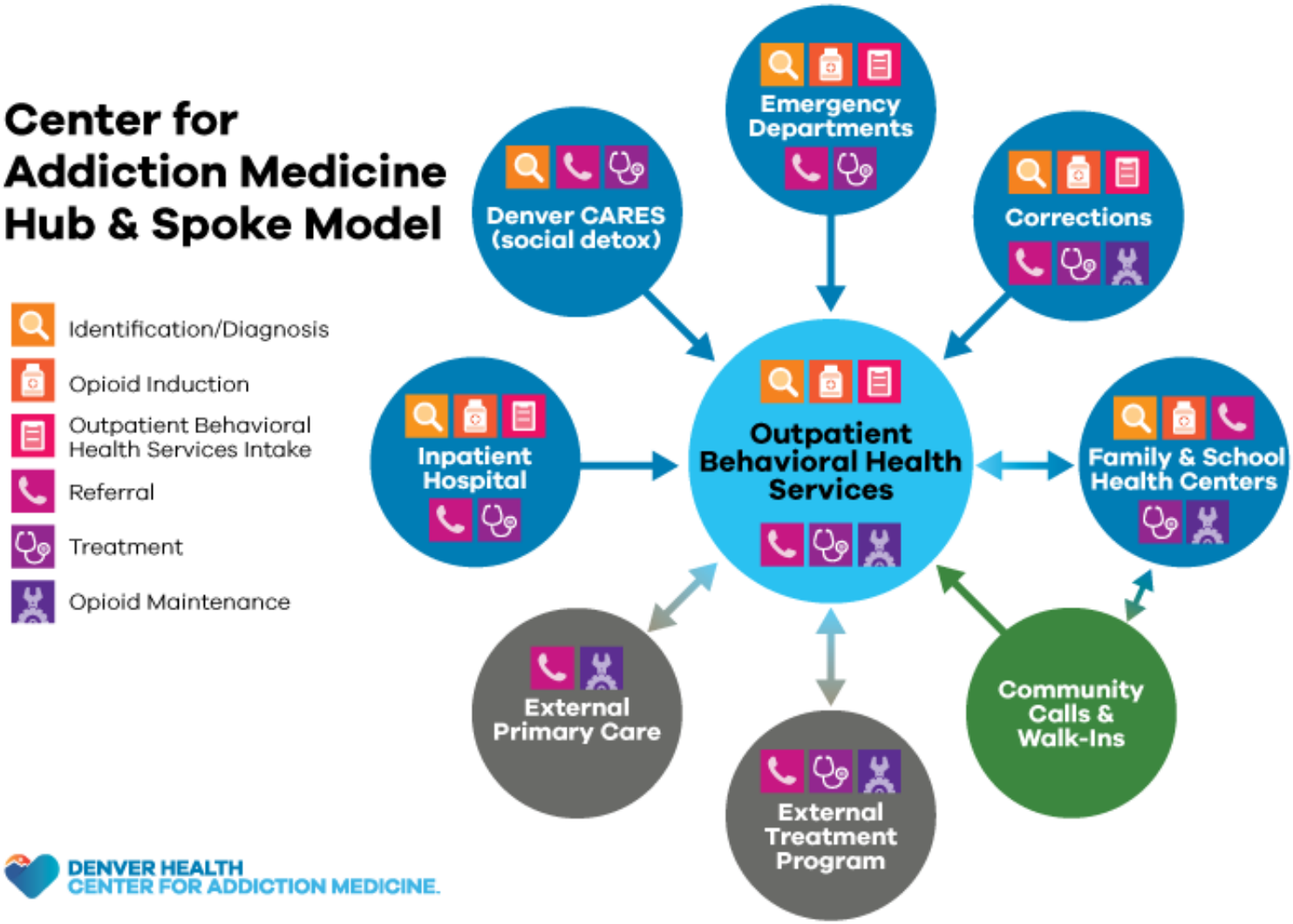
DENVER HEALTH
CENTER FOR ADDICTION MEDICINE

DENVER HEALTH
CENTER FOR ADDICTION MEDICINE™

Implementation of vaccination program for people with SUD

Yeah, OK. But.....how?

