



NEW Results from the Health Waste Calculator Task Force on Low-Value Care March 14, 2019

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Caveats

For all of the following reasons, the results should be viewed as *directional*, rather than absolute.

- 48 measures
- Claims data for approximately 4.3 million residents of Washington state
- Prevalence of waste noted, including number of services and individuals impacted, is based on *actual* utilization.
- Costs are *estimated*, based on Milliman's Consolidated Health Cost Source database for Washington state.
- Noted costs are only associated with the particular service in question, including professional and facility charges. Costs do not include "cascading harm."
- When using claims data, there is always a time lag. The results in this report are from July 2016 - June 2017. We acknowledge that performance improvement may have occurred since June 2017.

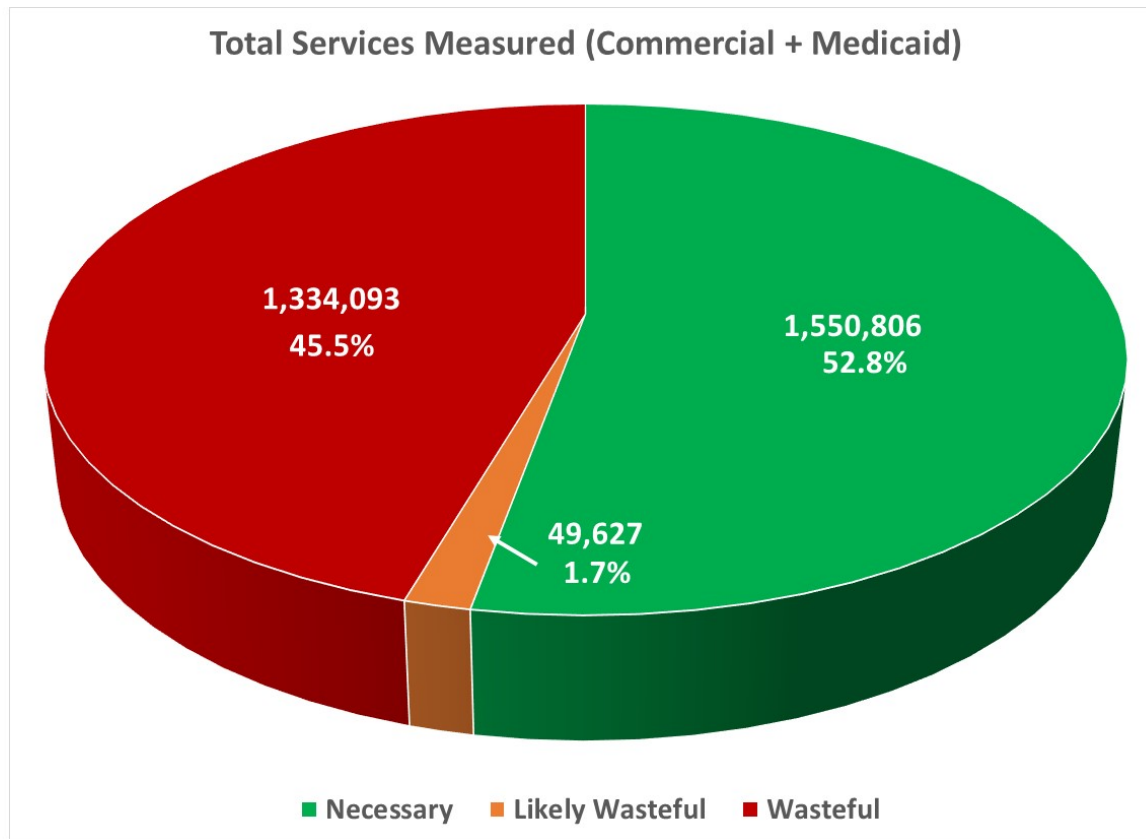
Caveats (continued)

- Prevalence of waste noted, including number of services and individuals impacted, is based on *actual* utilization.
- Costs are *estimated*, based on Milliman's Consolidated Health Cost Source database for Washington state. Estimated costs are based on reference unit prices that represent the average cost of each service. Reference pricing for *allowed amounts* was used and estimates are based on the "case rate" method included in the Health Waste Calculator.
- Noted costs are only associated with the particular service in question, including professional and facility charges. Costs do not include subsequent unnecessary tests, procedures, treatments, inpatient or post-acute care that subsequently resulted from the initial unnecessary intervention – this is called "cascading harm."
- When using claims data, there is always a time lag. The results in this report are from July 2016 - June 2017. We acknowledge that performance may have changed since June 2017.

Summary

- Across the 48 measures, for both lines of business combined:
 - **2,934,526** services were measured, totaling an *estimated* spend of \$849 million
 - **47.2%** of measured services were found to be wasteful (1,383,720)
 - 2,034,761 individuals received services: **50.1%** (1,020,081) received low value services
 - An *estimated* **\$341 million** was spent on low value care
- The overall “Waste Index” is slightly higher for the commercially insured population than for the Medicaid insured population (48.6% versus 45.5%).
- Many of the top areas of waste are the same for both populations, but there are a few differences in how the services are ranked for each line of business.
- Ten out of 48 areas of waste measured account for 88% of the total.

Health Waste Calculator Results Overall (Commercial, Medicaid Combined)



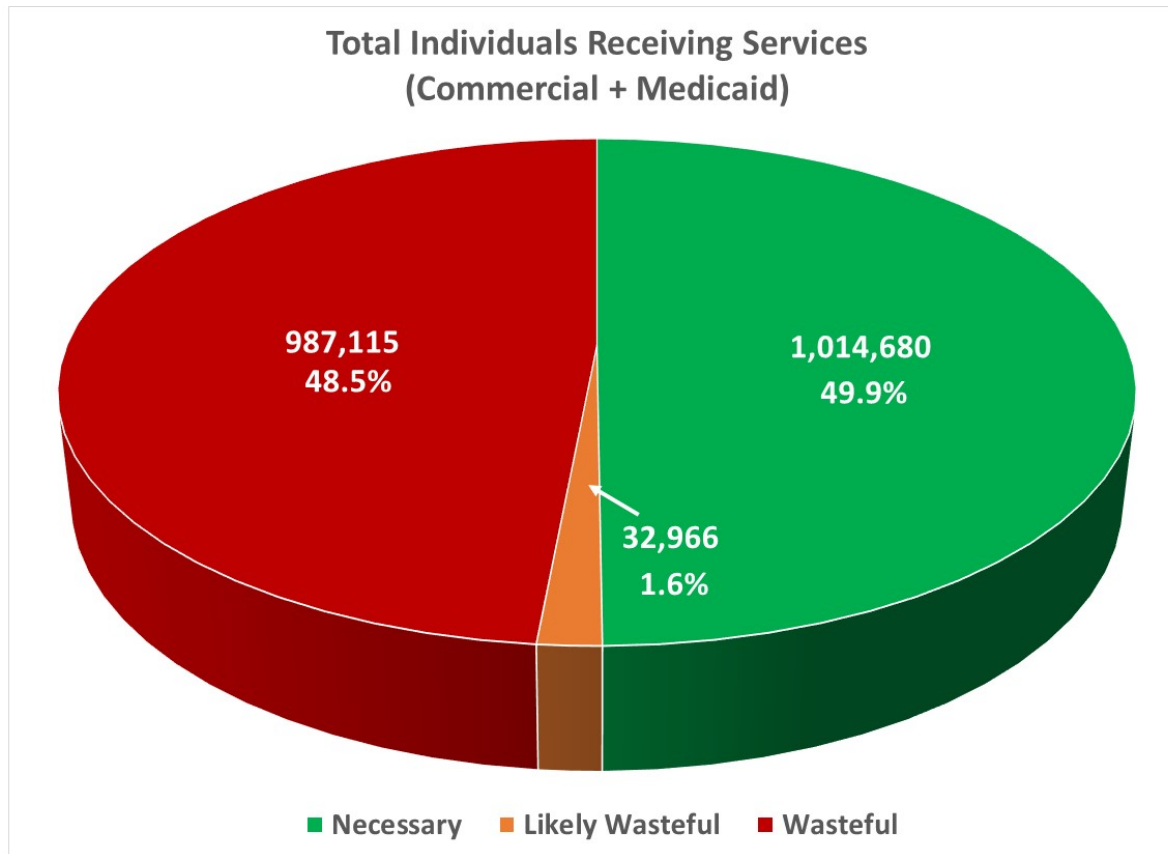
48 Measures, 1 Year

2,934,526 services
were examined

47.2% of services
(1,383,720) were
determined to be
low value*

*Low value includes
Likely Wasteful + Wasteful

Health Waste Calculator Results Overall (Commercial, Medicaid Combined)



