



Different Regions, Different Health Care: Where You Live Matters

A Report on Variation in Procedure Rates in Puget Sound

Letter from our Executive Director

Dear community member,

Part of the core mission of the Washington Health Alliance is to reduce overuse of services, treatments and procedures that do not contribute to better health and that can expose a patient to both additional health risks and enormous costs.

Decisions about these medical interventions—whether to have them or not, and which ones to have—should reflect patients’ personal values and preferences, and should be made only after patients have enough information to make an informed choice, in partnership with the physician.

This report looks at the use of procedures where we see high variation between different regions. We are not offering conclusive reasons for why this variation occurs, or even that it represents overuse. We are simply asking—why is there such variation? Is it necessary? What kind of health risk or financial hazard does this variation pose to consumers? And, how can we as a community better understand the variation and collectively move toward more high-value care?

We have also included *estimated*, private price ranges for each of these procedures. These are only estimates and do not necessarily reflect the actual price at any delivery system. Moreover, because these are estimates, they do not help us understand which providers in our marketplace have higher or lower prices. A functioning All-Payer Claims Database, which would capture true price information, would allow our state to access actual health care prices from multiple health plans, and allow employers and consumers to make more informed choices.

Our report has practical applications for employers and consumers who would like to reduce the risk and cost of medically unnecessary services; and for hospitals and medical groups, who want to be more competitive and efficient. The ultimate goal is to contribute to a healthier Washington.

Nancy A. Giunto

Executive Director, Washington Health Alliance

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Overview

Where you live can affect a lot of things. Your weather. Your commute. Your health care. The last one might be hard to believe, but it's true.

Where you live can affect the care you get. For example, depending on if you live in the Everett, Tacoma, Puyallup or Olympia area, you may be more likely to have a specific medical procedure for a health condition.

The Alliance looked at the rates of certain procedures based on where people live and offers recommendations for how you can take an active role in your own health.

What is overuse?

Overuse means people are receiving more medical care than necessary and is a significant problem in the health care system. As much as 30 percent¹ of health care dollars is spent on services, treatments and procedures that do not contribute to better health and that can expose a patient to potential harm and enormous costs. Variation in how commonly people receive certain services can sometimes signal overuse.

High-value health care means receiving the right care, at the right time, at an affordable price. Low-value health care includes questionable services that may expose patients to avoidable health risks, such as radiation from imaging tests, and excessive costs. It also includes receiving treatments people might not have chosen had they known about other options, and their risks and benefits.

Overuse of services can erode the true value of health care by increasing the amount of unnecessary services. The good news is there are simple steps people can take to reduce overuse and enhance the value of their health care.

Where you live might influence the care you receive.

In this report, which covers 15 counties in western Washington, we examine 11 common tests and procedures that can be expensive and can potentially put people at unnecessary risk. Health service delivery patterns suggest that where someone lives often influences the services they receive. That is, the chance of receiving one of these procedures or treatments can vary widely (and persistently) between different locations.

¹ Best Care at Lower Cost: The Path to Continuously Learning Health Care in America. Institute of Medicine of the National Academies. Accessed November 20, 2014:
<http://www.iom.edu/Reports/2012/Best-Care-at-Lower-Cost-The-Path-to-Continuously-Learning-Health-Care-in-America.aspx>

CONSUMER TIP

YOU HAVE OPTIONS

It's you who experiences the potential benefits, but also the risks, of a choice. Take an active role in your health and understand *all* your options. Work with your health care team, including your primary care doctor, to make a decision that is best for you.

For example:

- Women ages 45–54 living in Olympia were 192% more likely to have a spine fusion than their counterparts in Seattle.
- Residents of Monroe were almost twice as likely to receive an extremity MRI scan as people living in other Puget Sound communities.
- Women living in Arlington were 234% more likely to have a sleep test performed in a medical setting than their Bellingham counterparts.
- In Tacoma, children received upper GI endoscopies at higher rates than the rest of the region.
- Women ages 35–44 in Puyallup were 193% more likely to have a hysterectomy than their counterparts living in Seattle.

Why are procedures and treatments performed more in some regions than others? Two possibilities include:

- In some places, people might be significantly more (or less) healthy than in other places.
- There might be local differences in the way health care providers do things, often referred to as practice patterns or practice culture. In other words, a certain practice culture may exist among doctors in one local health care market that differs from other markets.

Our results don't say definitively *why* the variation exists—at this time, we are measuring and displaying the differences and asking questions to further our collective understanding. It is commonly acknowledged that physician decisions drive most health care expenditures. Yet there are few studies that cite the types of evidence used by physicians at the time that they make decisions. However, one study showed that experience, anecdote and instinct formed the basis for physician decision-making about half the time; whereas fewer than 3% of decisions were based on scientific studies specific to the question at hand.² Economic incentives also shape choices. Whatever the cause, it is always important for a clear, meaningful conversation to occur between a patient and their doctor to make sure the care is necessary and appropriate for them.

Know your options. Ask questions.

Many health conditions have multiple treatment options. For some of these conditions, surgery is an option but it's not the only option. In these situations, patients deserve to be given complete and unbiased information about the pros and cons of each alternative. Because risks and benefits vary among treatment options, making the best choice requires the patient and provider to *share* the decision-making.

When patients are making a choice without complete information, the appropriateness of care may suffer, and with it the value of care. This could

CONSUMER TIP

ASK QUESTIONS:

1. Do I really need this procedure or test?
2. What are the risks?
3. Are there simpler, safer options?
4. What happens if I don't do anything?
5. How much does it cost?

² Darst JR, et al. Deciding without Data. Congenital Heart Disease. 2010;5:339.
<http://www.ncbi.nlm.nih.gov/pubmed/20653700>

lead to increased clinical or financial risk. Research has shown that patients fully informed about their treatment options tend to choose more conservative routes, such as non-surgical treatments.³

There's no simple rule for which treatment is best for a given patient with a certain condition. Two people with the same diagnosis may opt for different treatments because their goals and personal values differ. Ideally, the patient's role as a health consumer evolves from informed consent to informed choice.

People have a number of options (see Appendix 1) for making informed decisions:

- Ask for easy to understand and objective information about treatment options such as shared decision-making aids.
- Seek information from multiple sources. Some employers offer second opinion services as part of their member benefits, which can help if someone is feeling apprehensive about seeking additional clinical guidance. There are also [trustworthy resources online](#) that can help people make a decision.
- Ask questions: Is "watchful waiting" an option? What are the advantages and disadvantages of each option? How important are each of those consequences to me? Are there simpler, possibly safer options? How much does this procedure cost?

Some of the procedures profiled in this report carry a high price tag which may or may not be covered by health insurance. Many of the conditions these procedures treat may have equally high-quality or even better treatment options. Imaging, tests and other minor procedures are services prone to being delivered on a *discretionary* basis, which can lead to overuse in the screening and diagnosis stages. For all the procedures listed in this report, it's important for both health care providers and consumers to ask, is this the *right care* for this condition and this patient?

As with all conditions having multiple treatment options, the physician's specialty and experience may direct the selection of a treatment path. That's why it's important for patients to have a relationship with a primary care physician who can help them evaluate treatment options.

About the report

This report is an example of a growing number of initiatives around the country taking a closer look at overuse in the health care system. For example, Choosing Wisely®, an initiative of the American Board of Internal Medicine Foundation, has collected recommendations from many specialty physician societies on treatments and procedures that should be questioned by physicians and patients. (The Alliance recently [released a](#)

³ Modifying Unwarranted Variations In Health Care: Shared Decision Making Using Patient Decision Aids. *Health Affairs*. Accessed November 10, 2014:
<http://content.healthaffairs.org/content/suppl/2004/10/06/hlthaff.var.63.DC2>.

