Vaccines for the Older Adult

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Disclosures

- No financial disclosures
- I approach this conversation through a primary care lens
  - What is your lens?

Objectives

1. Identify vaccines recommended for adults >65

2. Review common and uncommon adverse reactions to vaccines including treatment response and event reporting parameters

3. Develop strategies to understand and address vaccine hesitancy in your community

Types of vaccines

- Recombinant aka inactive (influenza, Shingrix)
- Live (MMR, typhoid)
- mRNA (Moderna, Pfizer)
- Viral vector (J&J)

Recombinant and conjugate

Uses deactivated virus or combined elements to trigger immune response

Examples:

- Influenza
- Hepatitis B
- Pneumonia

Live Vaccines

Weakened version of virus, triggers strong immune response when body sees pathogen again

Examples:

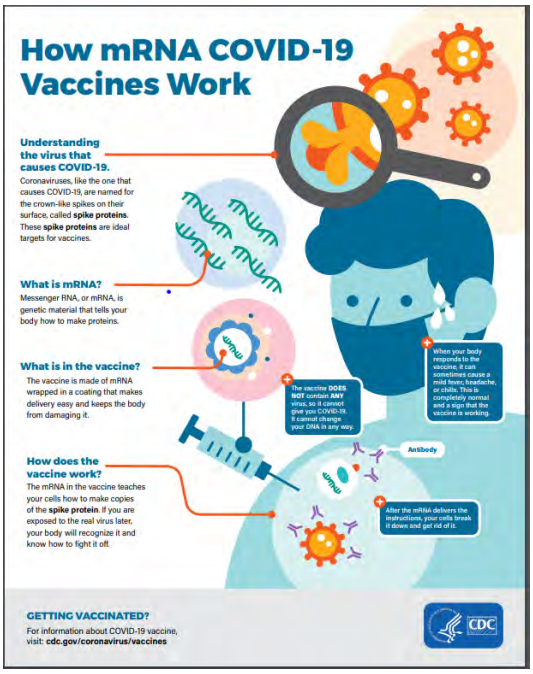
- MMR
- Oral typhoid
- Influenza (nasal- not indicated for adults > 49)
- Yellow fever

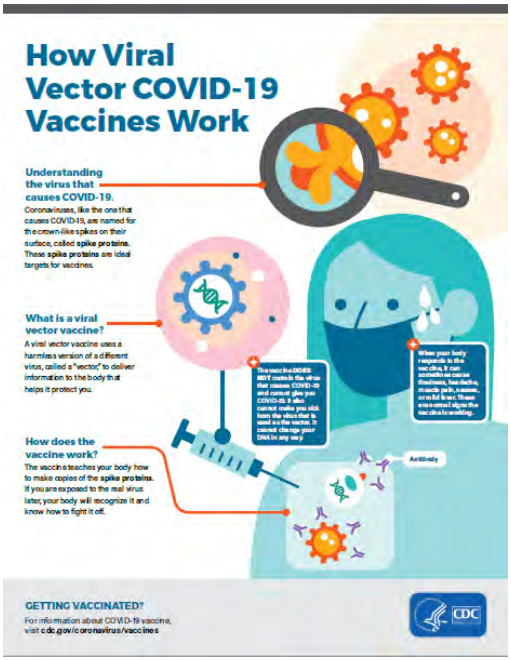
Use caution in immunosuppression

mRNA

Examples
- Moderna
- Pfizer

https://www.cdc.gov/coronavirus/2019-ncov/downloads/vaccines/COVID-19-mRNA-infographic_G_508.pdf





Viral Vector

Example:
Johnson and Johnson

https://www.cdc.gov/coronavirus/2019-ncov/downloads/vaccines/COVID-19-viral-vector-infographic_D_FINAL-508_030621.pdf

Case Study - Mrs. S, 70 y/o, History of diabetes, COPD, anxiety and arthritis

- Doesn't like coming to the doctor, so not in clinic often. In clinic today with cold symptoms. Cough but no fever.
- Medications: metformin 1000 mg, albuterol inhaler PRN, fluticasone inhaler twice daily, acetaminophen twice daily
- Immunization history: doesn't remember all her vaccines. Tdap 2009 after injury, Pneumonia @ about age 50. Doesn't get the flu shot.
- Allergy to eggs