48 Measures, 1 Year

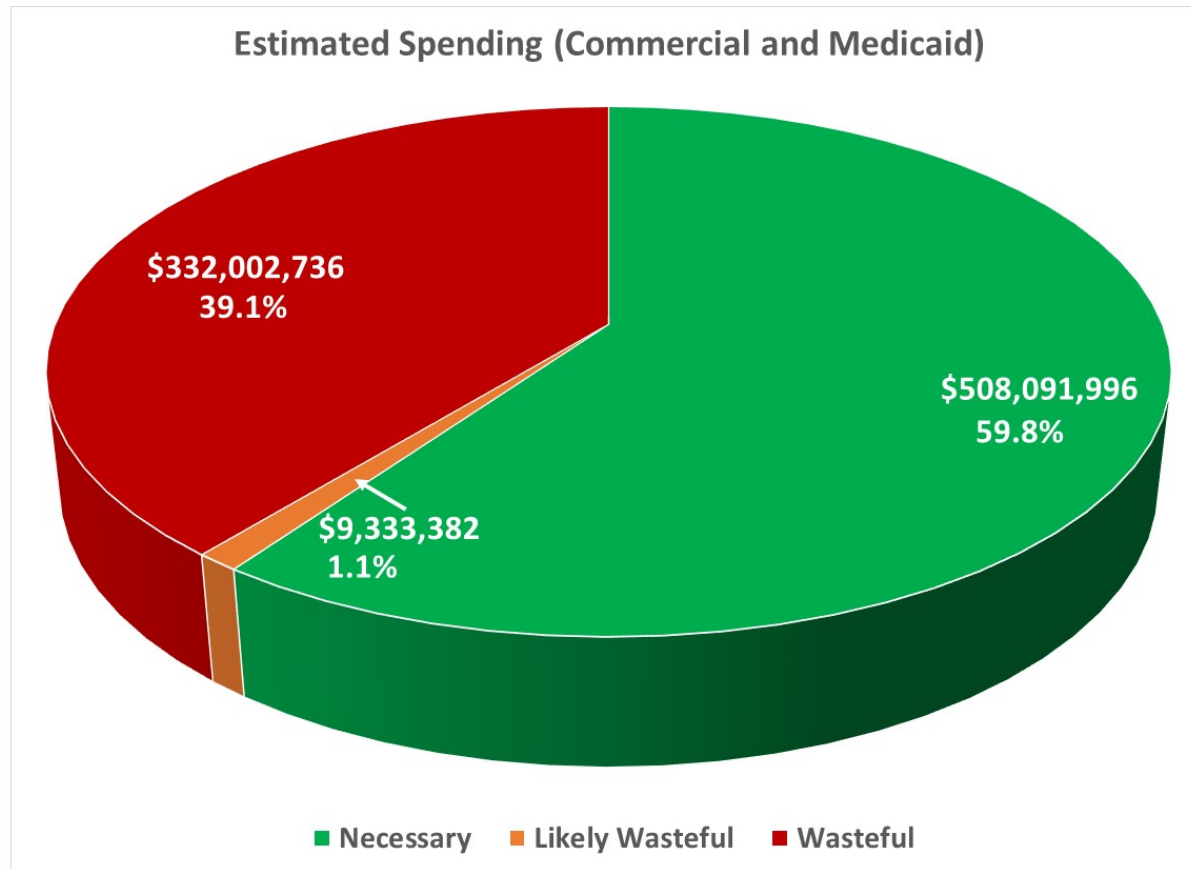
2,034,761 individuals*
received services

1,020,081 (50.1%)
individuals* received
low-value** services

- Individuals counted each time they receive a service (i.e., *distinct* individuals are counted more than once if they receive more than one service)

** Low value includes
Likely Wasteful + Wasteful

Health Waste Calculator Results Overall (Commercial, Medicaid Combined)



48 Measures, 1 Year

Approximately \$849 million was spent

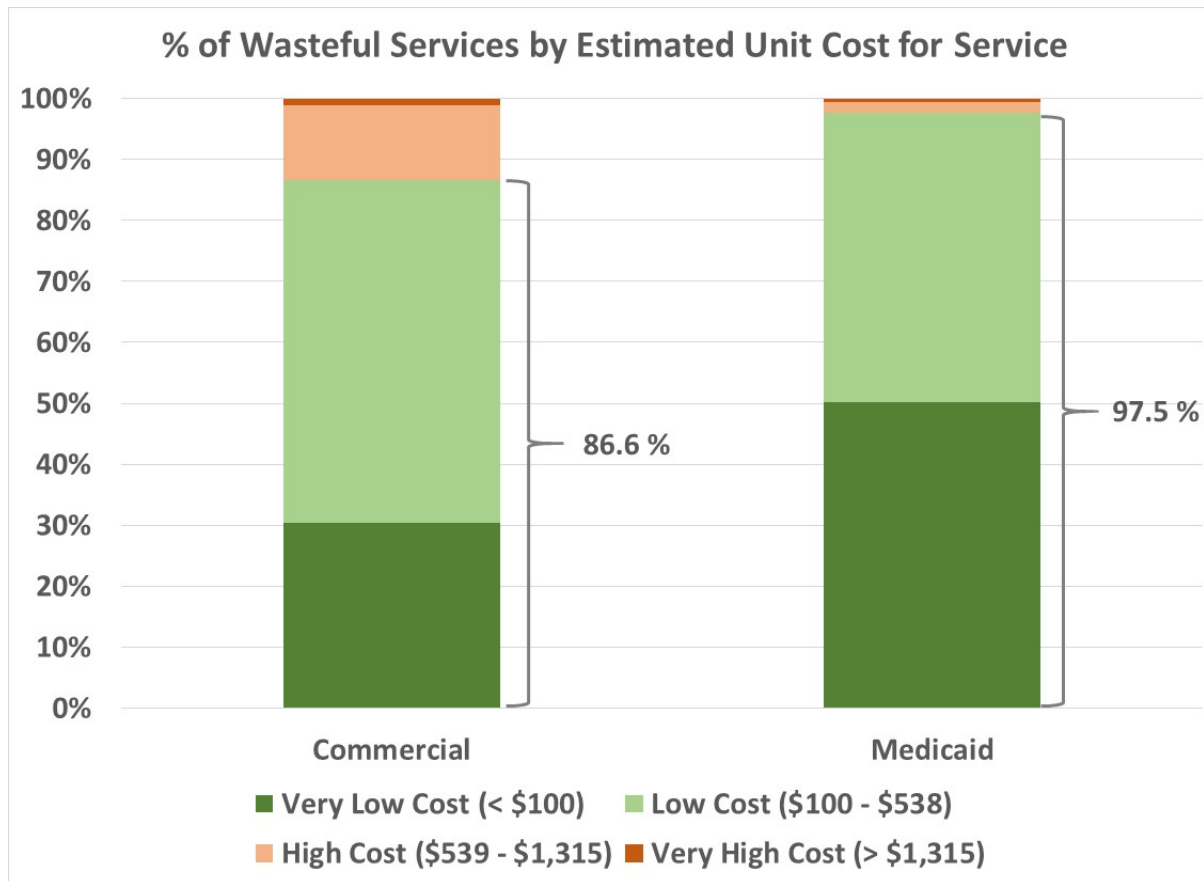
Approximately **\$341 million (40.2%)** was spent on low-value* services

*Low value includes Likely Wasteful + Wasteful

Low Cost, Low Value Services are a Big Driver

92% of all wasteful services found in this analysis (for the combined commercial and Medicaid populations) were very low cost (<\$100) or low cost (\$100 - \$538).

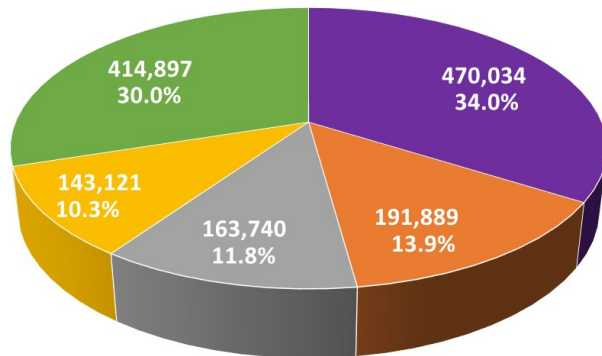
The break-down for each line of business in Washington shows some differences.



Wasteful Services by Measure Category (Commercial and Medicaid Combined)

The 48 measures included in the Health Waste Calculator are grouped into six categories to organize results by types of care. Wasteful services in the Common Treatments (prescribing) and Screening Tests categories account for almost two thirds of all wasteful services measured in this analysis. The waste index varies considerably based on the category.

of Wasteful Services as % of All Wasteful Services, by Category
(Commercial and Medicaid)



- Common Treatments (Prescribing)
- Diagnostic Testing
- Disease Approach
- Preop Evaluation
- Routine Monitoring
- Screening Tests

*Includes Likely Wasteful and Wasteful
Routine Monitoring (not included in chart above) = <1%

Category	# of Measures	Total # of Services Measured	Total # of Wasteful Services*	Waste Index*
Common Treatments	5	486,449	470,034	96.6%
Diagnostic Testing	19	320,095	191,889	59.9%
Disease Approach	11	592,976	163,740	27.6%
Pre-op Evaluation	4	230,152	143,121	62.2%
Routine Monitoring	1	39	39	100%
Screening Tests	8	1,304,815	414,897	31.8%
Total	48	2,934,526	1,383,720	47.2%

Targeting Key Drivers of Waste

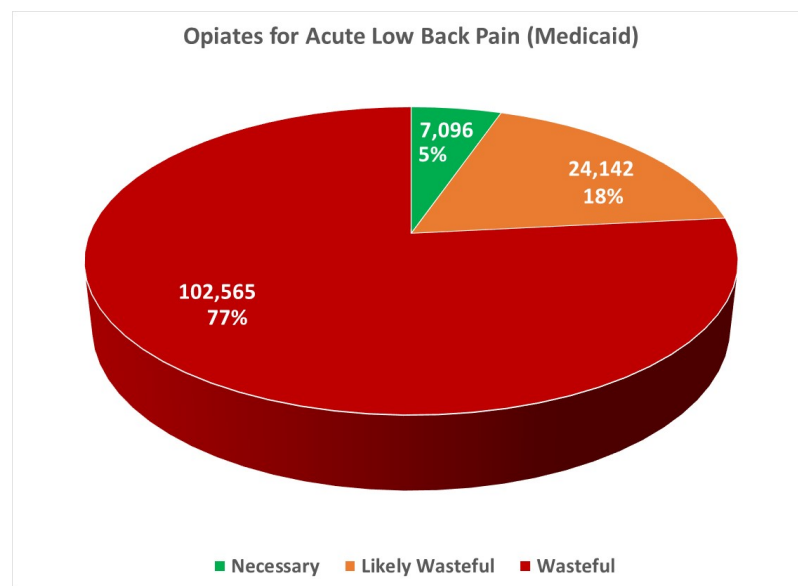
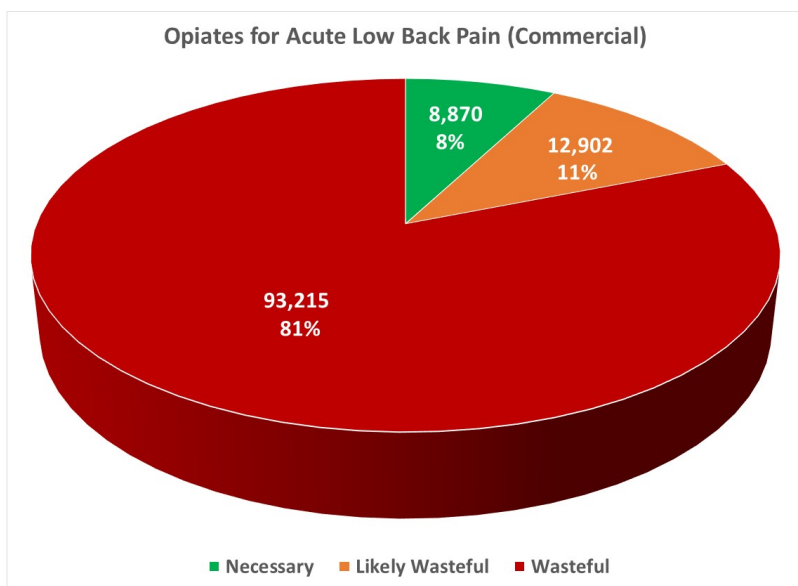
Ten out of 48 measures account for 88% of the waste measured for the combined population (commercial and Medicaid). These ten include the following which are listed in priority order based on the number of wasteful services measured:

1. Opiates for Acute Low Back Pain in the First 4 Weeks
2. Antibiotics for Upper Respiratory and Ear Infections*
3. Annual EKGs or Cardiac Screening for Low-Risk Individuals*
4. Imaging Tests for Eye Disease*
5. Preoperative Baseline Laboratory Studies Prior to Low-Risk Procedures*
6. Two or more concurrent antipsychotic medications
7. Routine PSA Screening for Prostate Cancer*
8. Cervical Cancer Screening for Women*
9. Screening for 25-OH-Vitamin D Deficiency*
10. Prescribing NSAIDs for Hypertension, Heart Failure or Chronic Kidney Disease

Seven of the ten areas of waste listed above were also among the top areas of waste from our first report (February 2018); these are noted above with an asterisk (*).

Opiates Prescribed for Acute Low Back Pain

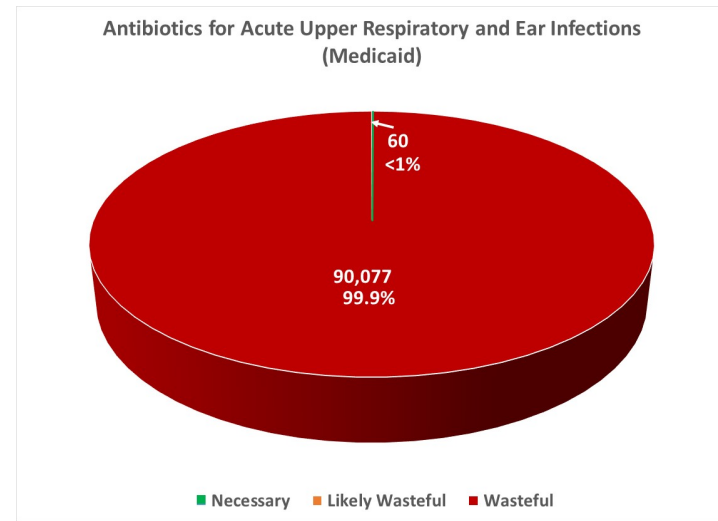
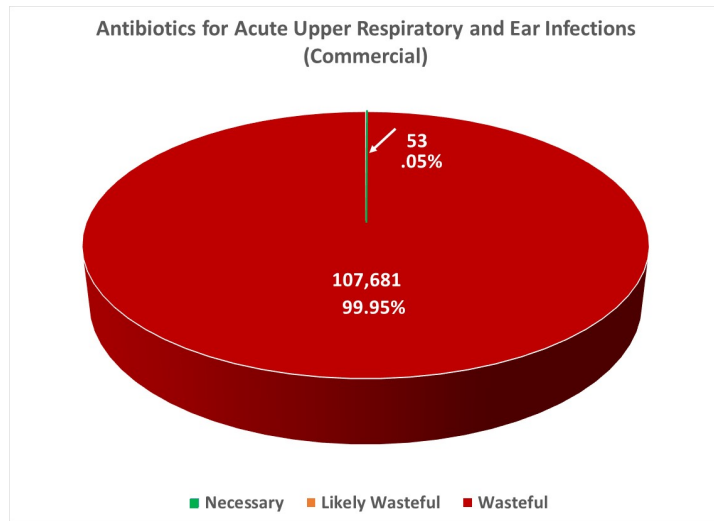
The charts below shows the total number of services measured broken down by Necessary, Likely Wasteful and Wasteful. The overall Waste Index is 92% for the commercially insured population and 95% for the Medicaid insured population. **A total of 232,824 wasteful services were delivered, impacting 105,906 individuals at an estimated cost of \$13.1 million^{8,10}.** This was ranked as the #1 area of waste for the Medicaid insured population, based on the number of wasteful services (versus #3 for the commercially insured population).



Measure	COMMERCIAL-MEMBERS IMPACTED			MEDICAID-MEMBERS IMPACTED		
	Necessary	Likely Wasteful	Wasteful	Necessary	Likely Wasteful	Wasteful
Opiates, Low Back Pain	4,543	7,615	42,011	3,125	13,069	43,211

Antibiotics for Upper Respiratory and Ear Infections

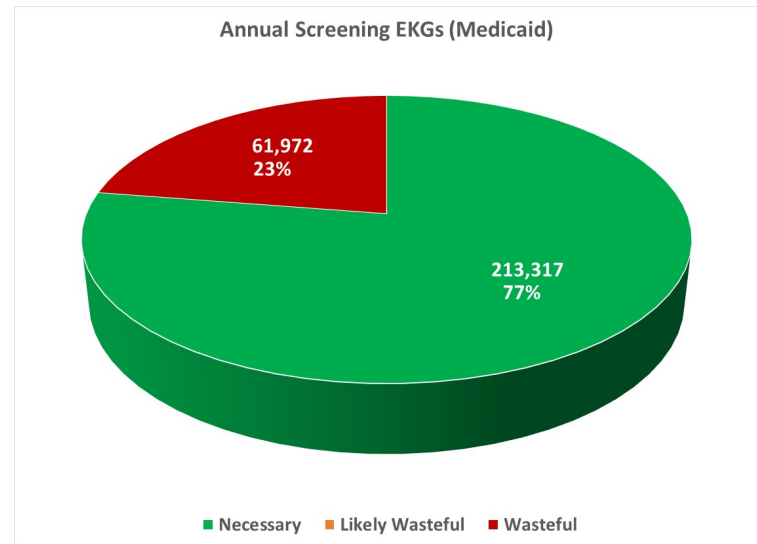
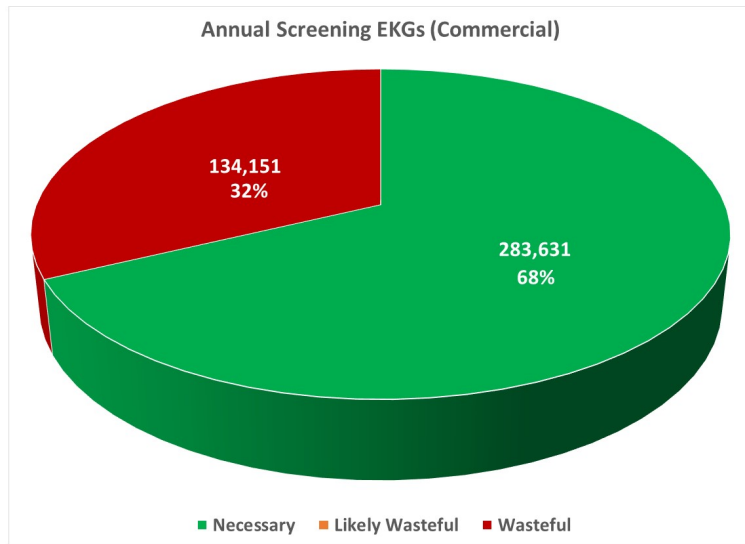
The charts below shows the total number of services measured broken down by Necessary, Likely Wasteful and Wasteful. The overall Waste Index is 99.95% for the commercially insured population and 99.93% for the Medicaid insured population. **A total of 197,758 wasteful services were delivered, impacting 173,718 individuals at an estimated cost of \$2.8 million^{8,10}.** This was ranked as the #2 area of waste for the commercially insured population, based on the number of wasteful services (versus #3 for the Medicaid insured population).



Measure	COMMERCIAL-MEMBERS IMPACTED			MEDICAID-MEMBERS IMPACTED		
	Necessary	Likely Wasteful	Wasteful	Necessary	Likely Wasteful	Wasteful
Antibiotics, URI & Ear Infection	53	0	94,642	60	0	79,076