[report](#) looking at variation among Washington counties for 11 different Choosing Wisely recommendations.)

The mission of the Alliance includes reducing overuse in pursuit of higher value health care in our state. A primary aim of this report is *to inspire patients to have meaningful conversations with their doctors about the necessity of health care services.*

A few hallmarks of this report are worth noting:

- **It's local.** Medical officers from provider organizations and health plans proposed the tests and procedures featured in this report. The cost and risk to patients figured prominently in their recommendations.
- **It's high-level.** In this report, regional clinical experts advised the Alliance to measure variation in service delivery at a high level, adjusting for people's age and gender only—noting that differences in how clinical data is captured through coding and claims data could distort an analysis of this kind. Therefore, the analysis does not account for differences in how sick patients might be (also known as severity adjustment).
- **It's not prescriptive.** The results in this report do not tell us how often people *should* get particular tests and procedures. In fact, clear standards for what is appropriate care don't always exist. We only show how much variation there is from place to place. When patterns emerge that are significant and sustained, it brings up the possibility of overuse.

In the coming year, we will be expanding the number of procedures that we look at with respect to variation.

Understanding the report

The following results reflect the 2012 calendar year. Each test or procedure examined in this report includes: a definition of the procedure or test, some of the benefits and risks associated with each, an estimate of the *private* price range⁴ for each procedure and a summary of results, including a map.

The map shows the residential zones where people received the service more commonly (red circles) or less commonly (blue circles) than the rest of the region.⁵ The size of each circle on the map reflects the number of patient groups with significant differences. There are up to fourteen patient groups: two genders and seven age bands (ages 1–4, 5–14, 15–24, 25–34, 35–44, 45–54 and 55–64). *Larger circles mean the pattern of use reaches across more age and gender groups, meaning more patient groups received the service at higher (or lower) rates.*

READING THE MAPS

Larger circles mean the pattern of use reaches across more age and gender groups, meaning more patient groups received the service at higher (or lower) rates.

⁴ Private prices are the "allowed amounts" or the dollar amount typically considered payment-in-full in commercial contracts between an insurance company and a health care provider.

⁵ The patterns described in this report are based on where people live—not where patients obtained their care.

Sometimes a residential zone displays a purple circle. This means there are some patient groups receiving the service more commonly and other groups less commonly.

You can find your residential zone using your ZIP code and the table in Appendix 2. Keep in mind, this is a population-based analysis, not a personalized study. If you live in a residential area where services are delivered significantly more or less than the average, it does not necessarily mean your care followed this pattern.

For some procedures, a residential zone might not appear. This is because there wasn't enough data to display for that area or because that area was not above or below the regional average.

For detailed results on every combination of age band, gender, residential zone and test or procedure, see the [Data Supplement](#) to this report available at the Washington Health Alliance website.

We also included estimates for price ranges for these services. Actual prices in this market may fall outside the ranges shown in this report. These estimates also don't reflect additional fees for follow-up visits, further testing and other professional services. Price information was estimated using price and variation data from [Healthcare Bluebook](#).

These price ranges are estimates. Washington state currently lacks comprehensive price transparency, which would provide a far more accurate picture of actual prices. However, in the absence of actual price data, the estimates give consumers and employers some sense of how much potentially wasteful treatments might cost.

Key findings

CT SCANS

Computed tomography (CT) is a type of imaging. It uses special x-ray equipment to make cross-sectional pictures of your body. These cross-sectional images can be used to look for a number of things such as broken bones, cancers, blood clots, signs of heart disease and internal bleeding.

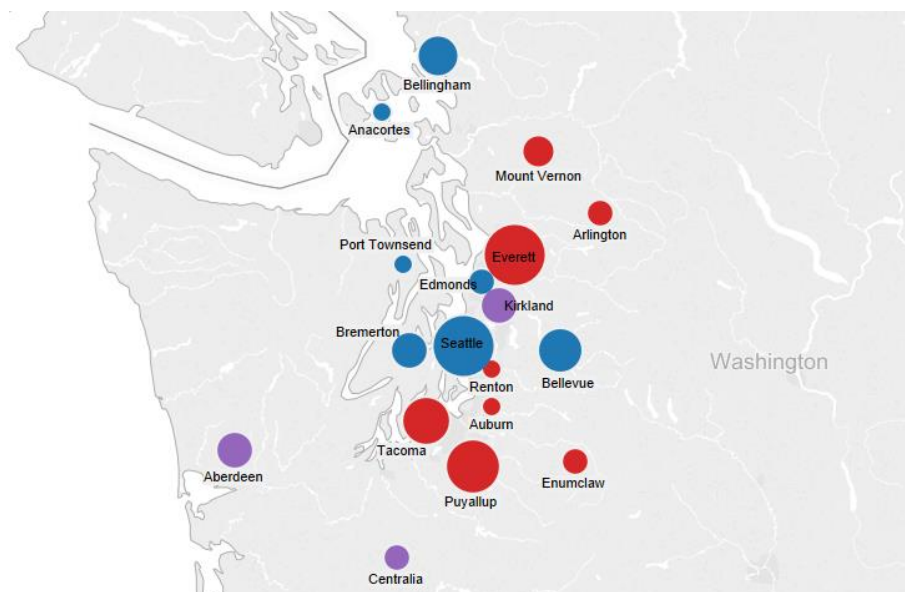
When used appropriately and when medically necessary, the benefits of a CT scan may outweigh the risks. CT scans can help diagnose a medical condition, or to check the symptoms of an existing condition. They are quick and accurate, and often eliminate the need for invasive surgery.

The Alliance estimates the price of a CT scan can range between \$300 and \$1,150, and possibly higher.

CT SCANNING USE IN WESTERN WASHINGTON

- Compared to the region, a significantly higher share of people living in the Everett area received CT scans. More Everett girls and boys in the 5-14 age range received CT scans than those living elsewhere.
- Similar patterns exist for people living in Puyallup and Tacoma.
- Residents of Bellevue and Seattle experience lower rates of CT use.
- Compared to their counterparts living in Seattle, Puyallup women aged 35-44 were 68% more likely to receive a CT scan.
- Tacoma men aged 55-64 were 48% more likely to receive a CT scan when compared to their counterparts living in Bellingham.

Figure 1: Map shows which residential areas in the Puget Sound showed higher and lower rates of CT scanning in 2012.



RISKS OF CT SCANS

CT scans expose patients to ionizing radiation. This exposure may cause a small increase in a person's lifetime risk of developing cancer. Children are at greater risk from a build-up of radiation than adults. CT scans aren't usually recommended for pregnant women because there's a small risk that they may harm the unborn child. There can also be possible reactions to the "dye" that may be used to improve visualization.

Larger circles mean the use pattern reaches across more patient age and gender groups.

The color of each circle tells the direction of the difference.

- Higher than rest of region.
- Lower than rest of region.
- Mixed. Some groups receive the service more commonly, some less commonly than rest of region.

EXTREMITY MRI

The extremity MRI is a specialized scanner for patients needing an exam of the arm, including elbow, wrist and hand, or the leg, including knee, ankle and foot. This test provides detailed pictures of parts of the leg that are hard to see clearly on CT scans.