Questions for Mrs. S

- What else do you need to know?
- What vaccine (s) do you recommend?
- Would your recommendation be different today vs October

Influenza

- 70-85% of flu deaths each year are adults 65+
  - priority to vaccinate to reduce risk of severe disease
- CDC does not recommend one vaccine above another
- High dose (Fluzone quadrivalent)
  - Contains 4x antigen to stimulate stronger immune response in the older adult
  - 2014 NEJM study showed 24% higher protection with high dose
- Contraindications
  - Severe allergy

N Engl J Med 2014; 371:635-645
DOI: 10.1056/NEJMoa1315727

Pneumonia – 13 and/or 23

- Pneumococcal polysaccharide vaccine (**PPSV23**)
  - All adults 65+, 18+ with serious medical conditions
- Pneumococcal conjugate vaccine (**PCV13**),
  - Children <2 and adults >65 with a condition that weakens the immune system, cerebrospinal fluid leak, or cochlear implant
- Adults 65 years or older who have never received a dose of PCV13 and do not have one of the conditions described above may also discuss vaccination with their vaccine provider to decide if PCV13 is appropriate for them.

https://www.cdc.gov/vaccines/adults/rec-vac/index.html

Tetanus and Pertussis

- Td (tetanus and diphtheria)
  - Tetanus toxoid
  - Booster every 10 years for adults
    - or after dirty wound or severe burn
- TdaP (tetanus, diphtheria and pertussis)
  - Including pertussis once in adulthood

Check insurance coverage

Shingles- aka Shingrix

- Previously *Zostavax, now Shingrix
  - Any adult > 50
  - Shown to reduce post herpatic neuralgia by 90%, particularly in first 5 years
  - 2 doses at least 2, not more than 6 months apart
  - 80% experience arm pain
- Contraindications
  - Allergy
  - Currently experiencing shingles
    - *Zostavax no longer available in the US

Check insurance coverage

COVID 19

- Pfizer
  - 2 doses, 21 days apart
  - 12+
- Moderna
  - 2 doses, 28 days apart
  - 18+
- Johnson and Johnson
  - 1 dose
  - 18+

Contraindications
- Severe allergy to prior vaccine or vaccine component

Caution
- Immunosuppression
- History of clotting disorder

Hepatitis

- Hep A
  - Patients > 1 y/o at increased risk
    - liver disease, household contacts, travel
  - 2 doses, 6 months apart
  - Start at least 1 month before travel
  - Contraindications
    - Allergy
    - Moderate to severe illness (wait)
- Hep B
  - Encouraged for all adults
  - 1991 series started at birth
  - Increased risk in diabetes, kidney disease, work exposure to body fluids
  - Contraindications
    - Allergy
    - Moderate to severe illness (wait)

Check insurance coverage

Travel vaccines

- Typhoid
  - Inactivated (IM)
    - 1 injection, 2 weeks pre-travel
  - Live (oral)
    - 4 doses, 1 week pre-travel
    - Contraindication-
      - immune-suppression
      - Taking antibiotics
- Yellow fever (live, weakened)
  - 9-59 y/o, older adults discuss risk with provider
  - Contraindicated in immune suppression

What vaccines are needed for travel? www.cdc.gov/travel

Tuberculosis – BCG

- Completed in countries with endemic infection
- Not available in the US but seen often in our patients and care teams.
- Testing to confirm PPD vs blood tests
  - If person has completed BCG should not get PPD skin testing

Where to go for updates, contraindications to vaccine administration

CDC Advisory Committee on Immunization Practices

https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html

Severe allergy to component of the vaccine= more than hives. Anaphylaxis, angioedema, recurrent emesis, need for epinephrine

Precautions but not contraindicated

- Moderate to severe illness
- History of guillen barre with prior dose

Mrs S. Follow UP

- After reviewing the options, which vaccines are top priority?

Mrs. S Calls to report after her vaccine she had:

- Arm pain, mild redness and swelling
- What do you recommend?
- Do you need to report her reaction? (and to whom?)

