

# Changes in Clinician Attitudes Toward Sharing Visit Notes: Surveys Pre-and Post-Implementation



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**BACKGROUND:** Clinician perceptions before and after inviting patients to read office notes (open notes) are unknown.

**OBJECTIVE:** To describe changes in clinicians' attitudes about sharing notes with patients.

**DESIGN, PARTICIPANTS, AND MAIN MEASURE:** Survey of outpatient primary and specialty care clinicians who were from a large group practice and had one or more patients who accessed notes. The main outcome was percent change (before vs. after implementation) in clinician perception that online visit notes are beneficial overall.

**KEY RESULTS:** Of the 563 invited clinicians, 400 (71%) took the baseline survey; 295 were eligible for a follow-up survey with 192 (65%) responding (119 primary care, 47 medical specialties, 26 surgical specialties). Before implementation, 29% agreed or somewhat agreed that visit notes online are beneficial overall, increasing to 71% following implementation ( $p < 0.001$ ); 44% switched beliefs from bad to good idea; and 2% reported the opposite change ( $p < 0.001$ ). This post-implementation change was observed in all clinician categories. Compared to pre-implementation, fewer clinicians had concerns about office visits taking longer (47% pre vs. 15% post) or requiring more time for questions (71% vs. 16%), or producing notes (57% vs. 28%). Before and after implementation, most clinicians reported being less candid in documentation (65% vs. 52%) and that patients would have more control of their care (72% vs. 78%) and worry more (72% vs. 65%).

**CONCLUSIONS:** Following implementation, more primary and specialty care clinicians agreed that sharing notes with patients online was beneficial overall. Fewer had concerns about more time needed for office visits or documentation. Most thought patients would worry more and reported being less candid in documentation.

**KEY WORDS:** physician-patient relations; office visits; documentation.

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## BACKGROUND AND SIGNIFICANCE

An increasing number of patients have online access to the clinic notes of healthcare practitioners and in April 2021 federal rules will require this access, referred to as open notes.<sup>1</sup> Most patients report benefits from reading their notes online including being better prepared for clinic visits,<sup>2,3</sup> being better able to take medications as prescribed,<sup>2-4</sup> having better understanding of health conditions<sup>2,3</sup> and the plan of care,<sup>2,5</sup> and feeling more in control of their care.<sup>3,5</sup> In a study of volunteer primary care clinicians and their patients, nearly all patients (99%) reported feeling better or the same about their doctors after reading their notes.<sup>6</sup> Few patients report distress from reading their notes.<sup>5</sup> Most patients think accessing their clinician's notes is beneficial overall<sup>7</sup> and want access to continue.<sup>3</sup>

Less is known about clinician attitudes towards sharing notes with patients. In the first large study of sharing clinician notes with patients, 114 primary care clinicians from three healthcare organizations volunteered to share notes online with patients.<sup>3</sup> Most of these clinicians thought sharing notes with patients was beneficial overall before sharing started (69–81%) and this proportion increased after sharing (85–91%). Following implementation, fewer clinicians had concerns about visits taking longer (21–32% pre vs. 0–5% post) and spending more time documenting visits (34–46% pre vs. 0–21% post). Most other primary care clinicians in these organizations, though, did not participate in sharing notes with patients. A minority of these nonparticipating clinicians thought opening notes was beneficial overall (16 to 33%). Specialists were not invited to participate.

Subsequent evaluations of clinician experience have mainly focused on medical training environments and a few medical specialties. In studies of resident physicians anticipating open notes, just over half thought sharing notes with patients online was beneficial overall,<sup>8</sup> citing both potential benefits and drawbacks, including worry about overwhelming patients, potential litigation, clinician workload, and offending patients.<sup>8,9</sup> Qualitative studies among specialists found concern about potential loss of note integrity and patient exposure to sensitive content.<sup>10,11</sup> Other clinician evaluations have been hampered by low response rates.<sup>12,13</sup> Although data are limited, these studies suggest that a substantial portion of clinicians may have concerns about sharing notes with patients.