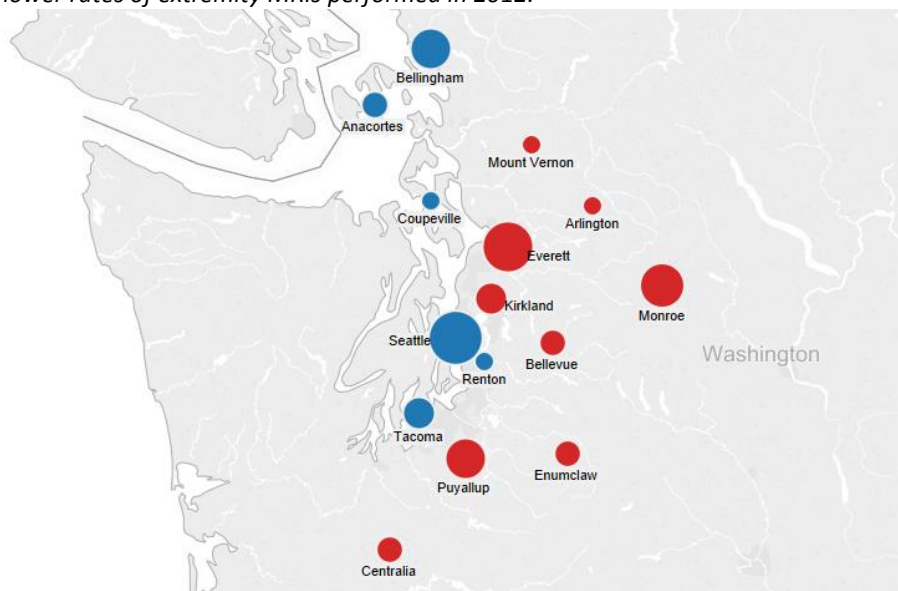
When used appropriately and when medically necessary, the benefits of an extremity MRI may outweigh the risks. MRI technology can provide detailed information to diagnose, plan treatment for and evaluate many conditions in adults and children. Additionally, the detailed images provided by MRIs may eliminate the need for exploratory surgery. An MRI does not use ionizing radiation, so there are no risks from x-ray exposure, including cancer. However, MRIs often find things that may not require treatment, and may trigger unnecessary testing.

The Alliance estimates the price of an extremity MRI can range between \$400 and \$1,650, and possibly higher.

EXTREMITY MRI USE IN WESTERN WASHINGTON

- A greater share of people over 35 living in the Everett and Monroe areas received an MRI scan of their arms or legs.
- Monroe had the highest rates for men or women ages of 35–54. The increased likelihood was as much as 177% more than other areas.
- People between ages 55–64 living in Enumclaw had the highest rates. The increased likelihood was 109% for women and 92% for men, compared to other residential zones.
- Residents of Bellingham and Seattle had lower rates compared to the rest of the region.

Figure 2: Map shows which residential areas in the Puget Sound showed higher and lower rates of extremity MRIs performed in 2012.



RISKS OF EXTREMITY MRI

The strong magnetic fields created during an MRI can cause heart pacemakers and other implants not to work as well. An MRI can also cause a piece of metal inside your body to move or shift. The contrast (dye) rarely causes allergic reactions, but it can be harmful to people with kidney problems including those who need dialysis.

CHEST X-RAY

A chest x-ray is an x-ray of the chest, lungs, heart, large arteries, ribs, and diaphragm. X-ray imaging exams are recognized as a valuable medical tool for a wide variety of examinations and procedures.

There are fewer risks associated with x-rays than other imaging tests.

Chest x-rays are not particularly expensive, and the radiation dose is low. Like other imaging, they can be used to noninvasively and painlessly help diagnosis disease and monitor therapy; support medical and surgical treatment planning; and guide medical personnel as they insert devices inside the body.

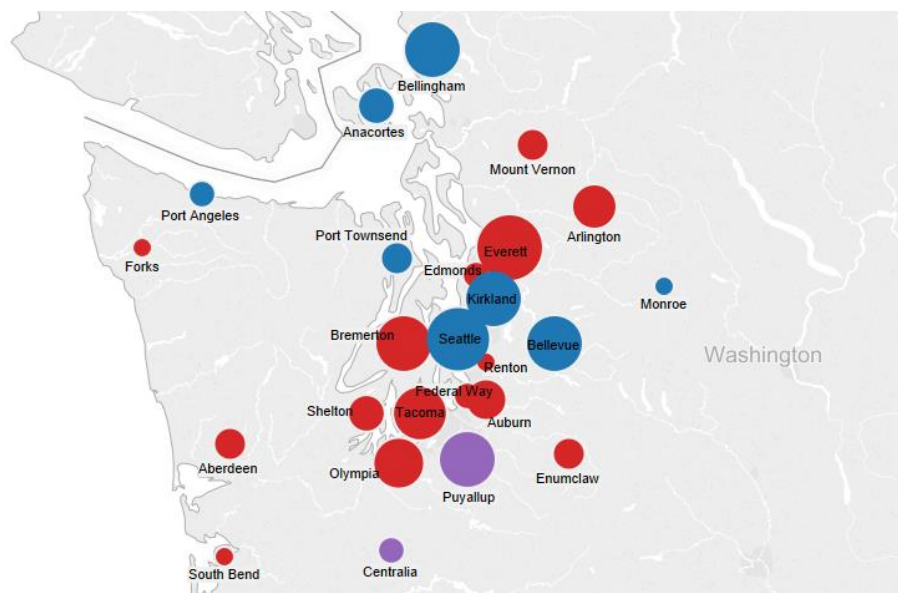
There are fewer risks associated with x-rays. There is low radiation exposure, and X-rays are monitored and regulated to provide the minimum amount of radiation exposure needed to produce the image. However, pregnant women and children are more sensitive to the risks of x-rays.

The Alliance estimates the price of a chest x-ray can range between \$20 and \$90, and possibly higher.

X-RAY USE IN WESTERN WASHINGTON

- Residents of Everett were more likely to get a chest x-ray than were people living elsewhere.
- Arlington, Bremerton, Olympia, and Tacoma were other residential zones with high use spanning multiple patient groups.
- Puyallup residents showed a split pattern: chest x-rays are less common for people under 25 and more common for people over 35.
- Everett girls ages 5–14 were 98% more likely to get a chest-x-ray than girls in Puyallup; boys the same age were 100% more likely.

Figure 3: Map shows which residential areas in the Puget Sound showed higher and lower rates of chest x-rays performed in 2012.



PRACTICE PATTERNS

Patterns of chest x-ray use appear to reinforce patterns of CT and extremity MRI scan use. This pattern is true for both genders and across age bands (particularly children). This suggests there might be some communities that favor using imaging more than others.

SLEEP TESTING

Sleep studies are tests, often performed in a hospital or sleep center, that measure how well you sleep and how your body responds to sleep problems. During a sleep study, sensors are attached to your body to measure and record detailed information while you sleep, including such things as your brain waves, heart rate, breathing rate and oxygen level.