Managing Acute Vaccine Reactions

- **Anyone administering vaccines should be able to recognize and be prepared to treat severe symptoms including anaphylaxis**
  - Severe reactions usually occur within minutes
  - Have epinephrine IM ready
  - If fainting or syncope – lie flat, elevate legs
  - Activate EMS
  - Monitor for recurrence
  - Report to VAERS

VAERS Vaccine Adverse Event Reporting System
www.vaers.hhs.gov

VAERS Home

https://vaers.hhs.gov/about.html

Objectives of VAERS

The primary objectives of VAERS are to:

- Detect new, unusual, or rare vaccine adverse events;
- Monitor increases in known adverse events;
- Identify potential patient risk factors for particular types of adverse events;
- Assess the safety of newly licensed vaccines;
- Determine and address possible reporting clusters (*e.g., suspected localized [temporally or geographically] or product-/batch-/lot-specific adverse event reporting*);
- Recognize persistent safe-use problems and administration errors;
- Provide a national safety monitoring system that extends to the entire general population for response to public health emergencies, such as a large-scale pandemic influenza vaccination program.

After the vaccine

V-safe After Vaccination Health Checker

Updated May 13, 2021 Languages Print

v-safe℠ after vaccination health checker

Get vaccinated.
Get your smartphone.
Get started with v-safe.

Use your smartphone to tell CDC about any side effects after getting the COVID-19 vaccine. You'll also get reminders if you need a second vaccine dose.

On This Page

Registration process

Complete a v-safe health check-in

Adverse reactions

- Common
  - Injection site pain, inflammation
  - Low grade fever
- Rare but serious
  - Anaphylaxis
  - Guillen barre
  - CVST

Injection site pain, inflammation, or low grade fever

- Acetaminophen or ibuprofen
- Ice
- Close monitoring

Anaphylaxis

https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/adverse-reactions.html#ref-13

Table 5-2: Rapid overview: Emergency management of anaphylaxis in adults

Diagnosis is made clinically:	The most common signs and symptoms are cutaneous (e.g., sudden onset of generalized urticaria, angioedema, flushing, pruritus). However, 10 to 20% of patients have no skin findings.
	Danger signs: Rapid progression of symptoms, respiratory distress (e.g., stridor, wheezing, dyspnea, increased work of breathing, persistent cough, cyanosis), vomiting, abdominal pain, hypotension, dysrhythmia, chest pain, collapse.
Acute management:	The first and most important treatment in anaphylaxis is epinephrine. There are NO absolute contraindications to epinephrine in the setting of anaphylaxis.
	Airway: Immediate intubation if evidence of impending airway obstruction from angioedema. Delay may lead to complete obstruction. Intubation can be difficult and should be performed by the most experienced clinician available. Cricothyrotomy may be necessary.
Promptly and simultaneously, give:	IM epinephrine (1 mg/mL preparation): Give epinephrine 0.3 to 0.5 mg intramuscularly, preferably in the midouter thigh. Can repeat every 5 to 15 minutes (or more frequently), as needed. If epinephrine is injected promptly IM, most patients respond to one, two, or at most, three doses. If symptoms are not responding to epinephrine injections, prepare IV epinephrine for infusion (see below).
	Place patient in recumbent position, if tolerated, and elevate lower extremities.
	Oxygen: Give 8 to 10 L/minute via facemask or up to 100% oxygen, as needed.
	Normal saline rapid bolus: Treat hypotension with rapid infusion of 1 to 2 liters IV. Repeat, as needed. Massive fluid shifts with severe loss of intravascular volume can occur.
	Albuterol (salbutamol): For bronchospasm resistant to IM epinephrine, give 2.5 to 5 mg in 3 mL saline via nebulizer. Repeat, as needed.
Adjunctive therapies:	H1 antihistamine:[a] Consider giving cetirizine 10 mg IV (given over 2 minutes) or diphenhydramine 25 to 50 mg IV (given over 5 minutes) (for relief of urticaria and itching only)
	H2 antihistamine:[a] Consider giving famotidine 20 mg IV (given over 2 minutes).
	Glucocorticoid:[a] Consider giving methylprednisolone 125 mg IV.
	Monitoring: Continuous noninvasive hemodynamic monitoring and pulse oximetry monitoring should be performed. Urine output should be monitored in patients receiving IV fluid resuscitation for severe hypotension or shock.
Treatment of refractory symptoms:	Epinephrine infusion:[b] For patients with inadequate response to IM epinephrine and IV saline, give epinephrine continuous infusion, beginning at 0.1 mcg/kg/minute by infusion pump[c]. Titrate the dose continuously according to blood pressure, cardiac rate and function, and oxygenation.
	Vasopressors:[b] Some patients may require a second vasopressor (in addition to epinephrine). All vasopressors should be given by infusion pump, with the doses titrated continuously according to blood pressure and cardiac rate/function and oxygenation monitored by pulse oximetry.
	Glucagon: Patients on beta blockers may not respond to epinephrine and can be given glucagon 1 to 5 mg IV over 5 minutes, followed by infusion of 5 to 15 mcg/minute. Rapid administration of glucagon can cause vomiting.