To help identify the needs of clinicians starting open notes, the objective of this study was to understand primary and specialty clinician attitudes towards sharing notes with patients before and after notes were available online. Based on prior study among clinicians volunteering to share notes,<sup>3</sup> we hypothesized that compared to before implementation, more clinicians would agree after implementation that sharing notes with patients was beneficial overall.

## METHODS

### Setting and Population

The survey study was conducted at Kaiser Permanente Washington (KPWA), a large healthcare system in Washington State. Over 440,000 members receive care through KPWA's integrated delivery system which includes over 800 Permanente Group physicians. Membership is 53% female, 73% White, 6% African American, 11% Asian, 1% Hawaiian/Pacific Islander, 1% Native American, 6% Hispanic, and 9% other race/ethnicity. The KPWA patient portal has been available since 2003.<sup>14</sup> Starting in November 2014, KPWA made open notes available on the patient portal, including all clinician notes from ambulatory visits, accessible by patients online as the default during clinician's documentation. Clinicians could select individual notes not to share. Starting in June 2017, KPWA began sending email notifications to patients after visits that a note was available to be read.

The study population included clinicians responding to both baseline and follow-up surveys. The baseline survey population included all KPWA clinicians (MD, DO, PA, or ARNP) with patient visits in an ambulatory setting at a KPWA owned medical clinic worked an average of 4 or more days per month, completed 1 or more outpatient ambulatory or urgent care visits during the 3 months before the launch of open notes, and who were not mental health clinicians ( $n = 596$ ). We excluded 28 clinicians who had participated in a pilot study of sharing notes. We divided the remaining 568 clinicians eligible for the baseline survey into primary care, medical specialty, and surgical specialty.

The study population for the follow-up survey included all clinicians who responded to the baseline survey, continued to be employed by KPWA, had one or more patient visits in the past 12 months, and had one or more patients who had viewed any visit notes on the patient portal in the prior 12 months. We selected clinicians who had notes read since our assessment included the impact of open notes on clinicians' practices. Clinicians elected to not share 2.9% of notes during the study period. The study was approved by the Kaiser Permanente Washington Institutional Review Board.

### Conducting the Survey

The baseline survey was conducted in October 2014, 2 weeks prior to beginning to share notes with patients. Due to the low proportion of notes being viewed by patients in the first 36 months after implementation (mean monthly rate = 5.6%), we waited to administer the follow-up survey until September of 2018, 15 months after Jun 2017 when patients began receiving email notifications that notes were available and when 8–12% of all clinicians' ambulatory visit notes had been viewed for 11 continuous months (mean monthly rate = 10.5%). Eligible clinicians ( $n = 568$ ) were mailed paper copies of the survey. Non-responders were emailed a link to complete the survey online and, if necessary, one reminder. Electronic surveys were conducted using DatStat (Seattle, WA).

### Survey

We used a previously developed 42-item survey regarding clinicians' attitudes towards and perceptions of the effects of sharing notes on patients' experiences, physicians' work life, and other hypothesized impacts.<sup>3, 7</sup> To permit comparisons between pre-implementation expectations and actual experiences, the questions included in the post-implementation survey were based largely on the baseline surveys. Many questions from the baseline survey were either the same or had verb tenses changed in the follow-up survey. Response options similarly changed from *level of concern* to "yes" or "no" assertions after the implementation. All responses from completed or partially completed surveys were recorded and included in the analysis.