OBHS is the hub of addiction treatment for Denver Health's Center Addiction Medicine (CAM)



Screen for predictable, preventable, treatable
Full panel on intake, annually based on risk factors

- Hepatic function panel
- Hepatitis A total Ab
- Hepatitis B SAb, SAg (reflexes to confirmatory SAg)
- Hepatitis C Ab (reflexes to HCV RNA and genotype)
- HIV Ag/Ab (reflexes to confirmatory HIV1/HIV2 Ab)
- Treponemal Ab (reflexes to TPPA, RPR, RPR titre)
- PPD (nurse read day 2)

Why collocate? To lower client barriers

Collaborative program Public Health Institute Denver Health Immunization clinic

- In 2020 1972 unique individuals served over 12 months, 850-950 at any given time
- Collocated same floor as OTP dispensary 2nd floor Pavilion K, main DH campus
  - OBHS advertises the event, crowd control, hustle and rustle for business
  - PHIDH staff roll over from their clinic building with cooler of vaccines
  - PHIDH consent, enter Colorado Immunization Information Schedule (CIIS)
  - Card provided to client, multiple clinics to complete the series
  - 2019 Hep A, Hep B, meningococcal, influenza
  - 2021 COVID-19 Johnson and Johnson, link to Pfizer and Moderna
  - Next week, COVID-19 all shots including 2nd/3rd, influenza, Hep A/B, meningococcal

DENVER HEALTH
CENTER FOR ADDICTION MEDICINE

Pop-up Hepatitis A/B Vaccination Clinic in a Colorado Outpatient Treatment Program

Alejandra Santisteban, MPH; Susanne Lederer Graham, MPH; Rachel Sunblade, BSN, RN; Ryan Mueller, M.Ed, LPC, LAC; Hermione Hurley, MBChB

Background

- Hepatitis A virus (HAV) outbreaks disproportionately affect people who use substances or experience homelessness[1].
- Hepatitis B virus (HBV) is a blood borne infection that can be transmitted between injection partners who share needles or equipment[2].

Population

- The Opiate Treatment Program (OTP) at DH provides opioid/narcotic replacement therapy utilizing methadone and buprenorphine/naloxone for patients.
- During the study period, there were **652** individuals engaged in OTP care.
- Laboratory proven HAV and HBV immunity was available for **358** individuals, **52%** of whom were non-immune to HAV, HBV, or both.
- Of individuals aged between 30-50 years **62%** were non immune to HAV, **50%** were non immune to HBV.

Methods

- 8 walk-in vaccination clinics between 06/24/2019 and 09/07/2019 adjacent to OTP dosing line.
- Clinics were held during hours when the OTP was open to dispense medications for opioid use disorder.
- Prior laboratory results were checked to confirm immune status, and OTP clients were offered vaccination if non-immune.

Results

- 85 unique clients accepted at least one vaccination.
- Dispensed a total of 137 vaccine doses: 70 HAV vaccinations and 67 HBV vaccinations.
- Age cohort influenced immunity due to a lack of childhood HAV vaccine recommendations.
- One client expressed gratitude for the vaccination clinic ; others in the community contracted HAV but she did not, and she encouraged others in her peer group to get vaccinated.
- Utilization of the vaccination clinics increased as trust was established with the vaccinators .

A **pop-up** Hepatitis A and Hepatitis B vaccination clinic was **well accepted** and utilized by clients at our **Opioid Treatment Program**.

Over 10 weeks we vaccinated **45%** of our laboratory confirmed non-immune clients, representing an estimated **26%** of total non-immune clinic population.

DENVER HEALTH CENTER FOR ADDICTION MEDICINE

DENVER PUBLIC HEALTH

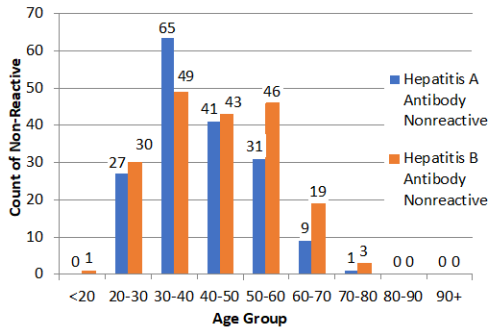


Figure 1. Number of non immune clients by age.

- Many clients aged 30-60 years were non immune to HAV or HBV.

