ORIGINAL RESEARCH

# Clinical Decisions Made in Primary Care Clinics Before and After Choosing Wisely™

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***Background:*** **The Choosing Wisely™ campaign encourages physicians to avoid low-value care. Although widely lauded, no study has examined its impact on clinical decisions made in primary care settings.**

***Methods:*** **We compared clinical decisions made for 5 Choosing Wisely recommendations over two 6-month time periods before and after the campaign launch and an educational intervention to promote it at 3 primary care residency clinics.**

***Results:*** **The rate of recommendations adherence was high (93.2%) at baseline but did significantly increase to 96.5% after the launch. These findings suggest primary care physicians respond to training and publicity in low-value care, though further research is needed.**

***Conclusion:*** **Given that even small decreases of physician test ordering can produce large cost savings, the Choosing Wisely project may help achieve the health care triple aim. (J Am Board Fam Med 2015;28:471–474.)**

***Keywords:*** **Cost Control, Decision Making**

One suggestion to meet the health care triple aim is to reduce low-value care that increases costs but fails to improve health. The most recognized program in the United States that targets decreasing low-value care is the Choosing Wisely™ campaign, which began as the Good Stewardship project of the National Physicians Alliance, a multispecialty physician organization committed to professional integrity and health justice.[1] The project started with 3 "top 5" lists of cost-saving opportunities for family medicine, pediatrics, and internal medicine.[2,3] Since launching in April 2012, over 60 specialties societies published >300 recommendations of medical care to avoid. Choosing Wisely has earned praise from key stakeholders and international replication.[4,5] However, there exists no research examining how Choosing Wisely recommendations affect decisions in clinical settings. This study describes changes in clinical decision making at 3 US primary care residency clinics for 5 Choosing Wisely recommendations after the program launch and an intervention to increase adherence. We hypothesized that recommendation adherence would be low at baseline and increase with education and campaign launch publicity.

## Methods

Two urban family medicine and 1 internal medicine residency clinic serving geographically and socioeconomically diverse populations were selected to participate based on their response to an National Physicians Alliance member E-mail solicitation. We compared clinical decisions during two 6-month periods before and after an educational intervention and the Choosing Wisely national launch. The intervention consisted of either a 1-hour, in-person seminar or an online webinar reviewing Choosing Wisely recommendations and a stepwise approach to communicating to patients a plan of care based on the recommendations. This approach was drawn from the literature on doctor–patient communication and from recommendations by the Institute of Medicine.[6,7]

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**Table 1. Choosing Wisely Recommendations; Study Sites; Inclusion, Exclusion, and Appropriate Decision Criteria; and Recommendation Adherence for a 6-Month Time Period Before and After the Intervention***

| Recommendation (Specialty Society) | Study Sites | Criteria | | | | Before Intervention Percent Appropriate | After Intervention Percent Appropriate | *P* Value |
|---|---|---|---|---|---|---|---|---|
| | | Inclusion | Exclusion | Appropriate Decision | Inappropriate Decision | | | |
| Low-back pain (AAFP and ACP): Don't do imaging for low back pain within the first six weeks, unless red flags are present. | Yale,† Long Beach,‡ Seattle§ | ICD-9 codes 724.4, 724.3, 724.02, 724.4, 724.5, 722.1, 722.2, 722.5, 722.51, 722.9, 846.0, 847.2 | Age <18 years, prior visit for acute back pain within the prior 3 months, preexisting chronic back pain, temperature >38°C, new-onset bowel or bladder symptoms, "saddle" anesthesia, prior cancer diagnosis, current IV drug use, unexplained weight loss | No imaging ordered for back pain | Imaging ordered for back pain | 87.8 (108/123) | 87.8 (81/94) | .99 |
| Sinusitis (AAFP): Don't routinely prescribe antibiotics for acute mild to moderate sinusitis unless symptoms last for ≥7 days OR symptoms worsen after initial clinical improvement. | Long Beach, Seattle | ICD-9 codes 461.0, 461.1, 461.3, 461.8, 461.9 | Age <12 years, prior visit for sinusitis within 3 months, temperature of 38°C, symptom duration >7 days, double sickening, severe pain or tenderness over sinuses, another diagnosis requiring antibiotics | No antibiotics prescribed | Antibiotics prescribed | 45.4 (10/22) | 100 (21/21) | <.00 |
| Pap tests (AAFP): Don't perform Pap tests on women <21 years old or women who have had a hysterectomy for noncancer disease. | Long Beach, Seattle | All pap smears performed | — | Patient age >21 years, Pap performed on patient with hysterectomy for prior malignancy | Patient age <21 years or Pap done on patient with hysterectomy for noncancer indication | 98.8 (237/240) | 99.3 (272/274) | .55 |