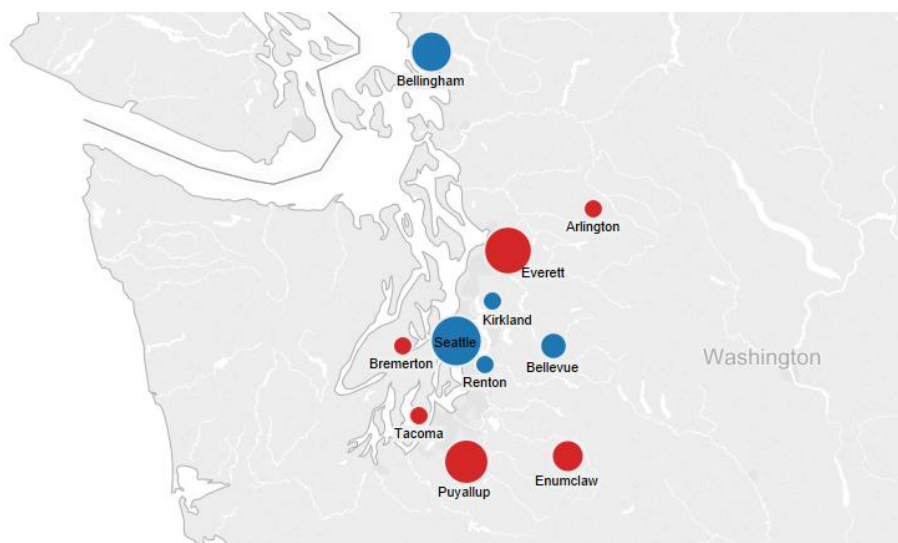
These tests can help your doctor find out whether you have a sleep disorder and how severe it is. The most common sleep disorder is obstructive sleep apnea, where your breathing repeatedly stops or gets very shallow while you sleep. Sleep studies are important because untreated sleep disorders can raise your risk for heart disease, high blood pressure, stroke and other medical conditions.

The Alliance estimates the price of a sleep test can range between \$450 and \$1,850, and possibly higher.

SLEEP TESTING IN WESTERN WASHINGTON

- A greater share of people living in Everett, Puyallup and Enumclaw received an inpatient sleep lab test than those living elsewhere.
- Areas with lower use of this inpatient test are Seattle and Bellingham.
- A notable difference exists for women aged 45-54: Arlington women are 234% more likely to have an inpatient sleep test than their Bellingham counterparts.

Figure 4: Map shows which residential areas in the Puget Sound showed higher and lower rates of sleep tests performed in 2012.



KNOW YOUR OPTIONS

Sleep studies are usually done at a sleep disorders unit within a hospital or sleep center. For some forms of sleep apnea, another option is a home sleep test, which is a modified sleep study that is self-administered in your home.

Larger circles mean the use pattern reaches across more patient age and gender groups.

The color of each circle tells the direction of the difference.

- Higher than rest of region.
- Lower than rest of region.
- Mixed. Some groups receive the service more commonly, some less commonly than rest of region.

UPPER GI ENDOSCOPY

An upper GI (gastrointestinal) endoscopy is a procedure that uses a small, flexible tube with a light to see the lining of the upper GI tract. Typically, a gastroenterologist or surgeon performs the procedure. A health care provider may refer to the procedure as an EGD.

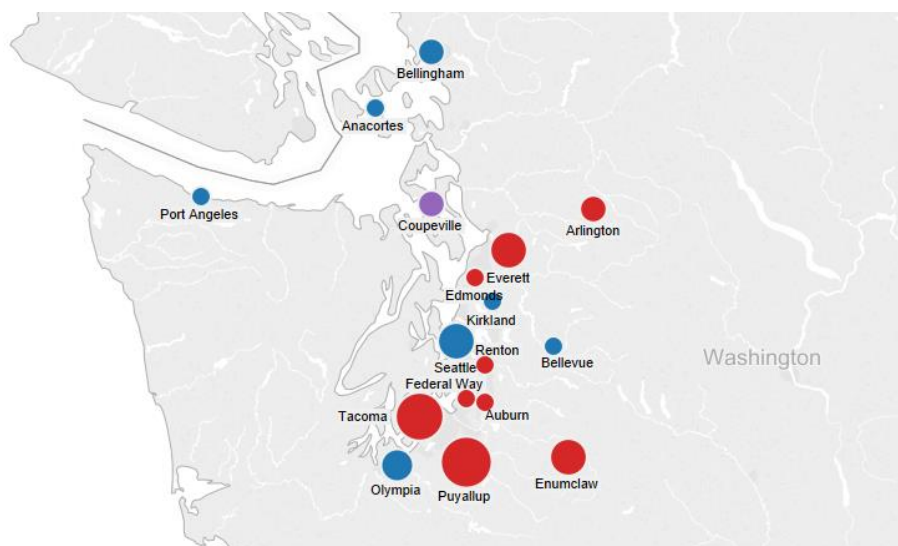
When used appropriately and when medically necessary, the benefits of Upper GI endoscopies may outweigh the risks. Upper GI endoscopies can help diagnose what's causing digestive symptoms, such as abnormal and prolonged nausea or vomiting, abdominal pain, difficulty swallowing and gastrointestinal bleeding.

The Alliance estimates the price of an upper GI endoscopy can range between \$650 and \$2,500, and possibly higher.

UPPER GI ENDOSCOPY USE IN WESTERN WASHINGTON

- Puyallup and Tacoma are residential zones with high use spanning multiple patient groups.
- Among children, the only evidence of unusual use is in Tacoma, where both boys and girls aged 5-14 received upper GI endoscopies at higher rates than the rest of the region.
- Enumclaw had the highest rates for both the 45-54 and 55-64 age ranges. The increased likelihood was as much as 148% for women and 118% for men, compared to other residential zones.
- For the 25-34 and 35-44 age ranges, Everett residents, both men and women, show higher use of this procedure than elsewhere in the region.

Figure 5: Map shows which residential areas in the Puget Sound showed higher and lower rates of GI endoscopies performed in 2012.



RISKS OF UPPER GI ENDOSCOPY

The risks of an upper GI endoscopy include:
reaction to the medications used for sedation, bleeding from the biopsy site or where the health care provider removed a polyp, and perforation or small tear in the lining of the upper GI tract.

ARTHROCENTESIS

A joint aspiration (arthrocentesis) is a test that involves withdrawing (aspirating) a small sample of fluid from a joint using a needle and syringe. Doctors perform joint aspiration and examine the fluid to evaluate for suspected diseases or conditions in a joint such as arthritis.

When used appropriately and when medically necessary, the benefits of arthrocentesis may outweigh the risks. Joint aspiration is diagnostic tool but it also can be therapeutic, helping to relieve pain and swelling caused by a buildup of joint fluid. Removing some of the fluid decreases pressure in the joint and can improve joint movement. Occasionally, cortisone (an anti-inflammatory medication) or hyaluronic acid derivatives (a synthetic joint lubricant, approved for use in the knee only) are injected into the joint during the joint aspiration in order to rapidly relieve joint inflammation and further reduce symptoms.

The Alliance estimates the price of an arthrocentesis can range between \$50 and \$200, and possibly higher.

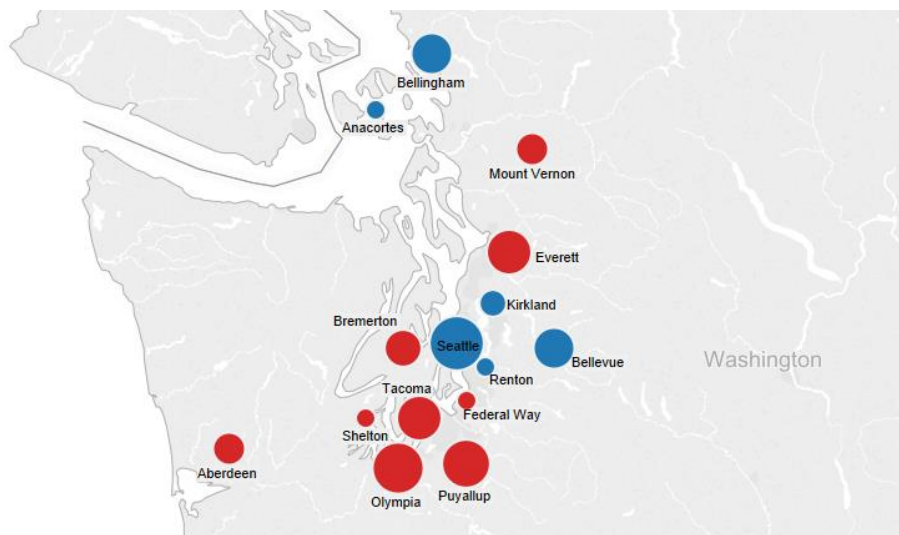
RISKS OF ARTHROCENTESIS

Rarely, infection or bleeding can occur. It is not known if joint damage may be related to frequent corticosteroid injections. Generally, repeated and numerous injections into the same joint should be discouraged.