### Statistical Analysis

We combined and analyzed completed baseline and follow-up surveys among respondents to assess change in clinician attitudes. Clinicians who reported being unaware that some patients were reading their visit notes were excluded from all the analyses. The primary outcome of the study was clinician responses to the question "open notes is a good idea." The available response options "Agree" and "Somewhat agree" were pooled as "Agree" whereas the options "Disagree" and "Somewhat disagree" were pooled as "Disagree." The percentages of clinicians who responded differently in the two surveys (those switching from disagreeing to agreeing that open notes was a good idea and vice versa) were compared using McNemar's test.<sup>15</sup> Stratified McNemar's test was used to test whether the change of clinician responses before and after the implementation of open notes was different between the 3 clinician groups.<sup>16</sup>

We described percentages of clinicians responding to questions related to the impact on their practice and their perceived impact on patients before and after the implementation (see items in Table 3). In the baseline survey, the response options

for these questions “I am ‘minimally concerned’, ‘very concerned’, and ‘so concerned that I do not want open notes’” were combined as “Yes” whereas the options of “not concerned” and “minimally concerned” were grouped as “No.” In the follow-up survey, the response options were mostly “Yes” and “No.” Questions about clinicians’ perceived impact on patients included benefits and risks (see all items in Table 4). We used the same grouping of “Agree” vs “Disagree” for these questions as for the primary outcome. Percentages of clinicians were based on those completing the questions. Those clinicians who did not respond to a specific question were excluded from the denominator.

All data analyses were performed using SAS software, version 9.4 (SAS Institute, Cary, NC) except for the stratified McNemar’s test which was performed in R version 3.6.0.<sup>16, 17</sup>

## RESULTS

### Clinician Experiences

Among 568 clinicians who were sent the survey before the implementation of open notes, 5 reported being retired from practice and were excluded. Among the remaining 563, 4 declined participation and 400 responded (71%)

(Appendix Table 5). Among the respondents to the baseline survey, 295 were eligible for the follow-up survey (105 ineligible including 93 no longer active at KPWA and 12 with no outpatient visits in 12 months prior to follow-up survey). Of those eligible for the follow-up survey, 192 responded (65%) including 119 primary care clinicians (65%), 47 medical specialists (67%), and 26 surgical specialists (60%). Those responding to both surveys were somewhat younger (61% under 50 years) compared to those responding only to the baseline survey (51% under the age of 50 years) and about the same age as those not responding to the baseline survey (59% under 50 years) (Appendix Table 5).

Primary care, medical specialty, and surgical specialty respondents did not differ by age, sex, years since completing training, or hours per week in direct patient care (Table 1). Most providers used a template for at least part of their notes. Non-response for questions in the follow-up survey ranged from 1% for the question “Open notes is a good idea” to 17% for “felt more in control of care.” Among 192 clinicians responding to the follow-up survey, 5 reported being unaware that some patients were reading their visit notes and were excluded from before vs. after implementation comparisons ( $n = 187$  in before vs. after comparison). A total of 180 of these

**Table 1 Characteristics of Clinicians Responding to Surveys Before and After the Implementation of Open Notes**

Characteristics	Total, N=192		Primary care, N=119		Medical specialty, N=47		Surgical specialty, N=26		p-value	
	N	(%)	N	(%)	N	(%)	N	(%)		
Age group (years)										
Unknown	8	(4)	4	(3)	2	(4)	2	(8)	0.47	
<30	3	(2)	3	(3)	0	(0)	0	(0)		
30–39	50	(26)	34	(29)	8	(17)	8	(31)		
40–49	56	(29)	32	(27)	19	(40)	5	(19)		
50–59	49	(26)	29	(24)	11	(23)	9	(35)		
60+	26	(14)	17	(14)	7	(15)	2	(8)		
Gender										
Female	101	(53)	72	(61)	17	(36)	12	(46)	0.063	
Male	84	(44)	44	(37)	27	(57)	13	(50)		
Other	7	(4)	3	(3)	3	(6)	1	(4)		
Year completed clinical training										
Missing	1	(1)	1	(1)	0	(0)	0	(0)	0.24	
Before 1980	5	(3)	2	(2)	3	(6)	0	(0)		
1980–1989	38	(20)	28	(24)	6	(13)	4	(15)		
1990–1999	44	(23)	24	(20)	11	(23)	9	(35)		
2000–2009	73	(38)	42	(35)	23	(49)	8	(31)		
2010–2017	31	(16)	22	(19)	4	(9)	5	(19)		
Hours/week spent in direct patient care										
<15	1	(1)	1	(1)	0	(0)	0	(0)	0.200	
15–35	94	(49)	67	(56)	18	(38)	9	(35)		
36+	96	(50)	50	(42)	29	(62)	17	(65)		
Missing	1	(1)	1	(1)	0	(0)	0	(0)		
Way of documenting most notes										
Type all	18	(9)	13	(11)	4	(9)	1	(4)		<0.001
Template for part	106	(55)	73	(61)	23	(49)	10	(39)		
Template for most/all	31	(16)	20	(17)	4	(9)	7	(27)		
Dictate	21	(11)	5	(4)	11	(23)	5	(19)		
Other	3	(2)	0	(0)	0	(0)	3	(12)		
Multiple ways	13	(7)	8	(7)	5	(11)	0	(0)		