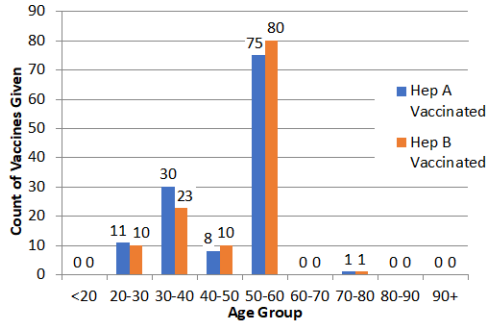


Figure 2. Doses of vaccine given by age

- HAV and HBV vaccination was accepted across all age groups.

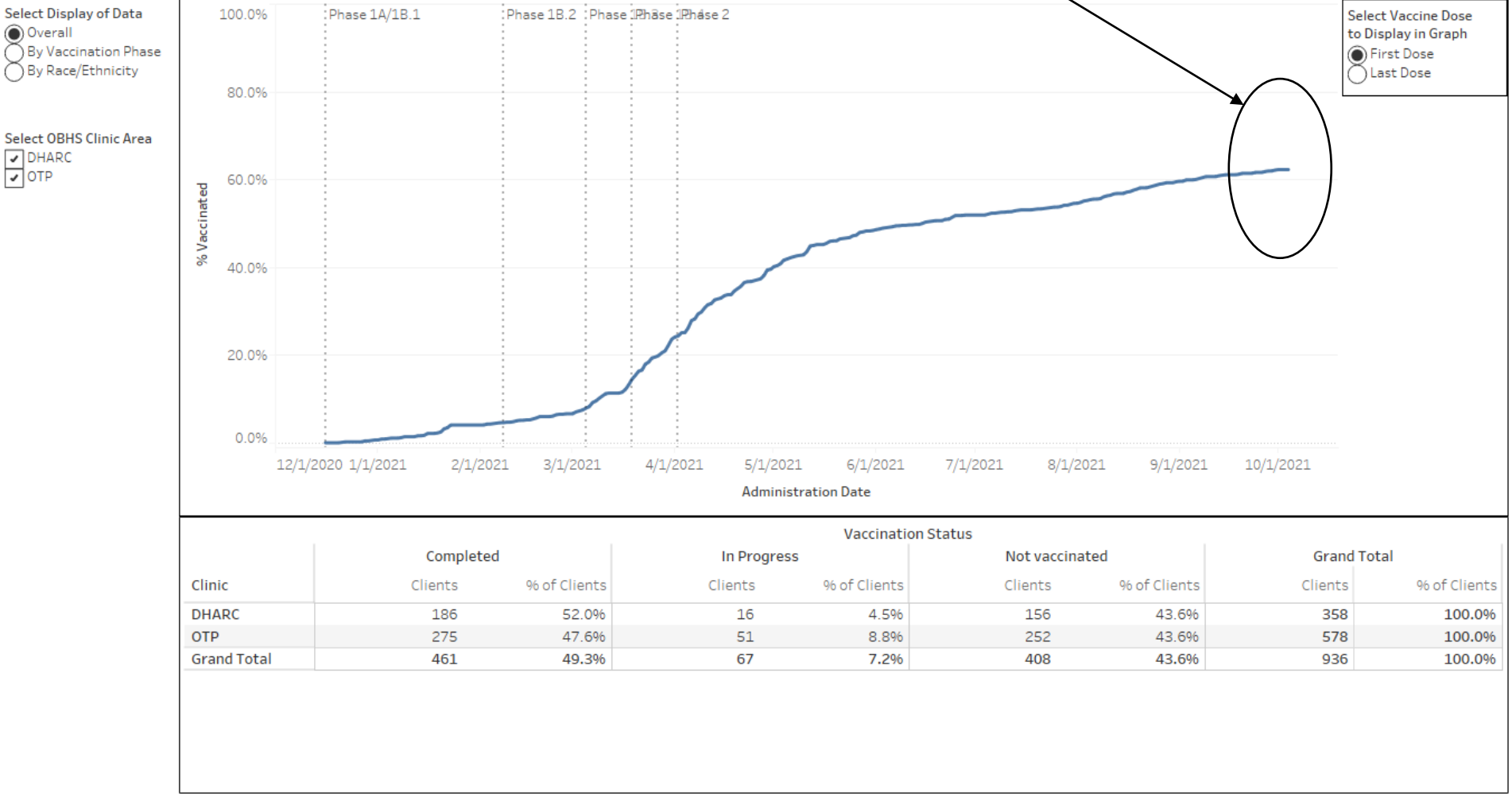
Future Considerations

- Follow-up clinics will be scheduled when clients are due for additional doses of HAV and HBV vaccines.
- This model of care could be adopted by others experiencing outbreaks, or to support the seasonal influenza vaccine[3].