ARTHROCENTESIS USE IN WESTERN WASHINGTON

- Residential zones with high use of arthrocentesis include Everett, Olympia, Puyallup, Tacoma and Bremerton.
- Less use occurs in Seattle, Bellevue and Bellingham.
- Among women 35-44, those living in Puyallup were 132% more likely to have this procedure than their counterparts living in Bellevue.
- Aberdeen has the highest rates for both men and women in the 45-54 age range. The increased likelihood was as much as 85% for women and 160% for men, compared to other residential zones.

Figure 6: Map shows which residential areas in the Puget Sound showed higher and lower rates of arthrocentesis performed in 2012.



Larger circles mean the use pattern reaches across more patient age and gender groups.

The color of each circle tells the direction of the difference.

- Higher than rest of region.
- Lower than rest of region.
- Mixed. Some groups receive the service more commonly, some less commonly than rest of region.

SPINE INJECTION

A spinal injection is the delivery of powerful anti-inflammatory medicine directly into the space outside of the sac of fluid around your spinal cord. Spinal injections are used in two ways: to diagnose the source of back, leg, neck or arm pain and as a treatment to relieve pain. Most spinal injections are performed as one part of a more comprehensive treatment program. Simultaneous treatment nearly always includes an exercise program to improve or maintain spinal mobility and stability.

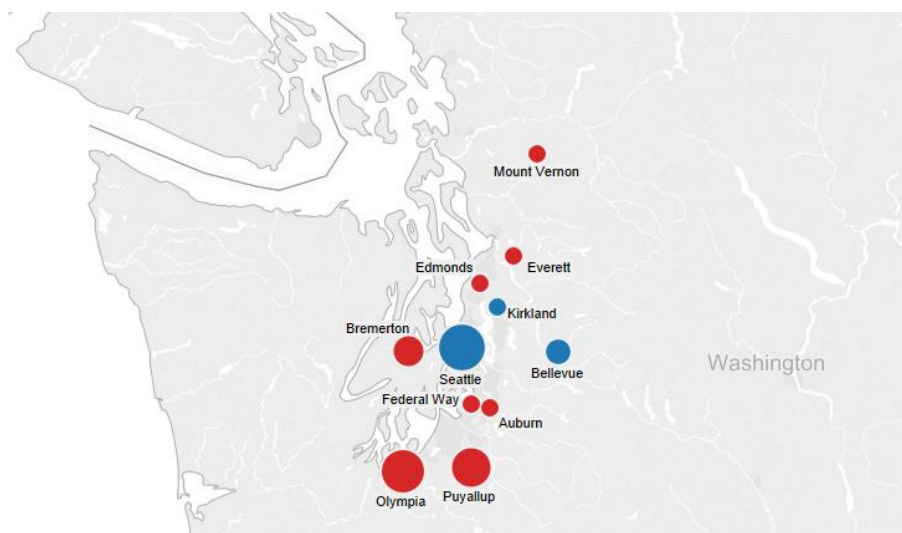
When used appropriately and when medically necessary, the benefits of spine injections may outweigh the risks. However, clinical trials have found only modest evidence that the injections help relieve back pain.⁶ Evidence on the effectiveness of spinal injections varies by the condition being treated, the drug used and the injection technique.

The Alliance estimates the price of a spine injection can range between \$100 and \$700, and possibly higher.

SPINE INJECTION USE IN WESTERN WASHINGTON

- Olympia and Puyallup residents were more likely to have spine injections and Seattle residents less likely.
- Women in Olympia were more likely to receive a spine injection than women in other residential zones.

Figure 7: Map shows which residential areas in the Puget Sound showed higher and lower rates of spine injections performed in 2012.



RISKS OF SPINE INJECTION

Some of the risks include a spinal headache (a headache resulting from the spinal injection), and more rarely bleeding and infection. Taken over time, corticosteroids can result in reduced bone density, increased risk of bone fracture and a suppressed immune system. Steroids also are a common cause of adverse drug events during hospital stays.

⁶ *Spinal Stenosis Treatment: Little benefit from corticosteroid injections for common cause of spine-related pain, AHRQ-funded study says.* Agency for Healthcare Research and Quality. Press release. Accessed November 11, 2014: <http://www.ahrq.gov/news/newsroom/press-releases/2014/spinalpain.html>.

CESAREAN SECTION

A Cesarean section (C-section) is surgery to deliver a baby. The baby is taken out through the mother's abdomen. In the United States, about one in four women have their babies this way. Many, but not all, C-sections are done when unexpected problems happen during delivery. However, some C-sections scheduled in advance are thought to be done solely for the convenience of the mother or provider.

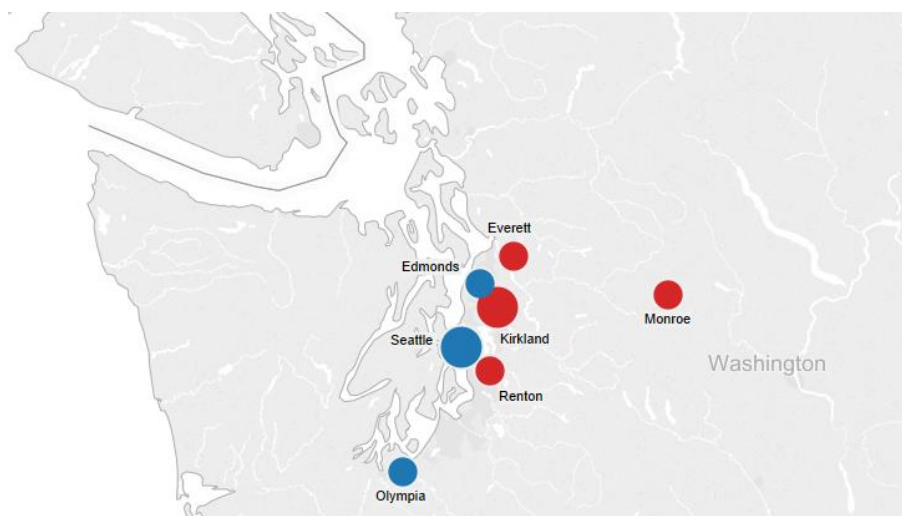
When used appropriately and when medically necessary, a C-section can be lifesaving. C-sections can help women at risk for complications avoid dangerous delivery-room situations and can save the life of the mother and/or baby when emergencies occur.

The Alliance estimates the price of a C-section can range between \$4,750 and \$19,000, and possibly higher.

CESAREAN SECTION USE IN WESTERN WASHINGTON

- In our region, almost 20% of births to young mothers aged 15-24 are via Cesarean section.
- Among 25-34 year old mothers, 25.7% of births were delivered via C-section. Mothers living in Monroe, Kirkland, and Renton had significantly higher C-section rates.
- Among 35-44 year old mothers, 33.7% of births were delivered via C-section. Mothers living in Everett and Kirkland had significantly higher rates.
- Physicians generally agree that the prevailing rate of C-sections in our region is too high. Several provider-led initiatives to reduce C-sections are underway in our state.

Figure 8: Map shows which residential areas in the Puget Sound showed higher and lower rates of C-sections performed in 2012.