**Table 2 Clinicians Response to the Question “Making Visit Notes Available Online is a Good Idea” Before vs. After Implementation of Open Notes (Numbers of Clinicians and Percentages Over All Clinicians are Presented)**

		After		Total
		Disagree	Agree	
2A: All clinicians (n=180)				
Before	Disagree	48 (27%)	80 (44%)	128 (71%)
	Agree	4 (2%)	48 (27%)	52 (29%)
	Total	52 (29%)	128 (71%)	
<i>p</i> < 0.001				
2B: Primary care clinicians (n=109)				
Before	Disagree	26 (24%)	48 (44%)	74 (68%)
	Agree	2 (4%)	33 (30%)	35 (32%)
	Total	28 (26%)	81 (74%)	
<i>p</i> <0.001				
2C: Medical specialty (n=47)				
Before	Disagree	13 (28%)	24 (51%)	37 (79%)
	Agree	2 (4%)	8 (17%)	10 (21%)
	Total	15 (32%)	32 (68%)	
<i>p</i> <0.001				
2D: Surgical specialty (n=24)				
Before	Disagree	9 (38%)	8 (33%)	17 (71%)
	Agree	0 (0%)	7 (29%)	7 (29%)
	Total	9 (38%)	15 (63%)	
<i>p</i> =0.008				

clinicians (96%) responded to the question, “Open notes is a good idea” (i.e., primary outcome) in both surveys.

**Primary Outcome**

Prior to implementation, less than one-third of clinicians thought the intervention was a good idea (29%). Following implementation, 80 of 180 clinicians (44%) who responded to both baseline and follow-up surveys switched from not

agreeing to the statement that open notes was a good idea; 4 (2%) changed in the other direction, from agreeing to not (Table 2). The change with more clinicians switching to the “good idea” group was statistically significant and observed among clinicians within primary care, medical specialty, and surgical specialty. No significant differences were observed across the 3 clinician groups for this switch.

**Impact on Practice**

Following the implementation, fewer clinicians thought the open notes had a negative impact on areas of their practice, including a decrease in concerns about office visits taking longer (47% pre vs. 15% post), and the need to spend more time addressing patient questions (71% pre vs. 16% post), and producing the notes (57% pre vs. 28% post). The pattern of change was similar across primary care, medical specialty, and surgical specialty clinicians, though fewer primary care clinicians reported these concerns before and after sharing compared to specialty clinicians (Table 3). Most clinicians reported concern about being less candid in their documentation before (65%) and after implementation (52%). Prior to implementation, a higher proportion of clinicians reported patient satisfaction and safety would improve (40% and 33%, respectively) compared to after implementation (17% and 11%, respectively).

Most respondents (74%) reported that the value of their notes to other clinicians remained the same, with a quarter (25%) reporting much less or somewhat less value. Similarly, most respondents (78%) reported the value of other clinicians’ notes remained the same, with one-fifth reporting much less or somewhat less value (data not shown, post measure only).

