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## The Effect of a Shared Decisionmaking Program on Rates of Surgery for Benign Prostatic Hyperplasia Pilot Results

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Mulley et al hypothesized that active efforts to involve patients in decisions made about their care should improve outcomes by better matching treatments with patient values and needs.<sup>1</sup> How utilization of various treatments would be affected is a critical element of the evaluation of such efforts.<sup>2</sup> The Shared Decisionmaking Program for benign prostatic hyperplasia (SDP-BPH)<sup>3,4</sup> is an interactive videodisc-based patient education program designed to help patients make an informed choice about whether to elect a transurethral resection of the prostate (TURP) or to follow a program of expectant management called "watchful waiting."

The BPH-SDP was piloted by two urology groups serving two large prepaid group practices that maintain reliable computer-

ized information on surgical utilization. In this article, the effect of the SDP on patient preferences for treatment is examined, and secular trends in population-based TURP rates in those regions piloting the SDP with trends in regions of the same prepaid group practices not using the SDP are compared.

### Methods

#### Setting

In 1989, the five-member urology group serving Kaiser Permanente's (KP) Colorado Region and the three-member urology group serving Group Health Cooperative's (GHC) South (Tacoma-Olympia area) Region began using the SDP in their practices. Comparison regions include GHC's Central (Seattle area) and East (Bellevue area), and three large KP regions. The first eligible SDP patients were enrolled in September 1989 in KP Colorado, and in November 1989 in GHC South.

#### The Use of the Shared Decisionmaking Program in the Two Practices

The SDP was shown to eligible men<sup>4</sup> with a clinical diagnosis of BPH. Physicians were given the option of excluding eligible patients whose conditions they felt were too mild for surgery or too severe for "watchful waiting." From 1989 to 1991, 333 and 118 men saw the SDP at KP Colorado and GHC South, respectively.

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## Data

Men referred for the SDP completed a baseline questionnaire including an item about their preference for treatment: "Based on what you know now, what is your current preference between prostate surgery and watchful waiting?" This question was readministered immediately after viewing the SDP.

We identified TURPS during the period 1987 to 1991 from computerized inpatient databases by searching for discharges with a principal procedure code of 60.2 (TURP) and a principal diagnostic code of 600 (hyperplasia of prostate). Membership databases in each region supplied the denominators—men older than 45 years enrolled in the prepaid group practice during that year. The average number of male enrollees aged 45 years and older during the years for which TURP data were collected were 29,750 in KP Colorado, 12,956 in GHC South, and ranged from 50,000 to 295,000 in the KP comparison regions, and from 15,000 to 17,000 in the GHC comparison regions. All GHC regions endured a nursing strike in 1989 before SDP implementation that halted elective surgeries for 8 weeks. We annualized the 1989 rates in presenting data to more accurately depict temporal trends.

We examined larger secular trends in TURP rates using hospital data for the greater Denver-Boulder area (Colorado Hospital Association) and for King County, Washington (Washington Hospital Commission Hospital Abstracting Reporting System), and denominators computed from 1990 census data.

## Statistical Methods

Transurethral resection of the prostate rates were adjusted for differences in age by the direct method using the 1991 age distribution of all KP and GHC regions combined. To assess differences in temporal trends in TURP rates by region, we fit several

Poisson regression models to the observed number of TURP procedures based on the number of men enrolled in each region in each year from 1987 to 1991. Separate models were fitted for KP regions and GHC regions. Since rates varied by age, region, and year, the models included main effects of age (ages 45 to 54 the referent), region (KP Colorado or GHC South the referent), and year (1987 the referent). The addition of interaction terms did not change the results, so we present the findings from the simpler models. The impact of the SDP was assessed by examining the point estimates with confidence intervals of the risk ratios for having a TURP procedure, and the statistical significance of the time (1990, 1991) by region (KP Colorado, GHC South) interaction terms.

## Results

### Use of the Shared Decisionmaking Program at Group Health Cooperative

The proportion of eligible men referred to the SDP by their urologist declined from 41% during the first 8 months of the pilot to 8% during the last 6 months of 1991. Although computerized records for referrals were not available to calculate analogous proportions of eligible patients excluded at KP, local urologists estimated that many fewer patients were excluded.

### Changes in Patient Preferences

Table 1 compares preferences for treatment before and after viewing the SDP among 406 men (80% from KP Colorado) for whom we have complete data. Before viewing the videodisc, about two thirds of the men preferred watchful waiting. After viewing the SDP, this percentage had increased to 79% ( $P < 0.01$ ). As seen in the table, 27% of the men initially favoring surgery changed their mind compared to only 1% of those initially inclined to wait.

TABLE 1. Preferences for Treatment Before and After Viewing SDP

Pre-SDP Treatment Preference	Post-SDP Treatment Preference			
	Surgery	No Preference	Waiting	Total
Probably or definitely surgery (100%)	33 (60%)	7 (13%)	15 (27%)	55
No preference (100%)	11 (15%)	25 (33%)	39 (52%)	75
Probably or definitely waiting (100%)	2 (1%)	8 (3%)	266 (96%)	276
Total (100%)	46 (11%)	40 (10%)	320 (79%)	406

SDP, Shared Decisionmaking Program.