Annual EKGs or Cardiac Screening for Low-Risk Individuals

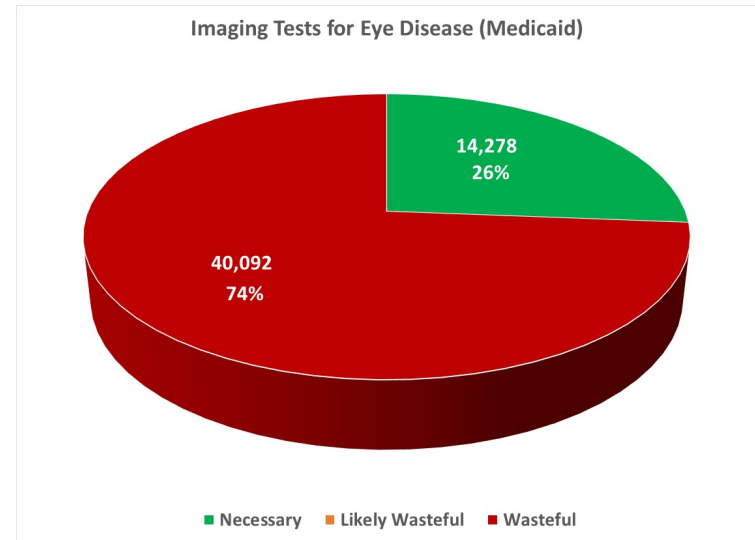
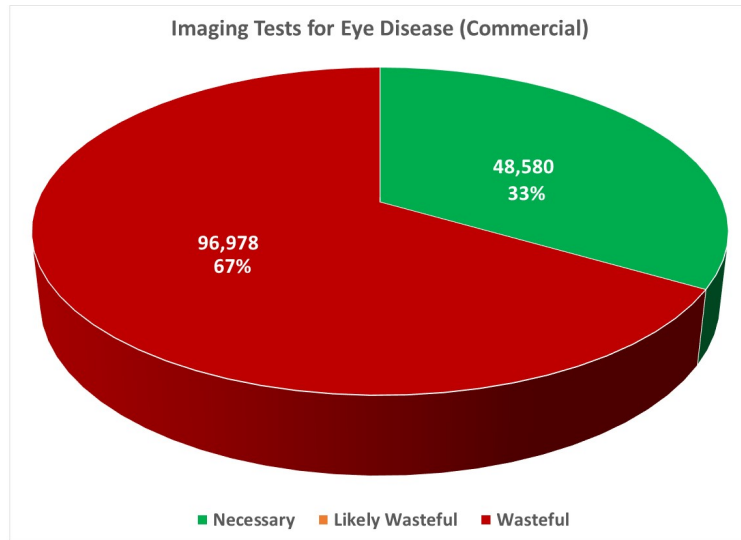
The charts below shows the total number of services measured broken down by Necessary, Likely Wasteful and Wasteful. The overall Waste Index is 32% for the commercially insured population and 23% for the Medicaid insured population. **A total of 196,123 wasteful services were delivered, impacting 179,623 individuals at an estimated cost of \$62.2 million⁸.** This was ranked as the #1 area of waste for the commercially insured population, based on the number of wasteful services (versus #4 for the Medicaid insured population).



Measure	COMMERCIAL-MEMBERS IMPACTED			MEDICAID-MEMBERS IMPACTED		
	Necessary	Likely Wasteful	Wasteful	Necessary	Likely Wasteful	Wasteful
Annual EKGs, Cardiac Screening	209,589	0	123,549	142,865	0	56,074

Imaging Tests for Eye Disease

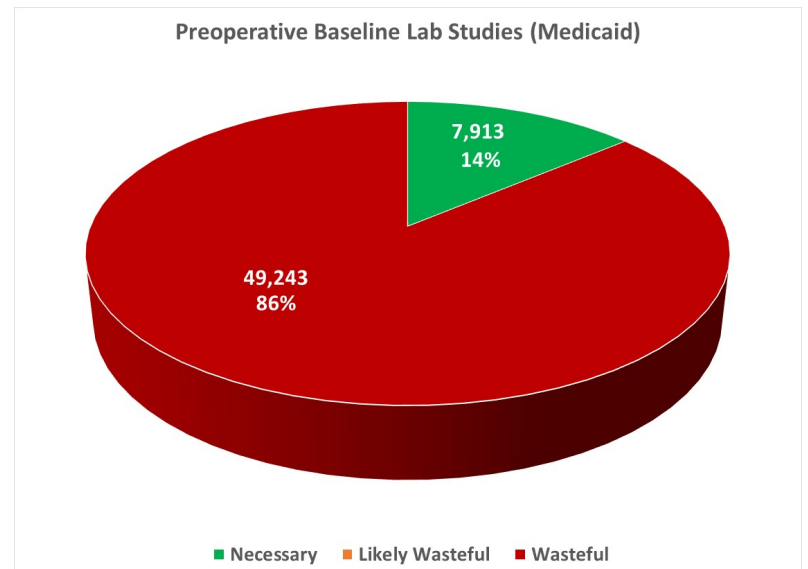
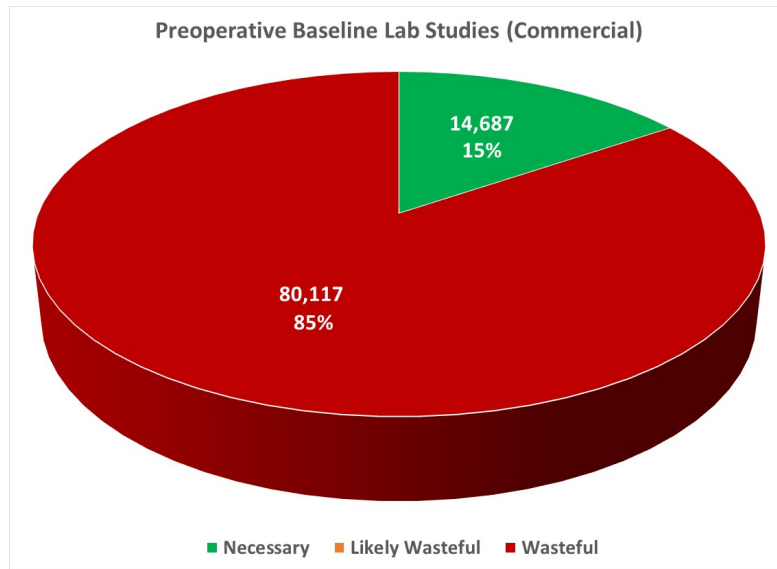
The charts below shows the total number of services measured broken down by Necessary, Likely Wasteful and Wasteful. The overall Waste Index is 67% for the commercially insured population and 74% for the Medicaid insured population. **A total of 137,070 wasteful services were delivered, impacting 95,305 individuals at an estimated cost of \$40 million⁸.** This was ranked as the #4 area of waste for the commercially insured population, based on the number of wasteful services (versus #6 for the Medicaid insured population).



Measure	COMMERCIAL-MEMBERS IMPACTED			MEDICAID-MEMBERS IMPACTED		
	Necessary	Likely Wasteful	Wasteful	Necessary	Likely Wasteful	Wasteful
Imaging for Eye Disease	35,687	0	65,480	10,688	0	29,825

Preoperative Baseline Lab Studies Prior to Low-Risk Procedures

The charts below shows the total number of services measured broken down by Necessary, Likely Wasteful and Wasteful. The overall Waste Index is 85% for the commercially insured population and 86% for the Medicaid insured population. **A total of 129,360 wasteful services were delivered, impacting 109,913 individuals at an estimated cost of \$74.3 million⁸.** This was ranked as the #5 area of waste for both the commercially insured and Medicaid insured populations, based on the number of wasteful services.



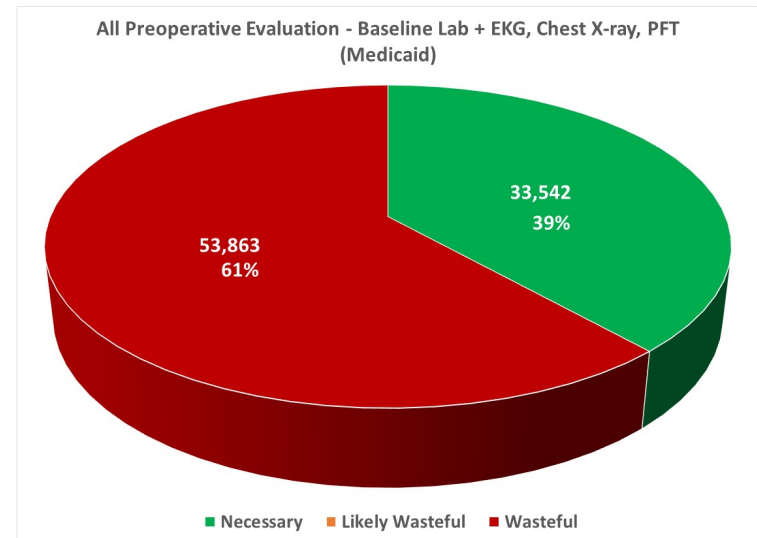
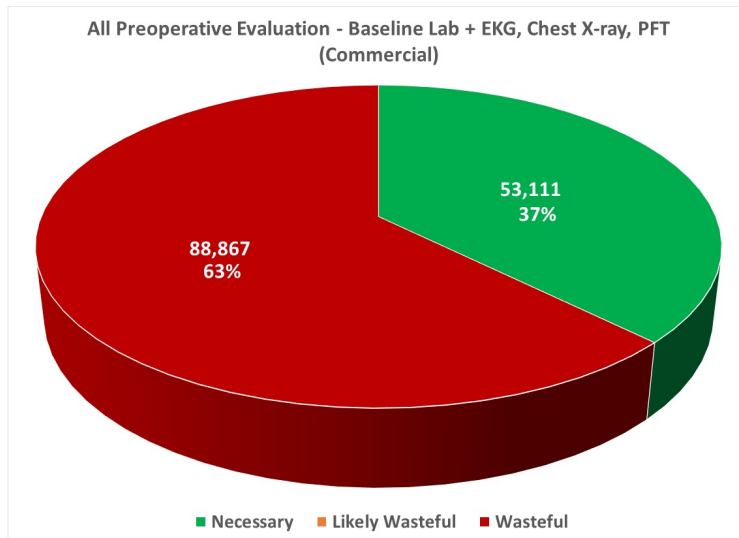
Measure	COMMERCIAL-MEMBERS IMPACTED			MEDICAID-MEMBERS IMPACTED		
	Necessary	Likely Wasteful	Wasteful	Necessary	Likely Wasteful	Wasteful
Pre-op Baseline Lab Studies	12,106	0	69,492	6,661	0	40,421

ALL Pre-op Testing Prior to Low-Risk Procedures

There is a second measure regarding preoperative evaluation in the Health Waste Calculator. The second measure examines pre-op EKGs, chest X-ray and pulmonary function testing in members without significant systemic disease (ASA I or II) performed 30 days or fewer prior to a low-risk procedure. The Waste Index is 19% for the commercially insured population and 15% for the Medicaid insured population. This was ranked as the #13 area of waste for the commercially insured population, based on the number of wasteful services and #15 for the Medicaid insured population.

The charts below show the total number of services measured broken down by Necessary, Likely Wasteful and Wasteful for both preoperative testing measures combined.

Combined, a total of 142,730 wasteful services were delivered, impacting 122,257 individuals at an estimated cost of \$85.2 million⁸.



Drop the Pre-op!