RISKS OF C-SECTION

A C-section carries all the risks of major surgery as well as: increased bleeding, infection, bladder or bowel injury, reactions to medications, blood clots, possible injury to the baby and very rarely death. Babies born by C-section sometimes have breathing problems after birth. Having a C-section may or may not affect future pregnancies and deliveries.

HYSTERECTOMY

Hysterectomy is a surgical operation to remove all or parts of a woman's uterus. It is most often performed to treat abnormal uterine bleeding, benign tumors or pain between and/or during menstrual periods. Non-surgical options have varying success rates. Some may be quite successful in relieving symptoms and others not so.

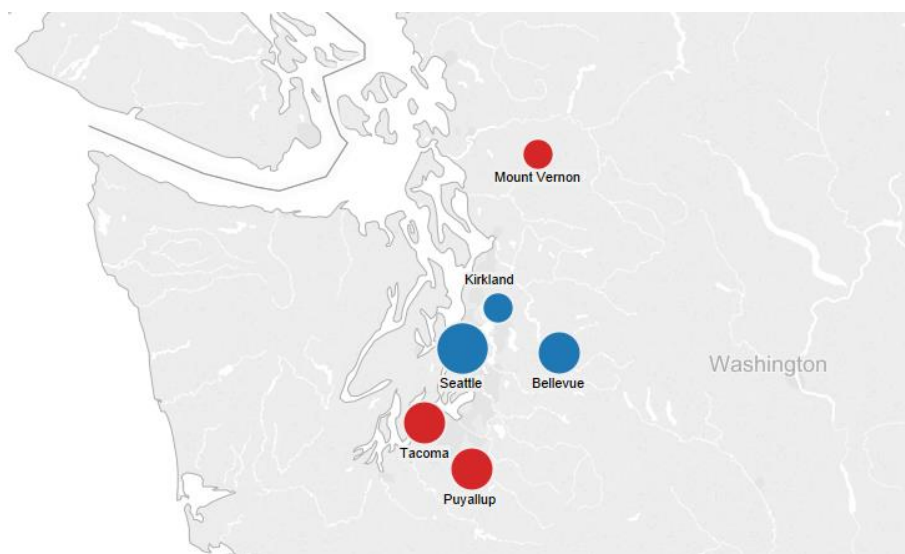
When used for the appropriate condition, the benefits of hysterectomy may outweigh the risks. Hysterectomy carries with it a high patient satisfaction rate when used to treat significant and prolonged abnormal bleeding and painful periods. Its use to treat other types of pelvic area pain may not always be as successful. Watchful waiting or other non-surgical options should be seriously considered before surgical management of an issue is pursued.

The Alliance estimates the price of a hysterectomy can range between \$5,100 and \$21,000, and possibly higher.

HYSTERECTOMY IN WESTERN WASHINGTON

- Residential zones with high use of hysterectomy include Puyallup, Tacoma, and Mount Vernon.
- Women living in Seattle, Bellevue, and Kirkland were less likely to receive a hysterectomy.
- Women ages 35–44 living in Puyallup were 193% more likely to have this procedure than their counterparts living in Seattle. Women in Puyallup ages 45–54 were 91% more likely.

Figure 9: Map shows which residential areas in the Puget Sound showed higher and lower rates of hysterectomies performed in 2012.



RISKS OF HYSTERECTOMY

Hysterectomy carries the risks of bladder or bowel injury, excessive post-surgical bleeding and complications from anesthesia. The procedure also makes a woman infertile.

Larger circles mean the use pattern reaches across more patient age and gender groups.

The color of each circle tells the direction of the difference.

- Higher than rest of region.
- Lower than rest of region.
- Mixed. Some groups receive the service more commonly, some less commonly than rest of region.

LAMINECTOMY

A laminectomy is a surgical operation to remove the back of one or more vertebrae, usually to give access to the spinal cord or to relieve pressure on nerves. It may also be done to remove bone spurs in the spine. The procedure can take pressure off spinal nerves or the spinal cord.

When used appropriately and when medically necessary, the benefits of a laminectomy may outweigh the risks. Laminectomy is often done to treat spinal stenosis, a narrowing of the spinal column that causes pressure on the spinal cord. When symptoms become more severe and interfere with daily life or job, surgery may help. However, back surgeries don't always reduce pain, and can alter back anatomy. Often, back pain returns after the surgery. It's important for patients to consider non-surgical options.

The Alliance estimates the price of a laminectomy can range between \$5,500 and \$21,300, and possibly higher.

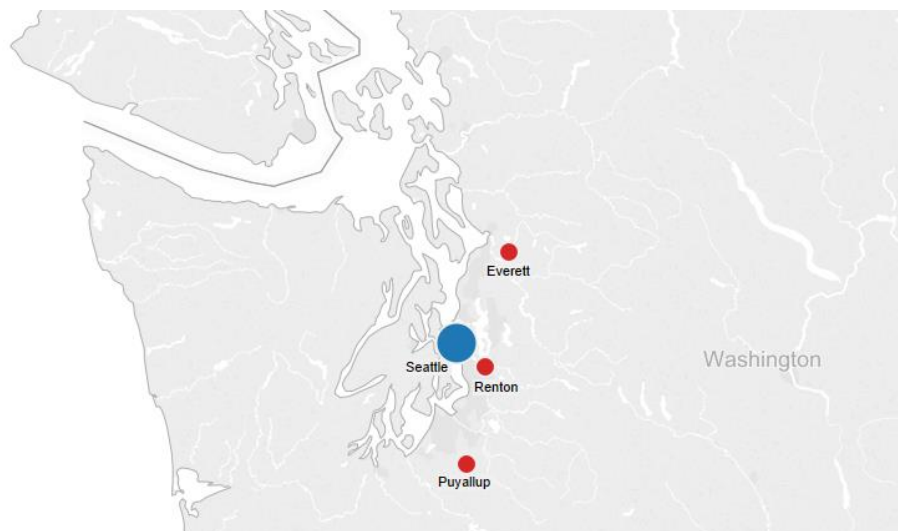
RISKS OF LAMINECTOMY

Laminectomy carries all the risks of major surgery as well as: infection, damage to a spinal nerve causing weakness, pain, or loss of feeling, spinal instability, partial or no relief of pain after surgery and return of back pain in the future.

LAMINECTOMY IN WESTERN WASHINGTON

- Everett, Renton and Puyallup show evidence of higher use of this type of back surgery.
- Seattle residents are much less likely to get this procedure, particularly when older than 35.
- Everett women aged 35-44 were 156% more likely to receive this surgery than their Seattle counterparts.
- Renton men aged 55-64 were 117% more likely to receive this surgery than their Seattle counterparts.

Figure 10: Map shows which residential areas in the Puget Sound showed higher and lower rates of laminectomies performed in 2012.



Larger circles mean the use pattern reaches across more patient age and gender groups.

The color of the circle indicates the direction of the difference.

Lower than rest of region.

Mixed. Some groups receive the service more commonly, some less commonly than rest of region.

SPINE FUSION

Spinal fusion is surgery to permanently join together two or more bones (vertebrae) in the spine so there is no movement between them. Spinal fusion is most often done along with other surgical procedures of the spine.

When used appropriately and when medically necessary, spinal fusion may improve a patient's quality of life. It is often used to treat injuries or fractures to the bones in the spine, weak or unstable spine caused by infections or tumors, spondylolisthesis (a condition in which one vertebrae slips forward on top of another), spinal stenosis (abnormal narrowing of the spinal canal) and abnormal curvatures, such as those from scoliosis and arthritis in the spine.