**Changes in Transurethral Resection of the Prostate Rates Over Time**

Table 2 shows age-adjusted TURP rates per 1000 enrollees by region and community. In Figures 1 and 2, the rates shown in Table 2 are plotted for KP and GHC regions, respectively, with the pilot regions indicated by the dotted lines. Rates generally declined over time, but were consistently lower in the prepaid group practices than in the surrounding metropolitan areas.

The TURP rate in KP Colorado began to decline in 1989, when the SDP was implemented, and continued to decline through 1991. The 1991 rate was less than one half the average rate for the years before the the

SDP was implemented. Rates tended to fall over time in the other KP regions but to a lesser degree than in Colorado.

The situation in GHC was more complex. During 1990, rates fell in GHC South to a level about one half of the rates in the period 1987 to 1988 while returning toward 1988 (prestrike) levels in the other GHC regions. Transurethral resection of the prostate rates in GHC South rose in 1991 despite the occurrence of substantial declines in the other two regions.

Table 3 summarizes the results of Poisson regression analyses. The regression results show the powerful effects of increasing age on TURP rates and the significance of the overall downward trend in TURP rates over time in all

TABLE 2. Age-adjusted TURP Rates by Region and Year<sup>a</sup>

Region	1987	1988	1989	1990	1991
Kaiser Permanente					
Colorado	5.2	6.0	4.8	3.6	2.5
Region 1	6.3	5.1	5.2	5.2	5.2
Region 2	4.9	4.7	4.3	4.0	3.7
Region 3	5.0	4.8	4.4	3.8	3.5
Denver-Boulder	7.4	8.1	5.9	6.1	6.2
Group Health Cooperative of Puget Sound					
South	4.9	4.8	4.6	2.3	3.3
East	5.2	4.6	3.7	4.4	2.4
Central	5.9	5.3	4.2	4.6	3.3
King County, WA	6.5	5.8	5.4	5.2	5.2

TURP, transurethral resection of the prostate.

<sup>a</sup>Age Adjusted TURP rate per 1000 enrollees.

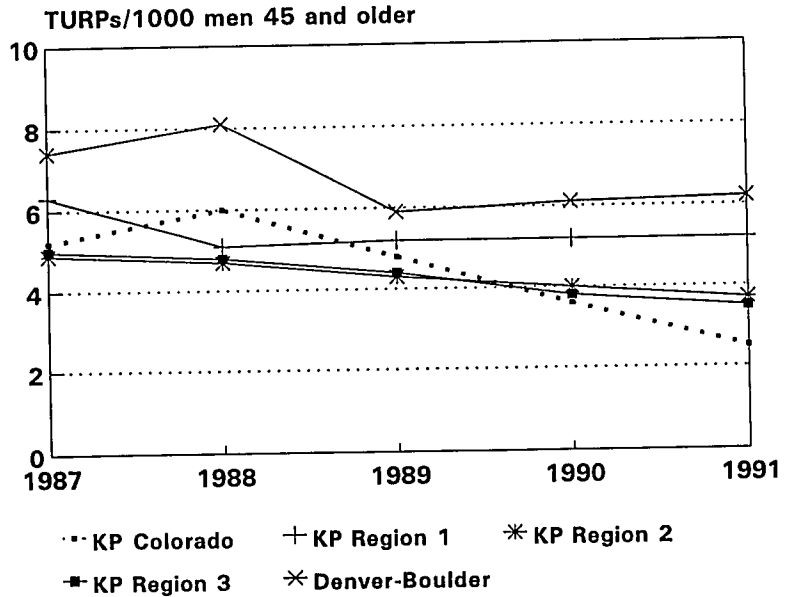


FIG. 1. Transurethral prostatectomy rates in intervention and control regions, Kaiser Permanente.

regions. During the full time interval, regional differences in rates were small and insignificant for GHC; KP regions 2 and 3 had significantly lower rates than KP Colorado. The pilot region by year interaction terms were significant for KP Colorado both in 1990 and 1991. The risk ratio for KP Colorado declined significantly to 0.80 in

1990, and further to 0.59 in 1991. The net result is that KP Colorado had a TURP rate in 1991 that was 60% (confidence interval 47%–74%) that of the other KP regions. GHC South performed 50% (confidence interval 33%–77%) fewer TURPs in 1990, but this reduction disappeared completely the next year.