Unnecessary pre-op testing was also identified as a top area of waste in our first report, “First, Do No Harm.” As a result, the Washington State Choosing Wisely Task Force selected this topic for intervention. A “Drop the Pre-op!” communication campaign was developed by clinician leaders and is cosponsored by the Washington Health Alliance, the WA State Medical Association and the WA State Hospital Association. The campaign is targeted at providers in family and internal medicine, surgical subspecialties and anesthesiology, and dental practitioners. The following information flyer is now being used throughout Washington state to educate providers. You can find this flyer and other related materials here: www.wsma.org/choosing-wisely

DROP THE PRE-OP!

Physicians Agree: All patients need pre-op EVALUATION, but a low-risk patient having a low-risk procedure does not need pre-op TESTING.

Providing high-quality care to patients includes eliminating unnecessary tests, treatments and procedures.

A recent study in Washington state¹ reveals that at least 100,000 patients received unnecessary pre-op testing during a one-year period, at an estimated cost of over \$92 million—a very conservative estimate.

Routine preoperative lab studies, pulmonary function tests, X-rays and EKGs on healthy patients before low-risk procedures are **not** recommended because they are unlikely to provide useful, actionable information.

Choosing Wisely® Recommendations

- Don't obtain baseline laboratory studies in patients without significant systemic disease (ASA I or II) undergoing low-risk surgery – specifically complete blood count, basic or comprehensive metabolic panel, coagulation studies when blood loss (or fluid shifts) is/are expected to be minimal.”
—American Society of Anesthesiologists
- Don't order annual electrocardiograms (EKGs) or any other cardiac screening for low-risk patients without symptoms.”
—American Academy of Family Physicians

There are a variety of reasons why unnecessary pre-op tests are ordered, such as:

- Broadly ordering the same pre-op tests for all patients/procedures—based on habit without thoughtful reflection—regardless of a patient's health or a procedure's risk.
- A desire to be “thorough” and/or concern that an incomplete pre-op form may delay the procedure for the patient.
- Discomfort with uncertainty and concern about malpractice.
- A mistaken belief that all insurers require pre-op testing.

Benefits of Reducing Unnecessary Pre-op Testing

For patients:

- Reduces unnecessary time spent at a lab or clinic.
- Reduces patient's financial burden.
- Reduces waiting for test results and anxiety from false-positive results.
- Reduces unnecessary delay before procedure.

For physicians:

- Provides evidence-based care to patients and avoids unnecessary care.
- Reduces time spent reviewing, documenting and explaining test results that add no value and won't impact a decision regarding procedure.
- Reduces risk exposure from not carefully documenting follow-up on all pre-op tests.

¹ First, Do No Harm. <https://www.wacommunitycheckup.org/media/47154/2018-first-do-no-harm.pdf>

WASHINGTON STATE TASK FORCE

For more information and resources, visit:
wsma.org/Choosing-Wisely

Pre-op Testing Prior to Low-Risk Procedures for Low-Risk Patients

Physical Status of Patient Undergoing Low-Risk* Procedure (determined based on history and evaluation)

	LOWER RISK PATIENTS			HIGHER RISK PATIENTS
	ASA I A normal healthy patient	ASA II A patient with mild stable systemic disease	ASA III-IV A patient with severe systemic disease or a patient who is not expected to survive without the operation	
Pre-Test	DO NOT ROUTINELY ORDER		DO NOT ROUTINELY ORDER	
Chest X-ray			DO NOT ROUTINELY ORDER	
Coagulation studies			DO NOT ROUTINELY ORDER	
Complete metabolic panel			DO NOT ROUTINELY ORDER	
EKG or echocardiography			DO NOT ROUTINELY ORDER	
Full blood count test			DO NOT ROUTINELY ORDER	
Pulmonary function test	DO NOT ROUTINELY ORDER		CONSIDER ORDERING PER GUIDELINES	
Urinalysis	DO NOT ROUTINELY ORDER		CONSIDER ORDERING PER GUIDELINES	

* Examples of Low-Risk Procedures: arthroscopy and orthopedic procedures that only require local anesthesia; cataract, corneal replacement and other ophthalmologic procedures; gynecology and other minor urologic procedures; dental restorations and extractions; endoscopy; hernia repair; minor laparoscopic procedures; superficial plastic surgery.

Recommended Actions

Physicians, Hospitals and Other Health Care Organizations

- Educate physicians and team members (e.g. RN, MA) involved in pre-op testing decision-making.
- Delete prompts for pre-op testing in electronic health record (EHR) order sets designed for low-risk patients undergoing low-risk procedures.
- Use evaluation checklists to optimize surgical outcomes (e.g. nutrition, glycemic control, medication management and smoking cessation).
- In hand-off communication to the surgeon or anesthesiologist after your pre-op evaluation, add this or similar language: “This patient has been evaluated and does not require any pre-operative lab studies, chest X-ray, EKG or pulmonary function test prior to the procedure.”
- Provide prompt and clear peer-to-peer feedback when unnecessary pre-op testing occurs; make this a topic of departmental and inter-departmental quality improvement discussions, including gathering patient data to inform discussions.
- Measure current rate of pre-op testing on low-risk patients prior to a low-risk procedure and track improvement.

Payers

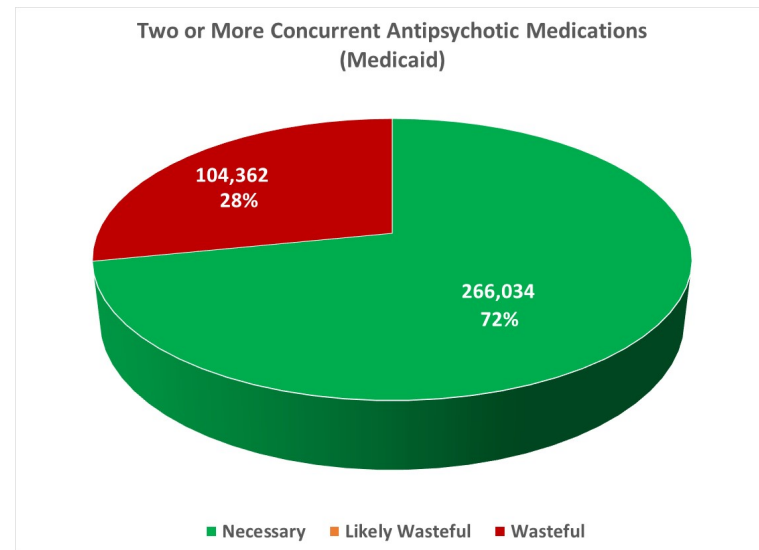
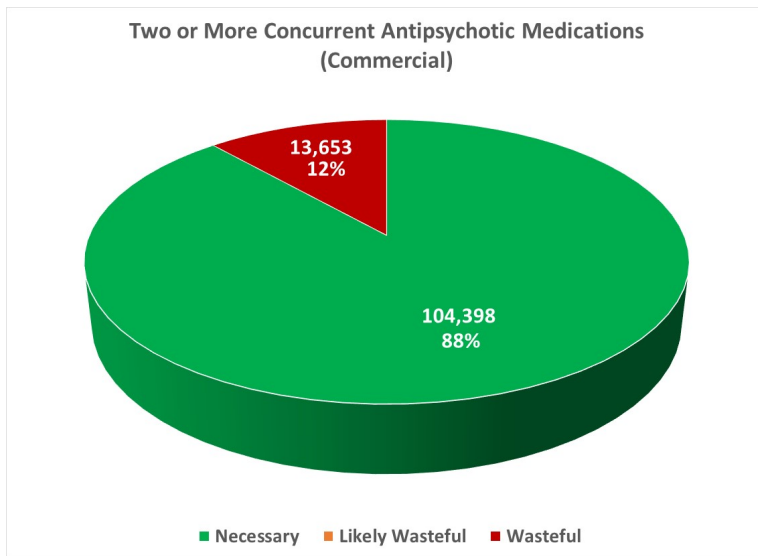
- Review medical policies and prior-authorization requirements to ensure they clearly do **not** require routine testing prior to low-risk procedures on low-risk patients.
- Utilize health plan data and analytics to measure and monitor use of pre-op testing on low-risk patients prior to low-risk procedures.
- Provide feedback on pre-op testing on low-risk patients prior to low-risk procedures to physicians and health care organizations.

WASHINGTON STATE TASK FORCE

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Two or More Concurrent Antipsychotic Medications

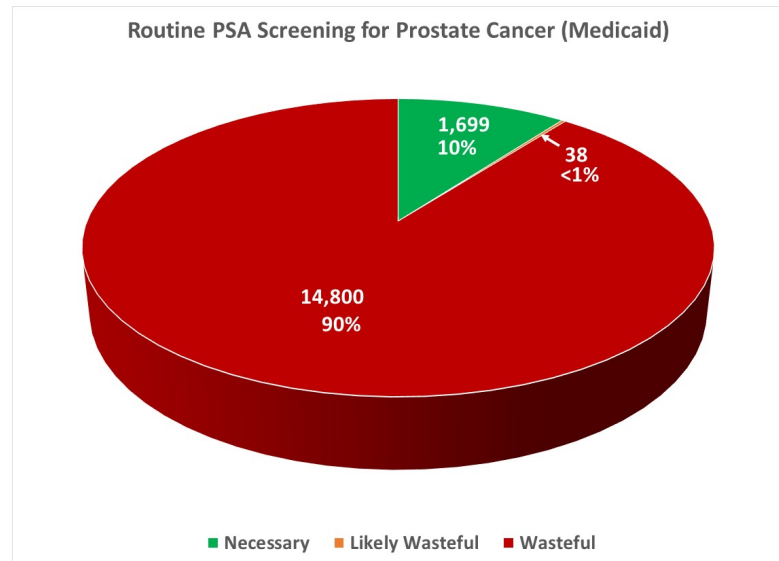
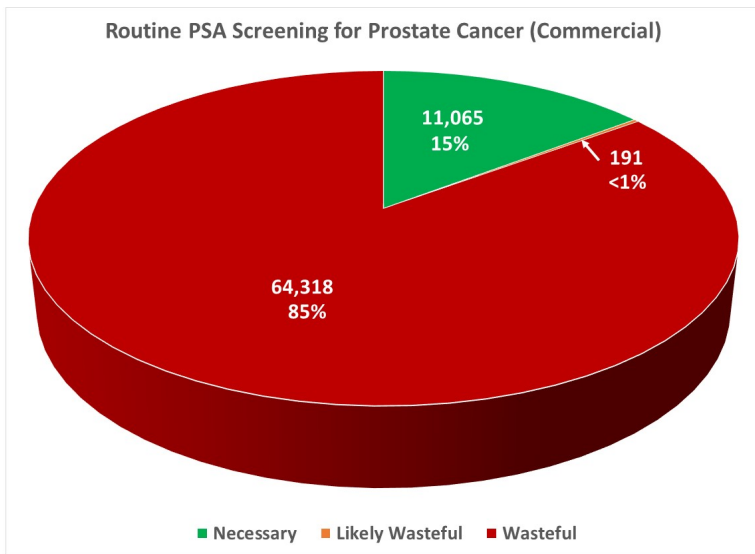
The charts below shows the total number of services measured broken down by Necessary, Likely Wasteful and Wasteful. The overall Waste Index is 12% for the commercially insured population and 28% for the Medicaid insured population. **A total of 118,015 wasteful services were delivered, impacting 16,263 individuals at an estimated cost of \$27.3 million^{8,10}.** This was ranked as the #2 area of waste for the Medicaid insured population, based on the number of wasteful services (versus #11 for the commercially insured population).