The Alliance estimates the price of a spine fusion can range between \$15,000 and \$58,000, and possibly higher.

SPINE FUSION IN WESTERN WASHINGTON

- Olympia residents were more likely to have spine fusion procedures and Seattle residents less likely.
- Among women 45-54, those living in Olympia were 192% more prone to have this procedure than their counterparts were in Seattle.

Figure 11: Map shows which residential areas in the Puget Sound showed higher and lower rates of spine fusions performed in 2012.



RISKS OF SPINE FUSION

Spine fusions carry the same risks as any surgery as well as: infection, damage to a spinal nerve, causing weakness, pain, loss of sensation and problems with the bowels or bladder. Also, the vertebrae above and below the fusion are more likely to wear away, leading to more problems later and the potential need for more surgery.

Larger circles mean the use pattern reaches across more patient age and gender groups.

The color of each circle tells the direction of the difference.

- Higher than rest of region.
- Lower than rest of region.
- Mixed. Some groups receive the service more commonly, some less commonly than rest of region.

Methodology

About the measures

Below are brief descriptions for each of the 11 measures in this report. Each measure is a fraction.

The denominator comes from eligibility data supplied to the Alliance by commercial insurance carriers.

For most measures, the numerator comes from definitions of specific tests and procedures developed by the Agency for Healthcare Research and Quality (AHRQ). AHRQ have made these definitions publicly available in grouping software called Clinical Classification System (CCS). For two measures, the numerator definition comes from work published by the state Health Care Authority's Health Technology Assessment initiative.

CT Scan: The percentage of people with commercial insurance during the measurement year, of a specified gender and age band, who received at least one CT scan, as defined by AHRQ CCS groups #177-180.

Extremity MRI: The percentage of people with commercial insurance during the measurement year, of a specified gender and age band, who received at least one MRI, as defined by AHRQ CCS group #198, limited to include only MRIs performed on extremities.

Chest X-Ray: The percentage of people with commercial insurance during the measurement year, of a specified gender and age band, who received at least one chest x-ray, as defined by AHRQ CCS group #183.

Sleep Testing: The percentage of people with commercial insurance during the measurement year, of a specified gender and age band, who received at least one sleep test, as defined in HCA's Health Technology Assessment for Sleep Apnea diagnosis.

Upper GI Endoscopy: The percentage of people with commercial insurance during the measurement year, of a specified gender and age band, who received at least one upper GI endoscopy procedure, as defined in HCA's Health Technology Assessment for GERD treatment.

Arthrocentesis: The percentage of people with commercial insurance during the measurement year, of a specified gender and age band, who received at least one arthrocentesis procedure, as defined by AHRQ CCS group #155.

Spine Injection: The percentage of people with commercial insurance during the measurement year, of a specified gender and age band, who received at least one spine injection, as defined by AHRQ CCS group #5.

Cesarean Section: The percentage of deliveries to mothers with commercial insurance and of a specified age band occurring via Cesarean section during the measurement year, defined by AHRQ CCS group #134.

Hysterectomy: The percentage of women with commercial insurance during the measurement year and of a specified age band who received a hysterectomy procedure, as defined by AHRQ CCS group #124.

Laminectomy: The percentage of people with commercial insurance during the measurement year, of a specified gender and age band, who received at least one laminectomy procedure, as defined by AHRQ CCS group #3.

Spine Fusion: The percentage of people with commercial insurance during the measurement year, of a specified gender and age band, who received at least one spine fusion procedure, as defined by AHRQ CCS group #158.

About the data

Since 2008, the Washington Health Alliance has produced the [Community Checkup](#), an annual report on the quality of ambulatory care. The report relies upon a database containing claims data from approximately 3.9 million commercial and Medicaid enrollees from 20 different data suppliers (health plans, self-funded employers and labor union trusts).

This analysis is based on commercial claims and encounter data for calendar year 2012 submitted to the Alliance by data suppliers. In addition, the analysis relies on corresponding eligibility and enrollment files to ascertain member age, gender and approximate residential zone.

Member residential zone was assigned using each member's ZIP code of residence in the eligibility and enrollment files, cross-referenced to Health Service Areas, which are industry boundaries that approximate distinct local health care markets. The residential zones overlap 15 Washington counties: Clallam, Grays Harbor, Island, Jefferson, King, Kitsap, Lewis, Mason, Pacific, Pierce, San Juan, Skagit, Snohomish, Thurston and Whatcom.

We used public domain grouping tools from the Agency for Healthcare Research and Quality called Clinical Classification Software to identify and classify most tests, procedures and surgeries within the commercial claims and encounter data.

Findings were stratified into gender and age bands. When comparing local rates to regional rates, statistical techniques were used that reduce the risk of misclassifying results to about 10 percent.

The Alliance derived commercial price ranges using price and variation figures from Healthcare Bluebook. Actual prices in the 15 counties included in this report may be outside of the ranges estimated for this report.

A more technical and detailed Data Supplement is available at:
<http://wahealthalliance.org/alliance-reports-websites/alliance-reports/>.

Limitations of this report

The analysis provides a reasonable comparison of service use across residential zones for commercially insured people. It shows potential overuse patterns in our region. The patterns described are based on where people live—not where patients obtained their care.

The results rely on claims and encounter data that can be found in the Alliance's Community Checkup database. These do not contain all the information that providers have in patients' medical records. The claims database represents over 60 percent of commercially insured people in Washington state.

Appendix 1: What can you do?

FOR CONSUMERS

- ☐ Ask for easy to understand and objective information about treatment options.
- ☐ Seek information from multiple sources.
- ☐ Make sure your choices align with your values and life goals.
- ☐ Ask questions:
 - Is “watchful waiting” an option?
 - What are the advantages and risks of each option?
 - How important are each of those consequences to me?
 - Are there simpler, possibly safer options?
 - How much does this procedure cost?

FOR EMPLOYERS

- ☐ Communicate with your employees about variation in health care, overuse and how to get appropriate care.
- ☐ Design benefit plans to reward high-value care.
- ☐ Offer second opinion services as part of your member benefits, which can help employees who might feel apprehensive about seeking additional clinical guidance.
- ☐ Offer links to trustworthy resources.

FOR PROVIDERS

- ☐ Encourage patients to ask questions.
- ☐ Help patients know what questions to ask.
- ☐ Help patients make sure their choices align with their values and life goals.
- ☐ Provide objective information about different treatment choices, including the risks and advantages.
 - Share video and written decision aids when available.
 - Help patients identify other sources of information.

Appendix 2: What residential area do you live in?

Look up your ZIP code in the table below to locate your zone's name. It represents the local health care market in which you reside, and where you are likely obtain most of your care. If your zone doesn't appear on a map in the report, either the rate of that particular procedure is not different than the regional average, or there were no reportable data.