Instructions on how to prepare and administer epinephrine for IV continuous infusions are available as separate tables in UpToDate.

IM: intramuscular; IV: intravenous.

[a] These medications should not be used as initial or sole treatment.

[b] All patients receiving an infusion of epinephrine and another vasopressor require continuous noninvasive monitoring of blood pressure, heart rate and function, and oxygen saturation.

[c] For example, the initial infusion rate for a 70 kg patient would be 7 mcg/minute. This is consistent with the recommended range for non-weight-based dosing for adults, which is 2 to 10 mcg/minute. Non-weight-based dosing can be used if the patient's weight is not known and cannot be estimated.

Guillen Barre

- Rare but serious condition thought to be triggered by the immune system attacking the person's nerve cells.
- Most cases start after viral infection, but can be associated with recent vaccine administration
- Red flags symptoms include rapid onset of bilateral muscle weakness, change in sensation, pain, change in coordination
- No cure but treatment and supportive care can reduce severity and duration of symptoms.

https://www.ninds.nih.gov/disorders/patient-caregiver-education/fact-sheets/Guillain-barr%C3%A9-syndrome-fact-sheet

CVST – Cerebral Venous Sinus Thrombosis

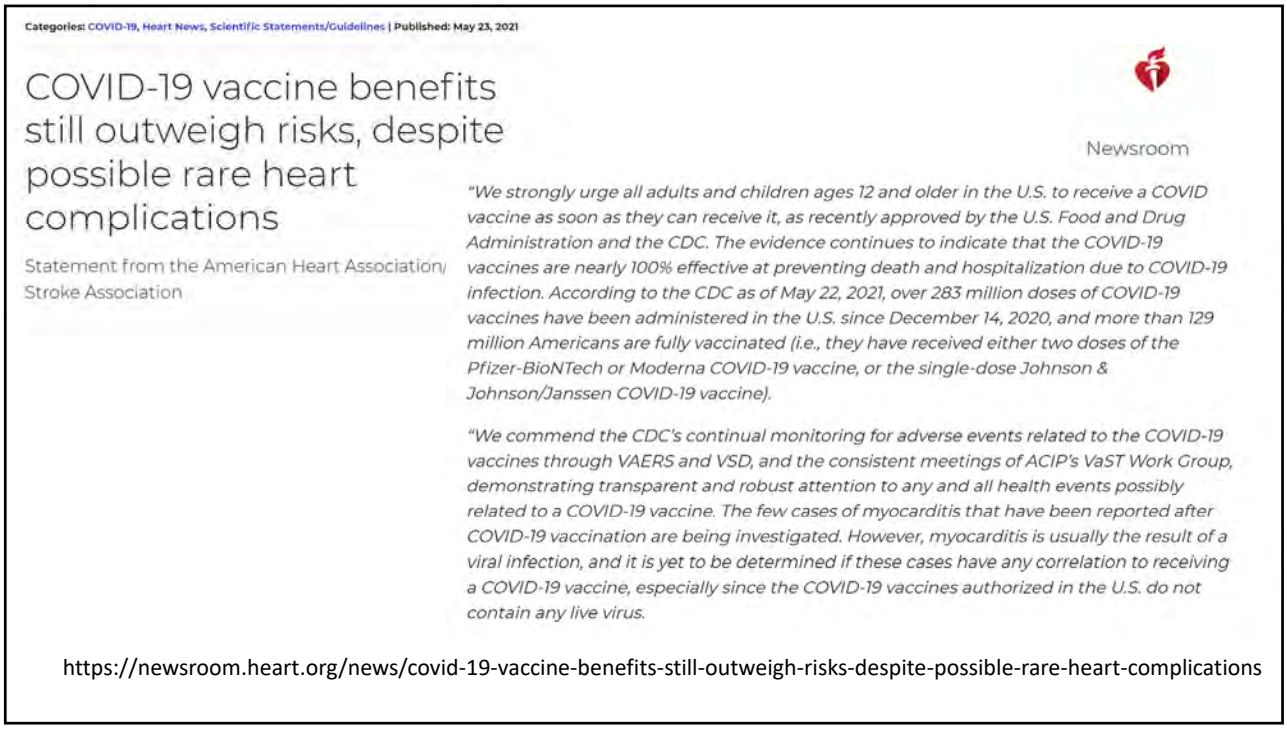
- Serious complication seen in 6 women after vaccination with J&J COVID vaccine.
- All < 50
- 6-13 days after vaccination
- Headache, muscle pain
- ER evaluation
- Do NOT administer heparin due to low platelet response
- Shared decision making for patients choosing this vaccine option