Measure	COMMERCIAL-MEMBERS IMPACTED			MEDICAID-MEMBERS IMPACTED		
	Necessary	Likely Wasteful	Wasteful	Necessary	Likely Wasteful	Wasteful
Two or more concurrent antipsychotic medications	24,524	0	2,848	49,974	0	13,415

Routine PSA-based Screening for Prostate Cancer

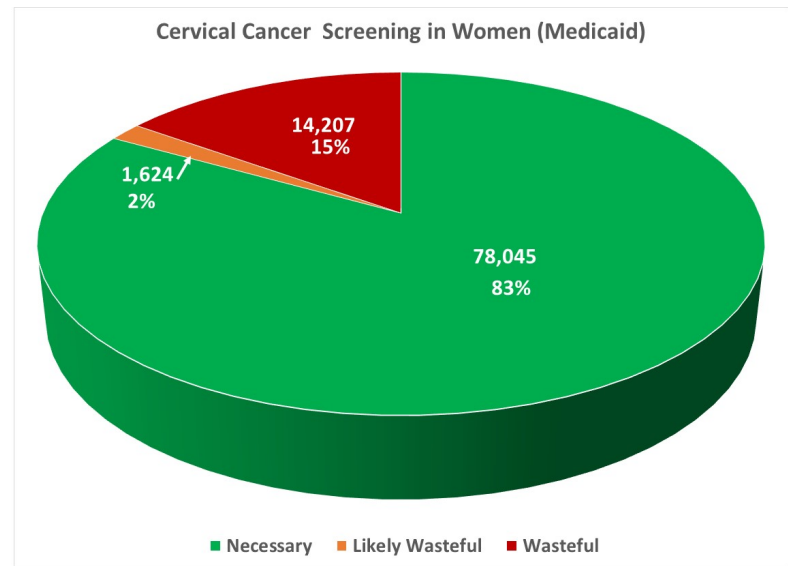
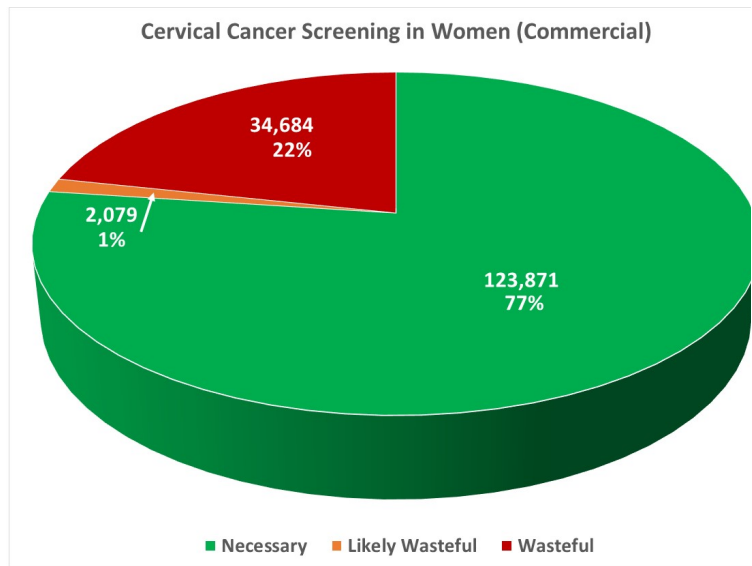
The charts below shows the total number of services measured broken down by Necessary, Likely Wasteful and Wasteful. The overall Waste Index is 85% for the commercially insured population and 90% for the Medicaid insured population. **A total of 79,347 wasteful services were delivered, impacting 74,391 men at an estimated cost of \$8.2 million⁸.** This was ranked as the #6 area of waste for the commercially insured population, based on the number of wasteful services (versus #11 for the Medicaid insured population).



Measure	COMMERCIAL-MEMBERS IMPACTED			MEDICAID-MEMBERS IMPACTED		
	Necessary	Likely Wasteful	Wasteful	Necessary	Likely Wasteful	Wasteful
PSA Screening, Prostate Cancer	7,207	185	60,272	972	38	13,896

Cervical Cancer Screening for Women

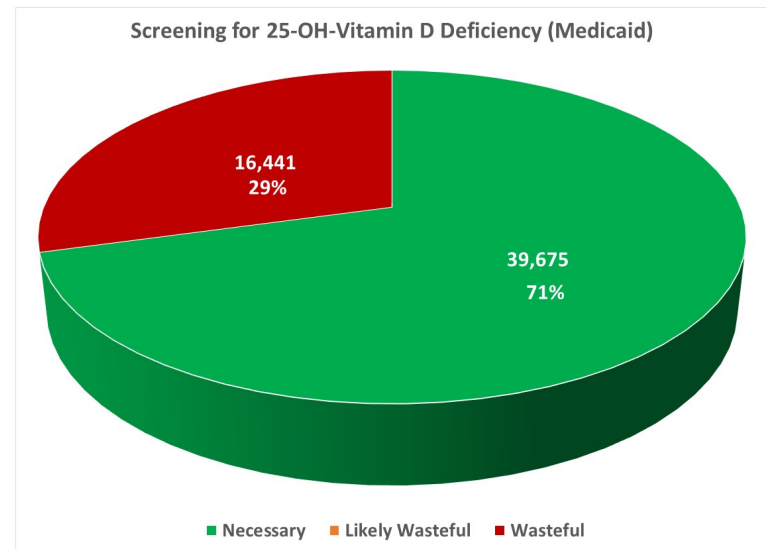
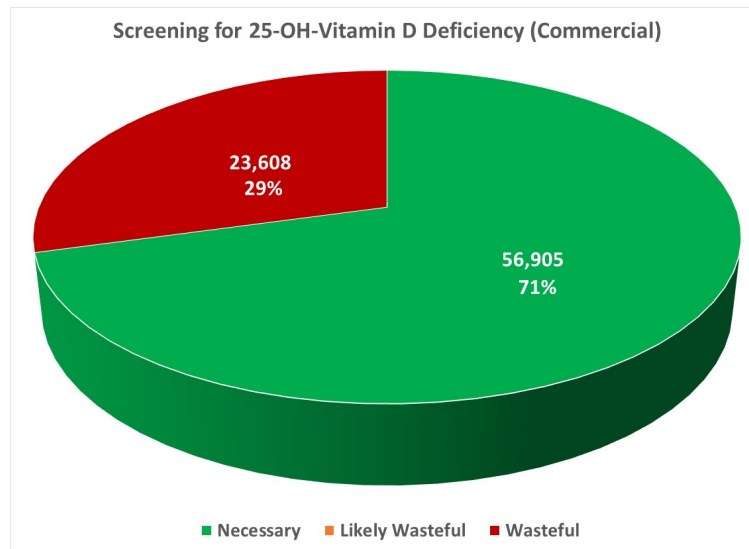
The charts below shows the total number of services measured broken down by Necessary, Likely Wasteful and Wasteful. The overall Waste Index is 23% for the commercially insured population and 17% for the Medicaid insured population. **A total of 52,594 wasteful services were delivered, impacting 51,979 women at an estimated cost of \$5.3 million⁸.** This was ranked as the #7 area of waste for the commercially insured population, based on the number of wasteful services (versus #10 for the Medicaid insured population).



Measure	COMMERCIAL-MEMBERS IMPACTED			MEDICAID-MEMBERS IMPACTED		
	Necessary	Likely Wasteful	Wasteful	Necessary	Likely Wasteful	Wasteful
Cervical Cancer Screening	121,735	2,072	34,344	76,397	1,613	13,950