References
1. Peak CM, Stous SS, Healy JM, et al. Homelessness and Hepatitis A - San Diego County, 2016-2018. Clinical infectious diseases : an official publication of the Infectious Diseases Society of America 2019.
2. Harris A, et al. Increases in Acute Hepatitis B Virus Infections — Kentucky, Tennessee, and West Virginia, 2006–2013. Weekly. Vol. 65, 2016:47-50.
3. Wiese AD, Griffin MR, Schaffner W, Stein CM, Grijalva CG. Opioid Analgesic Use and Risk for Invasive Pneumococcal Diseases. Annals of internal medicine 2018; 169:355

DENVER HEALTH CENTER FOR ADDICTION MEDICINE

By 10/07/21 62% of our clients with at least one COVID-19 shot, 55% fully vaccinated



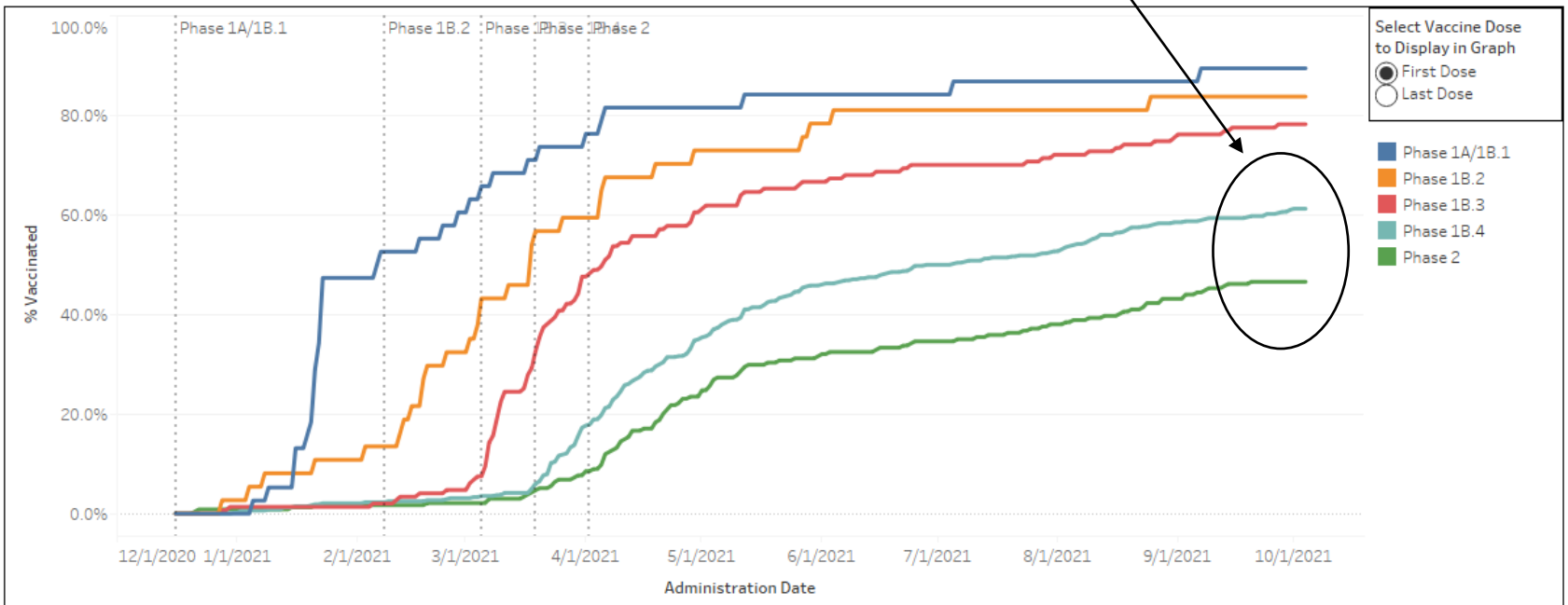
Vaccination Status

Clinic	Completed		In Progress		Not vaccinated		Grand Total	
	Clients	% of Clients	Clients	% of Clients	Clients	% of Clients	Clients	% of Clients
DHARC	186	52.0%	16	4.5%	156	43.6%	358	100.0%
OTP	275	47.6%	51	8.8%	252	43.6%	578	100.0%
Grand Total	461	49.3%	67	7.2%	408	43.6%	936	100.0%