Myocarditis and Pericarditis

- Alert sent to medical providers re: rare cases of inflammation in heart wall (myocarditis) or surrounding tissue (pericarditis) after mRNA vaccine
- Several dozen adolescents and young adults, Male> female
- Chest pain, shortness of breath, irregular heartbeat, and fainting
- Both normally caused by viral infection

When evaluating urgent symptoms ask about timing of vaccines

- Usually with in 4 days of vaccine, more common after 2nd dose
- Provider evaluating symptoms should report to VAERS



Categories: COVID-19, Heart News, Scientific Statements/Guidelines | Published: May 23, 2021

COVID-19 vaccine benefits still outweigh risks, despite possible rare heart complications

Statement from the American Heart Association/ Stroke Association

Newsroom

"We strongly urge all adults and children ages 12 and older in the U.S. to receive a COVID vaccine as soon as they can receive it, as recently approved by the U.S. Food and Drug Administration and the CDC. The evidence continues to indicate that the COVID-19 vaccines are nearly 100% effective at preventing death and hospitalization due to COVID-19 infection. According to the CDC as of May 22, 2021, over 283 million doses of COVID-19 vaccines have been administered in the U.S. since December 14, 2020, and more than 129 million Americans are fully vaccinated (i.e., they have received either two doses of the Pfizer-BioNTech or Moderna COVID-19 vaccine, or the single-dose Johnson & Johnson/Janssen COVID-19 vaccine).

"We commend the CDC's continual monitoring for adverse events related to the COVID-19 vaccines through VAERS and VSD, and the consistent meetings of ACIP's VaST Work Group, demonstrating transparent and robust attention to any and all health events possibly related to a COVID-19 vaccine. The few cases of myocarditis that have been reported after COVID-19 vaccination are being investigated. However, myocarditis is usually the result of a viral infection, and it is yet to be determined if these cases have any correlation to receiving a COVID-19 vaccine, especially since the COVID-19 vaccines authorized in the U.S. do not contain any live virus.

https://newsroom.heart.org/news/covid-19-vaccine-benefits-still-outweigh-risks-despite-possible-rare-heart-complications

Vaccines Hesitancy

- History
  - Distrust of the health care system/government/companies due to personal or known experience of racism
- Religious beliefs
  - Concern re: vaccine contents – e.g. fetal tissue or pork byproducts
  - Allow the natural course
  - Many religions are "pro" vaccine
- Fear of side effects
- Social media

Grabenstein JD. What the world's religions teach, applied to vaccines and immune globulins. Vaccine. 2013 Apr 12;31(16):2011-23. doi: 10.1016/j.vaccine.2013.02.026. Epub 2013 Feb 26. PubMed PMID: 23499565.