Population-based Screening for Vitamin D Deficiency

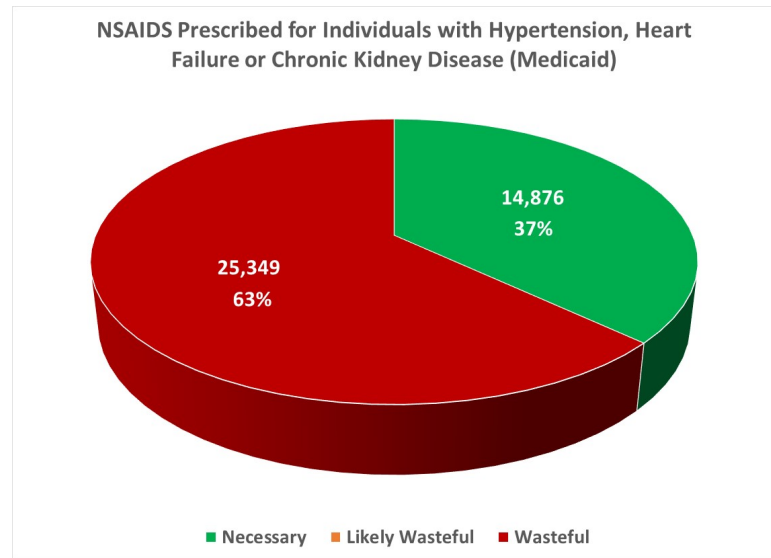
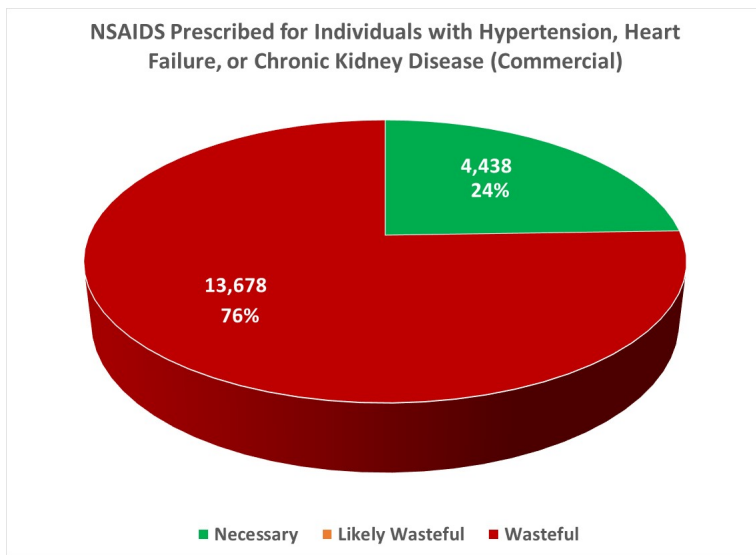
The charts below shows the total number of services measured broken down by Necessary, Likely Wasteful and Wasteful. The overall Waste Index is 29% for both the commercially insured and Medicaid insured populations. **A total of 40,049 wasteful services were delivered, impacting 38,998 individuals at an estimated cost of \$7.7 million⁸.** This was ranked as the #9 area of waste for both the commercially insured and Medicaid insured populations, based on the number of wasteful services.



Measure	COMMERCIAL-MEMBERS IMPACTED			MEDICAID-MEMBERS IMPACTED		
	Necessary	Likely Wasteful	Wasteful	Necessary	Likely Wasteful	Wasteful
Population-Based Screening for Vitamin D Deficiency	47,715	0	22,941	33,079	0	16,057

Prescribing NSAIDs for Hypertension, Heart Failure or Chronic Kidney Disease

The charts below shows the total number of services measured broken down by Necessary, Likely Wasteful and Wasteful. The overall Waste Index is 76% for the commercially insured population and 63% for the Medicaid insured population. **A total of 39,027 wasteful services were delivered, impacting 31,610 individuals at an estimated cost of \$500,000^{8,10}.** This was ranked as the #8 area of waste for the Medicaid insured population, based on the number of wasteful services (versus #10 for the commercially insured population).



Measure	COMMERCIAL-MEMBERS IMPACTED			MEDICAID-MEMBERS IMPACTED		
	Necessary	Likely Wasteful	Wasteful	Necessary	Likely Wasteful	Wasteful
NSAIDs for Hypertension, Heart Failure or CKD	3,883	0	12,057	10,173	0	19,553

Calculating Health Care Waste Over Time

Because some measures in the Health Waste Calculator were modified or added from Version 5 to Version 7, and because we added Medicaid data for this analysis, we re-ran results (using Version 7) for the “top 10” areas of waste noted in this report for the prior measurement year (July 2015 – June 2016). We did this to provide comparable data for the prior period and the current period (July 2016 – June 2017). Results are shown below. The level of waste remained remarkably similar for the two time periods, suggesting a strong practice pattern in these areas of care.

	Current Period (July 2016 – June 2017)			Prior Period (July 2015 – June 2016)		
	# of Services Examined	# of Wasteful Services	Waste Index	# of Services Examined	# of Wasteful Services	Waste Index
Opiates for acute low back pain	248,790	232,824	93.6%	267,494	251,528	94.0%
Antibiotics for URI and ear infection	197,871	197,758	99.9%	202,094	202,020	99.9%
Annual EKG/cardiac screening	693,071	196,123	28.3%	655,440	195,160	29.8%
Imaging tests for eye disease	199,928	137,070	68.6%	190,751	136,248	71.4%
Pre-op lab studies, low-risk procedures	151,960	129,360	85.1%	152,376	129,411	84.9%
Two or more concurrent antipsychotic meds	488,477	118,015	24.2%	447,199	108,521	24.3%
PSA-screening for prostate cancer	92,111	79,347	86.1%	89,299	76,702	85.9%
Cervical cancer screening for women	254,510	52,594	20.7%	252,161	58,231	23.1%
Screening for Vitamin D deficiency	136,629	40,049	29.3%	145,214	43,033	29.6%
NSAIDS for hypertension, heart failure, CKD	58,341	39,027	66.9%	54,766	37,641	68.7%



APPENDICES

Appendix A: End Notes

1. “Report on the Economic Well-Being of U.S. Households in 2017,” published May 20, 2018 by the Board of Governors of the Federal Reserve System
2. “64% of Patients Avoid Care Due to High Patient Healthcare Costs.” Patient Engagement HIT
3. Urban Institute, Debt in America: <https://apps.urban.org/features/debt-interactive-map/>
4. Peterson-Kaiser Health System Tracker: <https://www.healthsystemtracker.org/chart-collection/much-health-spending-expected-grow/#item-start>
5. JAMA Forum: End-of-Life Care, Not End-of-Life Spending, July 13, 2018
6. CNBC Interview with Mr. Buffett, October 16, 2013
7. See Appendix D for a list of organizations participating in the Choosing Wisely Task Force

8. The Health Waste Calculator includes two methodologies for counting wasteful costs – Case Rate and Line Itemization. In this report, we have only included estimates associated with the **Case Rate method** to simplify reporting. That said, we have information based on estimated costs using the Line Itemization method and this information may be made available upon request.

The **Case Rate** cost counting methodology counts costs from all claim IDs where at least one line has a Waste Cost Count (WCC) Flag value of ‘Yes’ in the Health Waste Calculator. [By contrast, the Line Itemization methodology counts costs from only the claim lines where the Waste Cost Count Flag value is Yes and likely underestimates wasteful spending.]

The Calculator offers two ways to count costs for a number of reasons related to the nuance of claims reimbursement:

- As services occur at a mix of settings (inpatient, outpatient, systems and independent clinics, etc.) and under varying contract considerations, assigning claim cost at the line level is challenging. For example if an outpatient service is paid as an APC and only part of it is wasteful, this is difficult to decipher with raw claim data.
- Some claims have inconsistent cost assignment resulting in \$0 claim lines. In this case, counting costs from only the claim lines with a WCC Flag value of Yes will grossly underestimate cost and opportunity.
- In some cases, counting only the cost of the service in question will miss harmful associated iatrogenic effects of wasteful care decisions.

It is acknowledged that for some Health Waste Calculator measures, Case Rate methodology may be more appropriate and for others, the Line Itemization methodology.

Please note that regardless of the cost counting methodology used, the initial evaluation and management visit is *never* counted as wasteful and the utilization counts are unaffected.

Due to the reasons above, actual wasteful spend is difficult to pinpoint and will likely range from a Line Itemization amount to a Case Rate amount.

Appendix A: End Notes

9. Mafi JN, Russell K, Bortz B, Dachary M, Hazel W, Fendrick M. Low-Cost, High-Volume Health Services Contribute the Most to Unnecessary Health Spending. *Health Affairs*, 2017;36:10, p 1701.

10. Because state and federal rebates for prescription drugs are available to the state Medicaid program, the estimated cost of waste included in this report is higher than the actual cost to the state for this measure.

11. 11% of Commercial members and 26% of Medicaid members who had a wasteful service (Eye Imaging measure) had a diagnosis of diabetes. Of these members with a diagnosis of diabetes:

- 0.2% Commercial members and 0.3% Medicaid members with a diagnosis of diabetes were considered wasteful because they had an ophthalmologist visit but had a diagnosis that was not indicated for the eye imaging.
- 68% Commercial members and 65% Medicaid members with a diagnosis of diabetes were considered wasteful because they did not have an ophthalmologist visit but had a general visit code instead of the ophthalmologist visit.
- 32% Commercial members and 35% Medicaid members with a diagnosis of diabetes were considered wasteful because they had an eye imaging, a diagnosis indicated for the imaging but no visit ophthalmologist or general visit codes.

Rationale: Eye imaging for members with significant eye disease such as neoplasms of eye, choroidal detachment, optic atrophy, glaucoma, diabetes, macular degeneration etc. are considered not wasteful if they had the imaging and a diagnosis where the imaging was indicated along with an ophthalmologist visit code within 10 days on or prior to the imaging.

Members who did not have specific indications and did not have an ophthalmologist visit are considered wasteful. On our analysis, the most common reason for members being considered wasteful was because they did not have an ophthalmologist visit. An ophthalmologist visit is considered important because:

- A diagnosis on the claim for the face-to-face visit is considered more accurate than on the claim for the imaging or other diagnostic procedure because diagnosis coding on imaging/diagnostic testing is grossly inaccurate.
- Secondly, these are specialized additional testing recommended only based on the patient's history and findings on a comprehensive eye exam and these tests would most likely be recommended by an ophthalmologist.