*Continued*

**Table 1. Continued**

| Recommendation (Specialty Society) | Study Sites | Criteria | | | | Before Intervention Percent Appropriate | After Intervention Percent Appropriate | *P* Value |
|---|---|---|---|---|---|---|---|---|
| | | Inclusion | Exclusion | Appropriate Decision | Inappropriate Decision | | | |
| ECG (AAFP and ACP): Don't order annual ECGs or any other cardiac screening for low-risk patients without symptoms. | Yale, Long Beach, Seattle | All ECGs performed | — | ECG ordered for cardiac or pulmonary symptoms, or for patients with hypertension, diabetes mellitus, or other clinical indication | ECG ordered for screening purposes | 99.2 (119/120) | 99.2 (129/130) | .96 |
| DEXA scanning (AAFP and ACP): Don't use DEXA screening for osteoporosis in women <65 years old or men <70 years with no risk factors. | Yale, Long Beach, Seattle | All DEXAs ordered | Patient age <18 years | Women >65 years old, men >70 years old, patients of any age with an underlying medical condition that increases osteoporosis risk | Women <65 years old without risk factors, men <70 years old without risk factors | 66.7 (8/12) | 90.0 (36/40) | .049 |
| All decisions | — | — | — | — | — | 93.2 (482/517) | 96.5 (552/572) | .02 |

* The preintervention period included clinical decisions made between July 1 and December 31, 2011; the postinterventionperiods included clinical decisions made between April 26 and October 26, 2012.
†Yale Primary Care Center, New Haven, CT, is the outpatient clinic for the Internal Medicine Residency.
‡ Long Beach Memorial Family Medicine Residency, Long Beach, CA.
§Harborview Medical Center Family Medicine Clinic is a satellite clinic for University of Washington Family Medicine Residency, Seattle, Washington.
AAFP, American Academy of Family Physicians; ACP, American College of Physicians; DEXA, dual-energy X-ray absorptiometry; ECG, electrocardiogram; ICD-9, *International Classification of Diseases, Ninth Revision*; IV, intravenous.

Two researchers at each site reviewed charts for inclusion and adherence using structured algorithms created through consensus by the research team based on the clinical background of each recommendation (Table 1). We reviewed 1812 charts and included 1089. If imaging was ordered for acute low-back pain without "red flag" symptoms, the clinical decision was labeled inappropriate. If antibiotics were prescribed for sinusitis without severe symptoms, more than 7 days' duration of illness, or double sickening, the decision was labeled inappropriate. For Papanicolaou tests, dual-energy X-ray absorptiometry (DEXA), and electrocardiographic (ECG) screening, testing indication and patient characteristics were reviewed to determine whether the test was appropriate. No identifiable patient or clinician data were collected, and sites obtained institutional review board approval. $\chi^2$ Tests with a $P < .05$ level of significance compared the rates of recommendation adherence before and after the intervention.

## Results

Before the intervention, rates of clinical decisions adhering to Choosing Wisely recommendations ranged from 45% (sinusitis treatment) to 99% (ECG and Papanicolaou tests). After the intervention, rates ranged from 88% (back pain imaging) to 100% (sinusitis treatment) (Table 1). Two recommendations had significantly increased rates of adherence: DEXA screening (66.7% appropriate before the intervention and 90.0% appropriate after the intervention; $P = .049$) and sinusitis treatment (45.4% appropriate before the intervention and 100% appropriate after the intervention; $P < .000$). Rates of appropriate use of Papanicolaou test screening, ECG testing, and back pain imaging were unchanged. For all 5 recommendations the rate of appropriate clinical decisions significantly increased from 93.2% to 96.5%.

## Discussion

Clinical decisions changed following the education intervention and national launch, with greater adherence to DEXA scanning and sinusitis treatment recommendations. Adherence to other recommendations was unexpectedly high at baseline, limiting the opportunity for change. However, high levels of adherence to the Choosing Wisely recommendations are possible.

Study limitations include self-selection of urban primary care residency clinics. The high rates of adherence at baseline may reflect a practice culture already committed to high-value care and may not be representative of other primary care physicians or practices. The brief duration limits exploration of the sustainability of the behavior change. Future research should explore Choosing Wisely recommendation adherence in a variety of clinical settings and specialties.

## Conclusion

Primary care physicians respond to training in and publicity of low-value care, suggesting potential cost savings.

## References


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