How are we doing with COVID vaccination?

https://www.doh.wa.gov/Emergencies/COVID19/DataDashboard

Tools

Ask- open ended questions

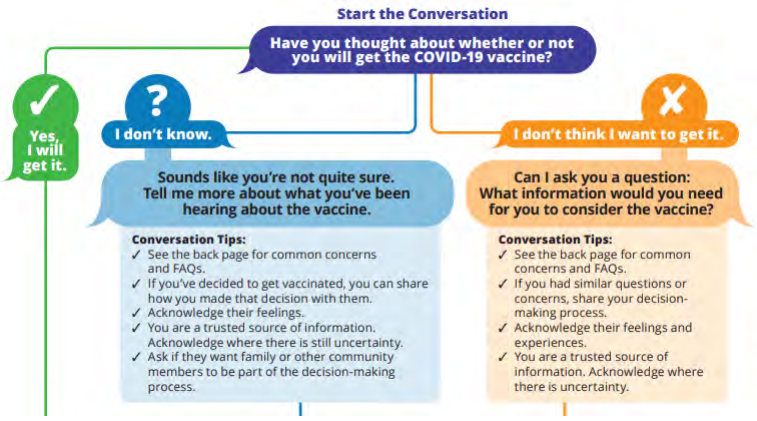
Listen – what is driving their concerns

Offer – evidence based information, information in multiple formats/languages

Recommend/share your experience

Trauma informed tools

Trauma Informed Discussions



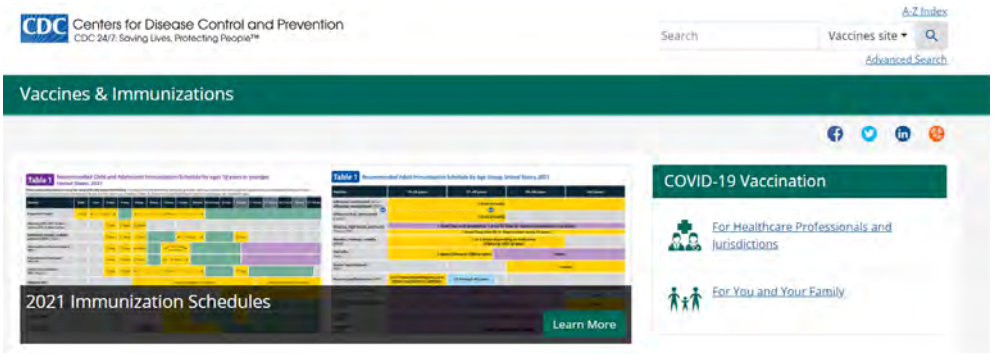
https://www.doh.wa.gov/Portals/1/Documents/1600/coronavirus/820-149-ProviderDiscussionGuideHomelessness.pdf

Make an action plan

Questions?

Resources – CDC www.cdc.gov

- Vaccine information sheets and schedules
- Updates on recommendations/restrictions
- Vaccine resources from A-Z



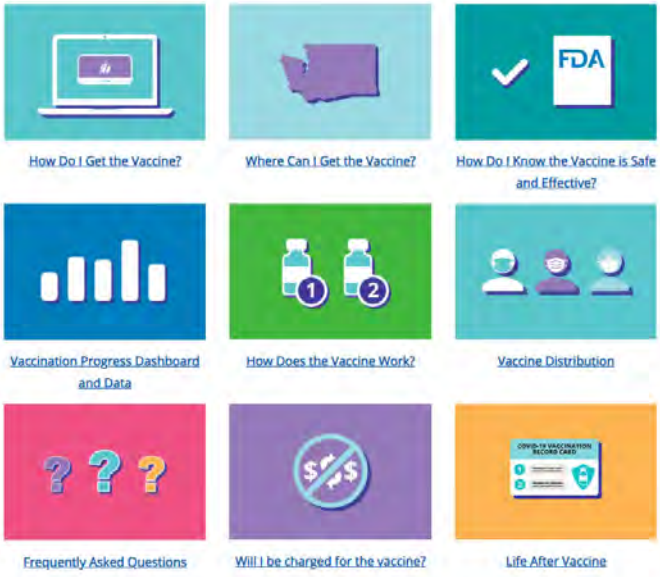
CDC Advisory Committee on Immunization Practices (ACIP)

- ACIP comprised of medical and public health experts who develop recommendations on the use of vaccines in the civilian population of the United States. The recommendations stand as public health guidance for safe use of vaccines and related biological products. This groups recommendations help guide CDC policy.
- Links to best practices and guidelines
- https://www.cdc.gov/vaccines/hcp/acip-recs/index.html

COVID Vaccines

- www.vaccines.gov
- Text your zip code to 438829
- Call 1-800-232-0233

Resources: WA Department of Health



www.doh.wa.gov

King County Public Health

https://kingcounty.gov/depts/health.aspx

Resources you would like to share?

Thank you!