Phases in Colorado proxy for age and comorbidities, young people vaccinating slower

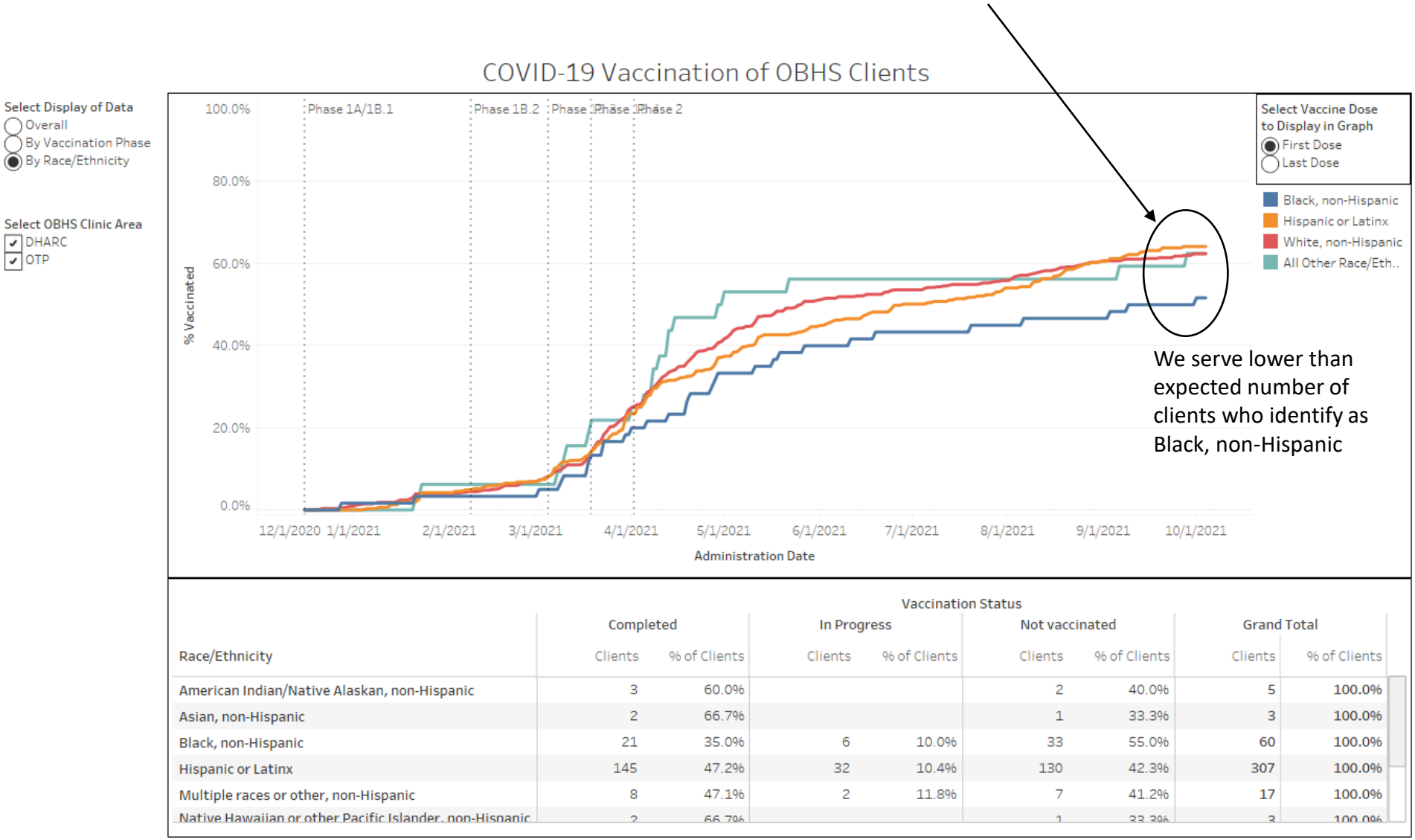
Select Display of Data
- ○ Overall
- ◉ By Vaccination Phase
- ○ By Race/Ethnicity