**Table 3 Clinician Responses of Impact of Open Notes on Their Practice Before Compared to After Implementation (Percentages of Clinicians Responding to Each Question Are Presented)**

	All clinicians (n=187)		Primary care (n=116)		Medical specialty (n=47)		Surgical specialty (n=24)	
	Before	After	Before	After	Before	After	Before	After
	Visits take significantly longer*	47	15	40	10	57	16	57
Spent significantly more time addressing patient questions outside of visits*	71	16	69	8	72	24	78	35
Spend significantly more time writing/dictating/ editing my notes*	57	28	56	22	55	39	70	36
Less candid in documentation*	65	52	67	49	62	61	65	50
Changed the way I address these topics in my notes†								
Cancer/possibility of cancer	46	27	48	27	43	28	44	24
Mental health	63	55	60	55	68	60	65	43
Substance abuse	55	41	54	39	53	46	61	38
Overweight/obesity	50	44	45	42	53	48	70	50
Patient satisfaction improved‡	40	17	43	20	33	13	41	14
Patient care safer‡‡	33	11	42	13	13	7	29	9

\*Before measure is the percentage of clinicians responding that they were moderately or very concerned or so concerned that they do not want open notes. After measure is the percentage of clinicians reporting yes to an impact on the practice after the implementation

†Before and after measures are percentages of clinicians reporting yes to an impact on the practice

‡‡After implementation, 53% of all clinicians answered they did not know whether patient care would be safer

**Table 4 Clinician Respondent's Perceived Impact of Open Notes on Patients Before Compared to After Implementation (Percentages of Clinicians Responding to Each Question Are Presented\*)**

	All clinicians (n=187)		Primary care (n=116)		Medical specialty (n=47)		Surgical specialty (n=24)	
	Before	After	Before	After	Before	After	Before	After
Takes better care of self	30	50	35	55	17	35	29	55
Understands health conditions better	66	66	71	69	55	61	63	59
Remembers care plan better	71	67	74	75	62	50	71	59
Better prepared for visits	37	48	41	49	32	42	29	55
Feels more in control of care	72	78	74	79	68	79	71	73
Takes medication better	48	56	49	61	38	39	58	68
More confusing than helpful	71	57	67	54	81	66	71	55
Worries more	72	65	68	59	83	77	74	68

\*Before and after measures are the percentage of clinicians responding that they agree or somewhat agree to the question

## Perceived Impact on Patients

Following implementation, more clinicians thought patients took better care of themselves (30% pre vs. 50% post) and were better prepared for visits (37% pre vs. 48% post) (Table 4). Most clinicians thought patients would feel more in control of their care before and after implementation (72% pre vs. 78% post).

Most clinicians had concerns about a negative impact on patients before and after implementation (Table 4). Following implementation, over half of clinicians reported concern that notes were more confusing than helpful to patients (71% pre vs. 57% post) and that patients would worry more (72% pre vs. 65% post).

## DISCUSSION

In a study at a large community-based healthcare organization, most physicians (71%) thought that sharing notes with patients was beneficial overall after they had experience with the practice. Prior to implementation, less than one-third (29%) thought sharing notes was beneficial overall. Nearly half of the clinicians (44%) changed their opinion to agreeing that sharing notes was beneficial overall. We are unaware of other studies demonstrating this change in opinion across physician specialties. The predominantly unfavorable attitudes of clinicians prior to sharing notes with patients echo other work demonstrating the reluctance of many clinicians when contemplating sharing notes with patients.<sup>7</sup> Our results suggest many of these clinicians would likely change their minds after starting to share notes.

Many clinician concerns about the impact on their practice were not realized. Compared to the original demonstration study of open notes among volunteer primary care clinicians,<sup>3</sup> we found considerably higher baseline concerns about practice impacts with large decreases in these concerns after implementation. For example, we found nearly three-quarters of clinicians (71%) at baseline thought they would spend more time answering questions outside of office visits compared to 16% following implementation. This pattern was similar

across clinician groups though primary care clinicians had fewer concerns before and after compared to the specialty groups. For many clinicians, the lack of impact on their practice may have contributed to their shift in overall attitude towards favoring open notes.