Appendix B

48 Measures: Ranking Based on Total # of Wasteful Services, Overall and By Line of Business

Measure (Short-hand Name)	Ranking Based on # of Wasteful Services		
	Overall/Combined	Commercial	Medicaid
Opiates prescribed for acute low back pain	1	3	1
Antibiotics for URI, ear infections	2	2	3
Annual EKGs and cardiac screening	3	1	4
Imaging tests for eye disease	4	4	6
Preoperative baseline lab studies	5	5	5
Two or more concurrent antipsychotic meds	6	11	2
PSA screening	7	6	11
Cervical cancer screening	8	7	10
25-OH-Vitamin D screening	9	9	9
NSAIDs for hypertension, heart failure, CKD	10	10	8
Cough and cold medicines, children <4 yrs.	11	21	7
Routine general health checks	12	8	13
Imaging for low back pain	13	12	12
Preoperative EKG, chest X-ray, PFT	14	13	15
Imaging for uncomplicated headache	15	15	16
Immunoglobulin G/E testing (allergy)	16	16	17
Colorectal cancer screening	17	14	18
Pediatric head CT scans	18	19	14

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48 Measures: Ranking Based on Total # of Wasteful Services, Overall and By Line of Business

Measure (Short-hand Name)	Ranking Based on # of Wasteful Services		
	Overall/Combined	Commercial	Medicaid
Cardiac stress testing	19	17	24
Antidepressants monotherapy in bipolar disorder	20	22	20
CT scans for abdominal pain in children	21	25	19
Imaging for uncomplicated acute rhinosinusitis	22	20	23
DEXA screening of osteoporosis	23	18	28
Repeat CT for known kidney stones	24	29	21
Antibiotics for adenoviral conjunctivitis	25	23	22
EEG for headaches	26	27	25
Coronary angiography	27	24	29
CT scans for dizziness, ER evaluation	28	28	27
Peripherally inserted central catheters in stage III-IV CKD patients	29	30	26
Imaging of carotid arteries for simple syncope	30	26	31
Brain imaging (CT, MRI) for simple syncope	31	31	30
Preoperative cardiac echocardiography or stress testing	32	32	35
Diagnostic testing for chronic urticaria	33	33	32

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48 Measures: Ranking Based on Total # of Wasteful Services, Overall and By Line of Business

Measure (Short-hand Name)	Ranking Based on # of Wasteful Services		
	Overall/Combined	Commercial	Medicaid
CT head/brain for sudden onset hearing loss	34	34	33
Renal artery revascularization	35	36	36
Arthroscopic lavage and debridement for knee osteoarthritis	36	35	38
Oral antibiotics for uncomplicated, acute tympanostomy tube otorrhea	37	42	34
Multiple palliative radiation treatments in bone metastases	38	38	37
Postcoital test for infertility	39	37	Fewer than 20
Vertebroplasty	40	39	Fewer than 20
MRI for rheumatoid arthritis	41	40	Fewer than 20
Coronary artery calcium scoring for known CAD	42	41	Fewer than 20
Bleeding time testing	43	Fewer than 20	Fewer than 20
Pulmonary function testing prior to cardiac surgery	44	Fewer than 20	Fewer than 20
Voiding cystourethrogram for UTI	Fewer than 20	Fewer than 20	Fewer than 20
Sperm function testing	Fewer than 20	Fewer than 20	Fewer than 20
Inductions of labor or C-section deliveries	Fewer than 20	Fewer than 20	Fewer than 20
Vision therapy for patients w/ dyslexia	Fewer than 20	Fewer than 20	Fewer than 20

Appendix C: Health Waste Calculator Measures

Choosing Wisely Recommendation	Short-hand Name
COMMON TREATMENTS	
1. Don't order antibiotics for adenoviral conjunctivitis (pink eye)	Antibiotics for adenoviral conjunctivitis
2. Don't prescribe oral antibiotics for uncomplicated acute tympanostomy tube otorrhea.	Oral antibiotics for uncomplicated acute TTO
3. Don't prescribe or recommend cough and cold medicines for respiratory illnesses in children under four years of age.	Cough and cold medicines in children <4 years
4. Don't prescribe oral antibiotics for members with upper URI or ear infection (acute sinusitis, URI, viral respiratory illness or acute otitis externa).	Antibiotics for Acute Upper Respiratory and Ear Infections
5. Don't prescribe opiates in acute disabling low back pain before evaluation and a trial of other alternatives is considered.	Opiates in acute low back pain
DIAGNOSTIC TESTING	
6. Don't do imaging for low back pain within the first six weeks unless red flags are present.	Lower back pain imaging
7. Don't do imaging for uncomplicated headache.	Headache imaging
8. Don't obtain brain imaging studies (CT or MRI) in the evaluation of simple syncope and a normal neurological examination.	Syncope image
9. Don't perform unproven diagnostic tests, such as immunoglobulin G (IgG) testing or an indiscriminate battery of immunoglobulin E (IgE) tests, in the evaluation of allergy.	Immunoglobulin G / immunoglobulin E testing
10. Don't routinely do diagnostic testing in patients with chronic urticaria.	Diagnostics chronic urticaria
11. Don't perform electroencephalography (EEG) for headaches.	Electroencephalography (EEG) for headaches.
12. Don't perform imaging of the carotid arteries for simple syncope without other neurologic symptoms.	Imaging of the carotid arteries for simple syncope

Appendix C: Health Waste Calculator Measures

Choosing Wisely Recommendation	Short-hand Name
DIAGNOSTIC TESTING (continued)	
13. Don't order computed tomography (CT) scan of the head/brain for sudden hearing loss.	CT head/brain for sudden hearing loss.
14. Don't routinely obtain radiographic imaging for patients who meet diagnostic criteria for uncomplicated acute rhinosinusitis.	Imaging for uncomplicated acute rhinosinusitis
15. Don't use coronary artery calcium scoring for patients with known coronary artery disease (including stents and bypass grafts).	Coronary artery calcium scoring for known CAD
16. Don't perform routine head CT scans for emergency room visits for severe dizziness.	ED CT Scans For Dizziness
17. Don't perform advanced sperm function testing, such as sperm penetration or hemizona assays, in the initial evaluation of the infertile couple.	Sperm Function Testing
18. Don't perform a postcoital test (PCT) for the evaluation of infertility.	Postcoital Test for Infertility
19. Don't order CT scans of the abdomen and pelvis in young otherwise healthy emergency department patients (age <50) with known histories of kidney stones, or ureterolithiasis, presenting with symptoms consistent with uncomplicated renal colic.	Repeat CT for known kidney stones
20. Don't routinely order imaging tests for patients without symptoms or signs of significant eye disease.	Imaging tests for eye disease
21. Don't perform voiding cystourethrogram (VCUG) routinely in first febrile urinary tract infection (UTI) in children aged 2-24 months	Voiding Cystourethrogram for Urinary Tract Infection
22. Don't order computed tomography (CT) head imaging in children 1 month to 17 years of age unless indicated.	Pediatric Head Computed Tomography Scans
23. Don't perform stress cardiac imaging or advanced non-invasive imaging in the initial evaluation of patients without cardiac symptoms unless high-risk markers are present.	Cardiac Stress Testing
24. Don't use bleeding time test to guide patient care.	Bleeding Time Testing

Appendix C: Health Waste Calculator Measures

Choosing Wisely Recommendation	Short-hand Name
DISEASE APPROACH	
25. Don't prescribe nonsteroidal anti-inflammatory drugs (NSAIDs) in individuals with hypertension or heart failure or CKD of all causes, including diabetes.	NSAIDs for hypertension, heart failure or CKD
26. Don't schedule elective, non-medically indicated inductions of labor or Cesarean deliveries before 39 weeks, 0 days gestational age.	Inductions of labor or Cesarean deliveries
27. Don't perform an arthroscopic knee surgery for knee osteoarthritis.	Arthroscopic Lavage and Debridement for Knee OA
28. Don't prescribe antidepressants as monotherapy in patients with bipolar I disorder.	Antidepressants Monotherapy in Bipolar Disorder
29. Don't perform Computed tomography (CT) scans in the routine evaluation of abdominal pain.	CT Scans for Abdominal Pain in Children
30. Don't perform revascularization without prior medical management for renal artery stenosis.	Renal Artery Revascularization
31. Don't perform vertebroplasty for osteoporotic vertebral fractures.	Vertebroplasty
32. Don't place peripherally inserted central catheters (PICC) in stage III-V CKD patients without consulting nephrology.	PICC stage III-V CKD
33. Don't recommend more than a single fraction of palliative radiation for an uncomplicated painful bone metastasis.	Multiple Palliative Radiation Treatments in Bone Metastases
34. Don't routinely prescribe two or more antipsychotic medications concurrently.	Two or more antipsychotic medications
35. Don't recommend vision therapy for patients with dyslexia.	Vision therapy for patients with dyslexia

Appendix C: Health Waste Calculator Measures

Choosing Wisely Recommendation	Short-hand Name
PRE-OPERATIVE EVALUATION	
36. Don't obtain baseline laboratory studies in patients without significant systemic disease (ASA I or II) undergoing low-risk surgery.	Preoperative Baseline Laboratory Studies
37. Don't obtain baseline diagnostic cardiac testing or cardiac stress testing in asymptomatic stable patients with known cardiac disease undergoing low or moderate risk non-cardiac surgery.	Pre-op Cardiac Echocardiography or Stress Testing
38. Don't obtain EKG, chest X rays or Pulmonary function test in patients without significant systemic disease (ASA I or II) undergoing low-risk surgery.	Preoperative EKG, Chest X ray and PFT
39. Don't recommend pulmonary function testing prior to cardiac surgery, in the absence of respiratory symptoms.	PFT prior to cardiac surgery
ROUTINE FOLLOW-UP/MONITORING	
40. Don't perform MRI of the peripheral joints to routinely monitor inflammatory arthritis.	MRI for rheumatoid arthritis
SCREENING TESTS	
41. Don't perform PSA-based screening for prostate cancer in all men regardless of age.	PSA screening for prostate cancer
42. Don't order unnecessary screening for colorectal cancer in adults older than age 50 years.	Colorectal Cancer Screening in Adults 50 Years and Older
43. Don't use dual-energy x-ray absorptiometry (DEXA) screening for osteoporosis in women younger than 65 or men younger than 70 with no risk factors.	DEXA
44. Don't order annual electrocardiograms (EKGs) or any other cardiac screening for low-risk patients without symptoms.	Annual Resting EKGs
45. Don't perform population based screening for 25-OH-Vitamin D deficiency	Screening for Vitamin D deficiency

Appendix C: Health Waste Calculator Measures

Choosing Wisely Recommendation	Short-hand Name
SCREENING TESTS (continued)	
46. Don't perform coronary angiography in patients without cardiac symptoms unless high-risk markers present.	Coronary angiography
47. Don't order unnecessary cervical cancer screening (Pap smear and HPV test) in all women who have had adequate prior screening and are not otherwise at high risk for cervical cancer	Cervical cancer screening in women
48. Don't perform routine general health checks for asymptomatic adults	Routine general health checks



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