Select OBHS Clinic Area
- ☑ DHARC
- ☑ OTP



	Vaccination Status							
	Completed		In Progress		Not vaccinated		Grand Total	
Vaccination Phase	Clients	% of Clients	Clients	% of Clients	Clients	% of Clients	Clients	% of Clients
Phase 1A/1B.1	28	73.7%	1	2.6%	9	23.7%	38	100.0%
Phase 1B.2	11	29.7%			26	70.3%	37	100.0%
Phase 1B.3	92	62.6%	9	6.1%	46	31.3%	147	100.0%
Phase 1B.4	235	49.0%	43	9.0%	202	42.1%	480	100.0%
Phase 2	95	40.6%	14	6.0%	125	53.4%	234	100.0%
Grand Total	461	49.3%	67	7.2%	408	43.6%	936	100.0%

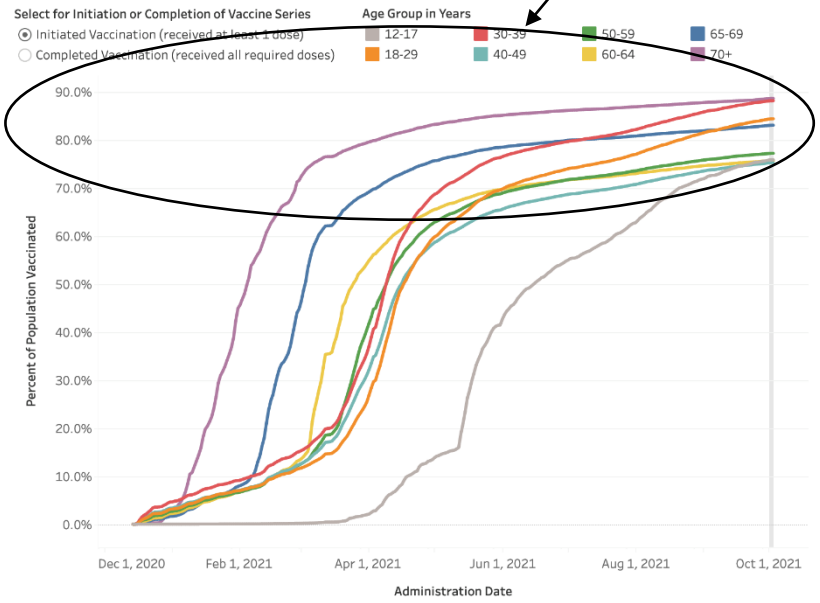
Level vaccination similar between clients based on self-identified race and ethnicity



	Vaccination Status							
	Completed		In Progress		Not vaccinated		Grand Total	
Race/Ethnicity	Clients	% of Clients	Clients	% of Clients	Clients	% of Clients	Clients	% of Clients
American Indian/Native Alaskan, non-Hispanic	3	60.0%			2	40.0%	5	100.0%
Asian, non-Hispanic	2	66.7%			1	33.3%	3	100.0%
Black, non-Hispanic	21	35.0%	6	10.0%	33	55.0%	60	100.0%
Hispanic or Latinx	145	47.2%	32	10.4%	130	42.3%	307	100.0%
Multiple races or other, non-Hispanic	8	47.1%	2	11.8%	7	41.2%	17	100.0%
Native Hawaiian or other Pacific Islander, non-Hispanic	2	66.7%			1	33.3%	3	100.0%

Total percentage higher in community, but more racial ethnic difference

Cumulative Denver County COVID-19 Vaccination by Age Group



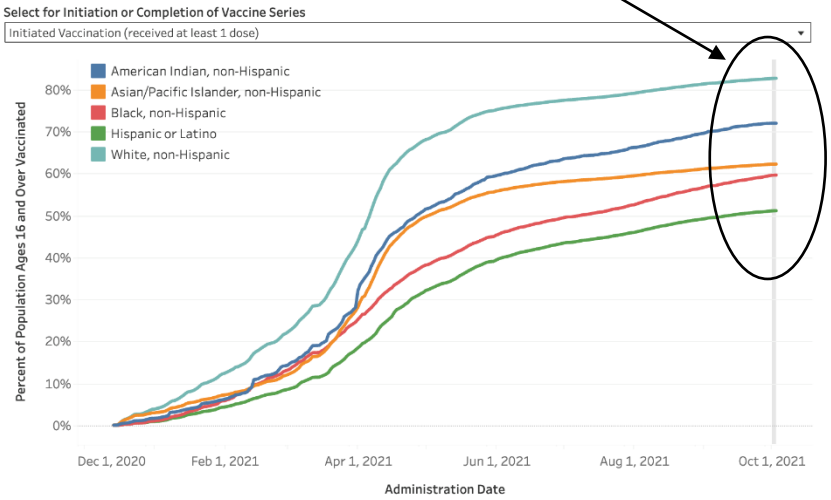
Includes all COVID-19 vaccine doses given to Denver County residents. Data in the shaded area may be incomplete due to reporting delays. Low counts are suppressed and designated with an asterisk (*) in the hover.