We found less consistent change in clinicians' perception of benefit to patients with many clinicians perceiving benefits before and after implementation. Most clinicians perceiving patient benefits following implementation is consistent with prior studies among volunteer primary care clinicians.<sup>2, 4</sup> Other studies have also found that similar or greater proportions of patients perceive these benefits when primary care notes are shared<sup>2, 3, 18, 19</sup> with similar results extending to perceptions of family caregivers when provided access to notes.<sup>20, 21</sup> Another study found these benefits could be further increased through patient education programs.<sup>22</sup>

Despite the perceived benefits to patients, many clinicians continued to have concerns about the impact of open notes on patients. Over one-half of primary care, medical specialty, and surgical specialty clinicians still thought patients would find the notes more confusing than helpful and patients would worry more. Most patients in prior studies, however, report not worrying more and not finding the notes more confusing than helpful<sup>3</sup> and very few (3%) report being confused by the notes.<sup>23</sup> We need better understanding of the discordance between these patient and clinician concerns.

Following implementation, just over half of clinicians also reported being less candid in their documentation, possibly reflecting the ongoing concerns of a significant portion of clinicians about the potential negative impacts of open notes on patients. Just over half reported changing documentation for mental health issues. Although a prior study found patients with and without mental health diagnoses perceive the same benefits to open notes,<sup>24</sup> others have found mental health clinicians adjusted their practices and behavior to avoid adverse consequences from sharing notes and that open notes affected how they built and maintained therapeutic relationships with patients.<sup>10</sup> Clinician changes in note candor may also be reflected by the quarter of clinicians who felt their

notes were of less value to other clinicians following implementation.

Compared to before implementation, substantially fewer clinicians thought opennotes increased patient safety and satisfaction. Perception of improved satisfaction dropped over one-half, from 40 to 17%, and perception of safer care dropped from 33 to 11%. These changes further reflect the less-than-anticipated impact of open notes on practice. To realize its potential to improve safety, quality, and experience of care, open notes may need to be coupled with additional interventions. Prior studies found that sharing notes with patients as part of multifaceted interventions can improve patient outcomes including in the care of hypertension<sup>25</sup> and type 2 diabetes.<sup>26, 27</sup> The diffusion of open notes provides a new opportunity for wider spread and study of these care innovations.

Preparing clinicians for open notes is particularly important given the recent rise in telemedicine associated with COVID-19 and the forthcoming federal requirements for electronic access to notes by patients.<sup>1</sup> Coaching primary care and specialty clinicians in advance of implementing open notes may help address their concerns and lead to further benefits to patients. One web-based training program for mental health clinicians on open notes resulted in a small but significant reduction in clinicians' worry about the negative consequences.<sup>28</sup> Such programs could be extended to other clinicians including trainees, a group particularly concerned about the negative impacts of open notes including potential litigation, offending patients,<sup>9</sup> and harming the patient-physician relationship.<sup>29</sup>

This study had limitations. The numbers of medical and specialty clinician participants were insufficient for several comparisons across clinician types. Clinician perception of benefit or concern may have varied if more patients were reading notes. Non-response bias may have impacted our results. We did not include mental health clinicians who may perceive more concerns about open notes. Our results also reflect the perceptions of clinicians in a single integrated healthcare system, which may not generalize to other settings.

## CONCLUSION

Following implementation, more primary and specialty care clinicians agreed that sharing notes with patients online was beneficial overall and they had fewer concerns about office visits taking longer or spending more time on documenting office visits. Half of the clinicians reported being less candid in their documentation and continuing to have concerns about patient impact. As sharing notes with patients continues to spread across healthcare organizations, clinicians need to be better prepared to share notes as well as be aware of the potential benefits to patients and limited impact on their practices.

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## Declarations:

**Competing Interests:** The authors declare that they do not have a conflict of interest.

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