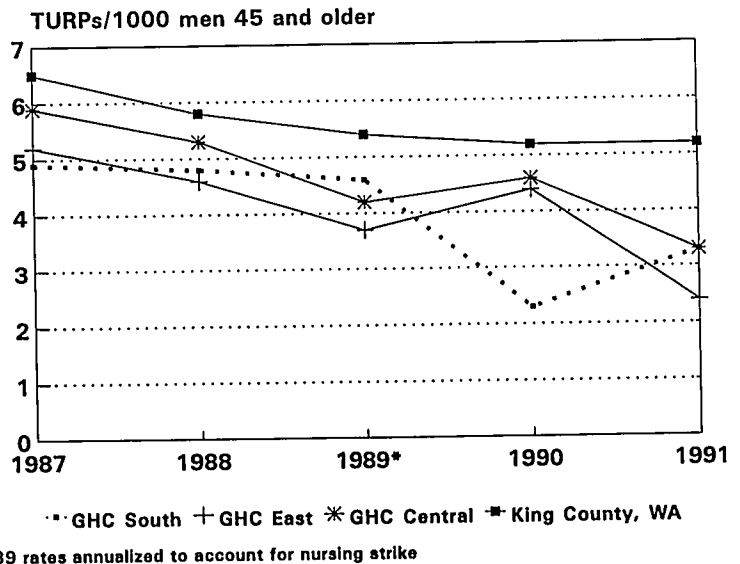


FIG. 2. Transurethral prostatectomy rates in intervention and control regions, Group Health Cooperative.

TABLE 3. Associations between TURP Rates and Age, Year, PPGP Region, and the Interaction Between Pilot Regions and Years: Poisson Regression Results

Characteristic	Rate Ratio	95% Confidence Limits	P
<b>Group Health</b>			
<b>Age</b>			
45-54	1.0		
55-64	12.0	8.1-17.9	<0.001
65-74	28.5	19.3-42.0	<0.001
75+	35.5	23.9-52.7	<0.001
<b>Calendar Year</b>			
1987	1.0		
1988	0.90	0.75-1.1	0.24
1989	0.65	0.54-0.79	<0.001
1990	0.85	0.70-1.0	0.10
1991	0.55	0.44-0.68	<0.001
<b>Region</b>			
GHC South	1.0		
GHC East	0.91	0.76-1.1	0.56
GHC Central	1.0	0.87-1.2	0.49
<b>Effect of SDP (Interaction of GHC South by year)</b>			
1990	0.50	0.33-0.77	0.002
1991	1.1	0.77-1.7	0.51
<b>Kaiser Permanente</b>			
<b>Age</b>			
45-54	1.0		
55-64	10.3	9.3-11.4	<0.001
65-74	31.0	27.7-33.7	<0.001
75+	43.0	38.9-47.4	<0.001
<b>Calendar Year</b>			
1987	1.0		
1988	0.95	0.90-1.0	0.04
1989	0.88	0.83-0.92	<0.001
1990	0.79	0.75-0.84	<0.001
1991	0.74	0.70-0.78	<0.001
<b>Region</b>			
Colorado	1.0		
Region 1	1.1	0.98-1.2	0.11
Region 2	0.87	0.79-0.96	0.003
Region 3	0.87	0.79-0.96	0.006
<b>Effect of SDP (Interaction of KP Colorado by year)</b>			
1990	0.80	0.65-0.98	0.033
1991	0.59	0.47-0.74	<0.001

TURP, transurethral resection of the prostate; PPGP, prepaid group practice.

## Discussion

This analysis of a pilot implementation of the SDP-BPH videodisc in two prepaid group practices suggests that use of the program was associated with a shift in preference toward watchful waiting and a reduction in surgeries for BPH. However, these results must be viewed with caution.

First, reductions in rates may have reflected practice style or workload factors independent of the intervention. The similarity in the baseline (1987–1988) rates in the pilot and comparison regions may make this less likely.

Second, the implementation of the SDP-BPH took place during a period in which TURP rates were generally falling and medical therapy for BPH and competing referrals to rule out prostate cancer were sharply rising. For example, Breslin et al<sup>5</sup> reported a 70% decline in TURP rates in their practice between 1987 and 1991. However, the reductions in the rate of TURPs in the pilot regions were significantly larger than those found in other regions or the community.

Third, while the reduction in rates continued for the 2 years subsequent to implementation of the SDP in KP Colorado, in GHC South surgeries declined dramatically in 1990 but returned to earlier levels the next year. One possible explanation may be the declining proportion of eligible GHC men who saw the SDP.

Were the greater reductions in TURP rates in regions using the SDP-BPH accounted for by shifts in preference for treatment among men viewing the video? Patient preferences shifted toward watchful waiting among those initially leaning toward surgery or undecided, but two thirds of the men were inclined to wait at the outset. Therefore, reported shifts in preference among men viewing the videodisc cannot fully account for reductions in surgery of the magnitude observed. The SDP may also have hardened the resolve of men initially inclined to wait perhaps allowing them to state their opin-

ions more clearly and forcefully. It is also possible that the use of the BPH-SDP may have affected providers more directly.

These nonexperimental data suggest that an educational intervention to involve patients more actively in decisions about their care can have measurable impacts on therapeutic choices. Our data must be viewed as preliminary because we cannot disentangle the specific impacts of viewing the SDP from any biases associated with the selection of urologists or patients, or other secular events at the sites. Clarifying the impact of the BPH-SDP on patients requires a randomized trial in which eligible patients are randomly assigned to the SDP or to usual care, and followed for relatively long periods of time. The SDP must also include newer medical and surgical treatments for BPH. Such a revised program is now available, and a randomized trial is now in progress at GHC.

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