ZIP CODE		RESIDENTIAL ZONE	ZIP CODE		RESIDENTIAL ZONE	ZIP CODE		RESIDENTIAL ZONE	ZIP CODE		RESIDENTIAL ZONE
from:	to:		from:	to:		from:	to:		from:	to:	
98001	98002	Auburn	98042		Renton	98045		Bellevue	98124	98129	Seattle
98003		Fed Way	98043		Edmonds	98046		Edmonds	98131	98134	Seattle
98004	98009	Bellevue	98045		Bellevue	98047		Auburn	98136		Seattle
98010		Enumclaw	98046		Edmonds	98050		Bellevue	98138	98139	Seattle
98011	98013	Seattle	98047		Auburn	98051		Enumclaw	98141		Seattle
98014	98015	Bellevue	98050		Bellevue	98052		Kirkland	98144	98146	Seattle
98019		Kirkland	98051		Enumclaw	98053		Bellevue	98148		Seattle
98020		Edmonds	98052		Kirkland	98055	98059	Renton	98154	98155	Seattle
98021		Seattle	98053		Bellevue	98061	98062	Seattle	98158		Seattle
98022		Enumclaw	98055	98059	Renton	98063		Fed Way	98160	98161	Seattle
98023		Fed Way	98061	98062	Seattle	98064		Renton	98164	98166	Seattle
98024		Bellevue	98063		Fed Way	98065		Bellevue	98168		Seattle
98025		Renton	98064		Renton	98070		Seattle	98174		Kirkland
98026		Edmonds	98065		Bellevue	98071		Auburn	98175		Seattle
98027		Bellevue	98070		Seattle	98072	98073	Kirkland	98177	98178	Seattle
98028		Seattle	98071		Auburn	98074	98075	Bellevue	98181		Seattle
98029		Bellevue	98072	98073	Kirkland	98077		Kirkland	98185		Seattle
98030	98031	Renton	98074	98075	Bellevue	98082		Seattle	98188		Seattle
98032		Seattle	98077		Kirkland	98083		Kirkland	98190		Seattle
98033	98034	Kirkland	98082		Seattle	98087		Edmonds	98191		Seattle
98035		Seattle	98083		Kirkland	98089		Seattle	98194	98195	Seattle
98036	98037	Edmonds	98087		Edmonds	98092		Enumclaw	98198	98199	Seattle
98038		Renton	98089		Seattle	98093		Fed Way	98201		Everett
98039		Bellevue	98042		Renton	98101	98119	Seattle	98203	98204	Everett
98040	041	Seattle	98043		Edmonds	98121	122	Seattle	98206	208	Everett

ZIP CODE		RESIDENTIAL ZONE	ZIP CODE		RESIDENTIAL ZONE	ZIP CODE		RESIDENTIAL ZONE	ZIP CODE		RESIDENTIAL ZONE
from:	to:		from:	to:		from:	to:		from:	to:	
98213		Everett	98260		Coupeville	98310	98312	Bremerton	98351		Tacoma
98220		Bellingham	98261		Anacortes	98314	98315	Bremerton	98352		Puyallup
98221	98222	Anacortes	98262		Bellingham	98320		Pt Townsend	98353		Bremerton
98223		Arlington	98263		Mt Vernon	98321		Puyallup	98354		Tacoma
98224		Monroe	98264		Bellingham	98322		Bremerton	98355		Puyallup
98225	98231	Bellingham	98266		Bellingham	98323		Puyallup	98356		Morton
98232	98233	Mt Vernon	98267		Mt Vernon	98324		Pt Angeles	98357		Pt Angeles
98235		Mt Vernon	98270	98271	Everett	98325		Pt Townsend	98358		Pt Townsend
98236		Coupeville	98272		Monroe	98326		Pt Angeles	98359		Tacoma
98237	98238	Mt Vernon	98273	98274	Mt Vernon	98327		Tacoma	98360		Puyallup
98239		Coupeville	98275		Everett	98328		Puyallup	98361		Morton
98240		Bellingham	98276		Bellingham	98329		Tacoma	98362	98363	Pt Angeles
98241		Arlington	98277	98278	Coupeville	98330		Puyallup	98364		Bremerton
98243		Anacortes	98279	98280	Anacortes	98331		Forks	98365		Pt Townsend
98244		Bellingham	98281		Bellingham	98332	98333	Tacoma	98366	98367	Bremerton
98245		Anacortes	98282	98284	Mt Vernon	98335		Tacoma	98368		Pt Townsend
98247	98248	Bellingham	98286		Anacortes	98336		Morton	98370		Bremerton
98249		Coupeville	98287		Mt Vernon	98337		Bremerton	98371	98375	Puyallup
98250		Anacortes	98288		Monroe	98338		Puyallup	98376		Pt Townsend
98237	98238	Mt Vernon	98290	98291	Everett	98339		Pt Townsend	98377		Morton
98251		Monroe	98292		Mt Vernon	98340		Bremerton	98378		Bremerton
98252		Everett	98293	98294	Monroe	98342		Bremerton	98380		Bremerton
98253		Coupeville	98295		Bellingham	98343		Pt Angeles	98381	98382	Pt Angeles
98255		Mt Vernon	98296		Everett	98344		Puyallup	98383	98384	Bremerton
98256		Monroe	98297		Anacortes	98345	98346	Bremerton	98385		Puyallup
98257		Mt Vernon	98303		Tacoma	98348		Puyallup	98386		Bremerton
98258		Everett	98304		Puyallup	98349		Tacoma	98387	98388	Tacoma
98259		Arlington	98305		Forks	98350		Forks	98390	98391	Puyallup

ZIP CODE		RESIDENTIAL ZONE	ZIP CODE		RESIDENTIAL ZONE	ZIP CODE		RESIDENTIAL ZONE
<i>from:</i>	<i>to:</i>		<i>from:</i>	<i>to:</i>		<i>from:</i>	<i>to:</i>	
98392	98393	Bremerton	98528		Bremerton	98575		Aberdeen
98394	98395	Tacoma	98530		Olympia	98576		Olympia
98396	98397	Puyallup	98531	98532	Centralia	98577		South Bend
98398		Morton	98533		Puyallup	98579		Olympia
98401	98409	Tacoma	98535	98537	Aberdeen	98580		Tacoma
98411	98413	Tacoma	98538	98539	Centralia	98582		Centralia
98415	98419	Tacoma	98540	98541	Olympia	98583		Olympia
98421	98422	Tacoma	98542		Centralia	98584		Shelton
98424		Tacoma	98544		Centralia	98585		Centralia
98430		Tacoma	98546		Bremerton	98586		South Bend
98431		Tacoma	98547	98548	Aberdeen	98587		Aberdeen
98433		Tacoma	98550		Aberdeen	98588		Bremerton
98438	98439	Tacoma	98552		Aberdeen	98589		Olympia
98443	98448	Tacoma	98554		South Bend	98590		Aberdeen
98464	98467	Tacoma	98555		Shelton	98591		Centralia
98471		Tacoma	98556	98557	Olympia	98592		Shelton
98481		Tacoma	98558		Tacoma	98595		Aberdeen
98490		Tacoma	98559		Olympia	98596		Centralia
98493		Tacoma	98560		Aberdeen	98597		Olympia
98496	98499	Tacoma	98561		South Bend	98599		Olympia
98501	98509	Olympia	98562	98563	Aberdeen			
98511	98513	Olympia	98564	98565	Centralia			
98516		Olympia	98566		Aberdeen			
98520		Aberdeen	98568		Centralia			
98522		Centralia	98569		Aberdeen			
98524		Bremerton	98570		Puyallup			
98526		Aberdeen	98571		Aberdeen			
98527		South Bend	98572		Centralia			



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ABOUT THE ALLIANCE

The Washington Health Alliance brings together those who give, get and pay for health care to create a high-quality, affordable system for the people of Washington state. The Alliance is a nonprofit, nonpartisan organization that shares the most reliable data on health care quality and value in the state to help providers, patients, employers and union trusts make better decisions about health care. Through innovative strategies and initiatives, we help the entire health care system—from exam room to board room—focus on improving quality and value. We are committed to being the catalyst for change for the health care system in Washington. The Alliance is one of 16 organizations that are part of the Robert Wood Johnson Foundation's Aligning Forces for Quality (AF4Q) initiative.

For more about the Alliance:
www.WashingtonHealthAlliance.org

For the Community Checkup report:
www.WACommunityCheckup.org