Data Sources:
Denver Resident Vaccination: Colorado Immunization Information System (CIIS)
Denver Population: Colorado State Demography Office, 2019 population estimates (accessed 5/17/2021)
https://demography.dola.colorado.gov/population/data/race-estimate/#county-race-by-age-estimates

PUBLIC HEALTH INSTITUTE AT DENVER HEALTH

Last Update: 10/4/2021 11:19:57 PM

Cumulative Denver County COVID-19 Vaccination by Race and Ethnicity, Ages 12 Years and Over



Race and ethnicity categories are currently aggregated based on available immunization and population data for this age group. 24,218 (4.7% of total) Denver residents ages 12 and over of multiple or other races (non-Hispanic) have initiated vaccination (received at least 1 dose) against COVID-19.

Race and ethnicity is missing for 46,576 (9.0% of total) records

Includes all COVID-19 vaccine doses given to Denver County residents ages 12 and over. Data in the shaded area may be incomplete due to reporting delays. Low counts are suppressed and designated with an asterisk (*) in the hover.

Data Sources:
Denver Resident Vaccination: Colorado Immunization Information System (CIIS)
Denver Population ages 12 and over: Colorado Demography Office, 2019 population estimates (accessed 5/17/2021)
https://demography.dola.colorado.gov/population/data/race-estimate/#county-race-by-age-estimates

PUBLIC HEALTH INSTITUTE AT DENVER HEALTH

Last Update: 10/4/2021 11:19:57 PM

Client story: a person experiencing homelessness

- 48yr female, experiencing homelessness, influencer for peers
- Sober from heroin, on methadone, uses methamphetamine
- Identified non-immune to hepatitis A/B during annual labs
- Accepted Hep A vaccination in DPH campus clinic in 2019
- Street sleeping friends were hospitalized with acute hepatitis A
- She remained well, is a strong peer advocate for vaccination
- 2020 hospitalized with shigellosis, discharged after 48 hours
- Fearful of shelters during COVID-19 “they are too dangerous”
- Declined COVID-19 vaccination at clinic, “street sleepers are OK”

DENVER HEALTH
CENTER FOR ADDICTION MEDICINE

Take away points, my observations

- OBHS and Denver Public Health successfully implemented collocated vaccination clinic for people with SUD
- Clients will accept vaccination in atypical settings
- Labelling people as ”anti-vax” is too broad, not helpful, people make individual decisions regarding different vaccination offers
- Many clients are at high risk of vaccine preventable disease
- Trauma, stigma, time, finances, insurance all barriers to traditional places of vaccination and primary care
- Offering services at treatment centers enables clients to get care at a place of trust, that they value, and already attend

Review Q1 – which vaccines for this client?

A 47-year client who identifies male and uses methamphetamine presents to your clinic in fall. He is interested in your advice about vaccinations. He reports “getting all the shots when I was a kid” but none since, inhales and injects stimulants, street sleeps sharing tent with others, HIV Ab/Ag negative, HCV Ab reactive, HCV RNA detectable and untreated, no prior allergic reaction to vaccinations, he has male sex partners and is not established with primary care.

Which of the following vaccinations will you recommend for him?

a) Human Papilloma Virus (HPV), Tetanus diphtheria pertussis (Tdap), Varicella (VAR)

b) Influenza, Tdap, Hepatitis A, Hepatitis B, Meningococcal ACWY (MenACWY)

c) HPV, tetanus (Td), Hepatitis A, Measles mumps Rubella (MMR)

d) Influenza, Tdap, VAR, MenACWY, Hepatitis B

Review Q1 – maybe not all at once, but start vaxing!

Which of the following vaccinations will you recommend for him?

a) Human Papilloma Virus (HPV), Tetanus diphtheria pertussis (Tdap), Varicella (VAR)

b) Influenza, Tdap, Hepatitis A, Hepatitis B, Meningococcal ACWY (MenACWY)

c) HPV, tetanus (Td), Hepatitis A, Measles mumps Rubella (MMR)

d) Influenza, Tdap, VAR, MenACWY, Hepatitis B

Answer b). Adult Immunization Schedule 2021 recommends annual influenza vaccination for all adults, 1 dose Tdap then Tdap or Td booster at least every 10 years, Hepatitis A and B vaccination is recommended for adults who inject drugs and are experiencing homeless (Hep A/B vaccination were unlikely to be included in his childhood vaccination series due to his age), MenACWY recommended special populations in particular men who have sex with men (MSM).

Reference: Recommended Adult Immunization Schedule for ages 19 years or older, United States 2021. Advisory Committee on Immunization Practices (ACIP). Available online at CDC website https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html#table-age, accessed 04/06/21.

Review Q2 – combination of COVID and SUD

A 2020 retrospective study of US electronic health records by Wang et al showed that risk for severe COVID-19 with hospitalization or death was:

a) Higher for substance use disorder than with obesity, liver disease or diabetes

b) Lower for individuals with SUD compared to individuals without SUD

c) Higher for Black individuals with SUD than White non-Hispanic individuals with SUD

d) Equivalent risk for individuals with and without SUD if corrected for tobacco use

Review Q2 – higher hospitalization and death for African Americans with COVID-19 and SUD

A 2020 retrospective study of US electronic health records by Wang et al showed that risk for severe COVID-19 with hospitalization or death was:

a) Higher for substance use disorder than with obesity, liver disease or diabetes

b) Lower for individuals with SUD compared to individuals without SUD

c) Higher for Black individuals with SUD than White non-Hispanic individuals with SUD

d) Equivalent risk for individuals with and without SUD if corrected for tobacco use

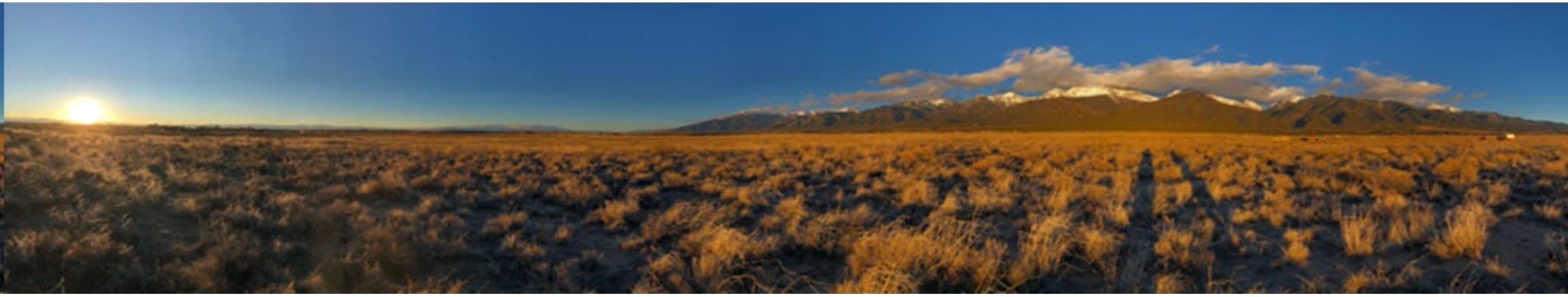
Answer c). In a retrospective case control study by Wang et al, researchers found that Black patients with SUD had a higher risk of severe COVID-19 infection (hospitalization 50.7%, death 13.0%) compared to White non-Hispanic patients (hospitalization 35.2%, death 8.6%).

Wang QQ, Kaelber DC, Xu R, Volkow ND. COVID-19 risk and outcomes in patients with substance use disorders: analyses from electronic health records in the United States. Mol Psychiatry. 2021 Jan;26(1):30-39. doi: 10.1038/s41380-020-00880-7. Epub 2020 Sep 14. Erratum in: Mol Psychiatry. 2020 Sep 30;: PMID: 32929211; PMCID: PMC7488216.

Objectives

- Describe vaccine preventable diseases experienced by people with substance use disorders
- Recommend a vaccination schedule for individuals seen for substance use disorder based on the 2021 Recommended Adult Immunization Schedule for ages 19 years or older, Advisory Committee on Immunization Practices (ACIP).
- Evaluate opportunities in your practice environment to expand vaccination offerings through expansion of capabilities or collaborative partnerships.

DENVER HEALTH
CENTER FOR ADDICTION MEDICINE™



Contact for copy of presentation or further questions

hermione.hurley@dhha.org