



Patient-Reported Use of the After Visit Summary in a Primary Care Internal Medicine Practice

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Abstract

Participants completed a cross-sectional survey about their use of the after visit summary (AVS) at a previous primary care visit. Of 355 participants, 294 (82.8%) recalled receiving it, 67.4% consulted it, 45.9% consulted it more than once, and 31.6% shared the AVS. In multivariable analysis, higher education and older age were associated with AVS consultation. Among the subset of 133 patients recalling personalized free-text instructions, 96% found them easy to understand and 94.4% found them useful. Our findings suggest that the AVS is a useful communication tool and improvement efforts should emphasize clarity for those most vulnerable to communication errors.

Keywords

communication, health literacy, patient education, quality improvement

Introduction

The United States implemented health-care reforms in 2009 to offer financial incentives to health-care organizations for providing clinical summaries to patients after an office visit (1,2). These clinical summaries are also known as the after visit summary (AVS). The AVS is a patient-specific document curated by the clinician and given to patients electronically or on paper after a medical encounter. It typically contains information specific to the patient such as diagnoses, medications, and upcoming appointments. Clinicians may also include personalized free-text instructions for an individual patient to help them understand the treatment received and physician-recommended plan. The 3 main purposes of the AVS include enhancing the ability of patients to remember the content of their clinical interactions, supporting patients in making better health decisions to improve their health outcomes, and improving the quality of information available in the patients' electronic health records (EHR) (2).

While the AVS is not a requirement, its quick uptake and wide adoption have resulted in the AVS being a standard of care for outpatient visits (3–5). In fact, health systems continue to invest in ways to optimize the AVS (4). Given the pressure to address numerous comorbidities during a single

primary care encounter, the information patients must process and retain during a brief visit is abundant and increasingly complex (6). In theory, the AVS presents an opportunity that should be seized to educate patients about their disease, summarize the discussion that took place during the encounter, and highlight the most important next steps in a patient's treatment plan (2,3).

Prior to the advent of the AVS, research has shown that 29% to 72% of medical information delivered to patients by health-care practitioners is forgotten immediately and almost half of the information recalled by patients is incorrect (7,8). Numerous methods, including oral, written, and pictographic communication, have been studied to assess if their use

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increases patients' knowledge of their medical problems. There is minimal research, however, documenting patient use of the AVS despite it becoming an integral element of the encounter (6,9). We set out to assess patient recall and reported use of the AVS from a previous primary care visit and investigate the usefulness of patient-specific information.

Methods

In 2013-2014, patients were recruited as part of a larger study assessing tobacco use in an academic primary care internal medicine practice located in San Francisco, California (10). Those patients who did not endorse tobacco use were instead automatically directed to the AVS survey, the results of which are presented here. The AVS survey served as the control survey for the tobacco study. The survey was self-administered on a wireless, touch-screen, mobile computer tablet immediately prior to a follow-up visit in the waiting room of the primary care practice. Signed consent was obtained on the tablet prior to the start of the survey.

At the time of the survey, the AVS was only available in English. Survey development was based on the limited literature available about the AVS and the authors' experiences with the AVS both as physicians and patients. The survey assessed patient recall about:

- whether they received an AVS after their previous primary care visit,
- manner of delivery (in-person, via the electronic patient portal, or both),
- whether and how many times they consulted it post-encounter,
- whether they shared it with friends or family members, and
- if they recalled receiving personalized free-text instructions.

If they did recall receiving free-text instructions, they were then asked how easy or difficult they were to understand, how useful they found them, and which topics were addressed. With the consensus of 2 physician authors, the topics addressed in the instructions were categorized into medication information, tasks to complete before the next visit, lifestyle advice, and educational materials about specific medical conditions, general practice information, return precautions, and other. Chart review was performed to verify patient recall of whether they received free-text instructions. To investigate predictors of AVS consultation, the outcome was modeled using logistic regression, including the following variables: age, gender, education, race/ethnicity, clinician type, and insurance. Analyses were conducted using Stata version 13 (StataCorp LP, College Station, Texas). The study was approved by the Committee on Human Research at the University of California, San Francisco.

Results

Of the 355 patients who completed the survey, 47% (n = 168) were women, 13% (n = 46) had low educational attainment (high school/12 years or less), 27% (n = 95) were ≥ 65 years, and 42% (n = 146) were racial/ethnic minorities (Table 1). Most of the patients (82.8%, n = 294) recalled receiving an AVS after their last primary care appointment (Figure 1). Two-thirds of the patients (67.4%, n = 194) reported consulting the AVS since their last appointment, with almost half (45.9%, n = 89) consulting it more than once. Nearly one-third of the patients (31.6%, n = 90) reported sharing the AVS with friends or family members.

In logistic regression, 3 variables were positively associated with AVS consultation including education, race-ethnicity, and age (Table 2). Specifically, higher educational attainment, Asian race-ethnicity, and older age were all associated with higher odds of AVS consultation.

Among the subset of 133 (45.2% of 294) patients who recalled seeing personalized free-text instructions in the AVS, 96% (n = 120) found them very easy or easy to understand, and 94.4% (n = 118) found them very or somewhat useful. The 4 most common patient-reported topics addressed in the instructions were medication information (59.4%, n = 79), what to do before their next visit (57.9%, n = 77), lifestyle advice (27.8%, n = 37), and symptoms or problems that should prompt the patient to seek care (27.1%, n = 36). Chart review to verify whether patients correctly recalled receiving free-text instructions demonstrated that 82% actually had them documented in their AVS.

Discussion

We found that the majority of patients reported receiving and consulting the AVS, highlighting the importance of using this post-visit summary as a communication tool for patient-specific care. Furthermore, patients reported personalized free-text instructions to be both useful and easy to understand.

Older adult's higher consultation of the AVS may be related to the multiple and more complex medical problems they experience compared to younger patients. This complexity requires a carefully laid out clinical plan that may be challenging for patients to remember from a brief conversation, leading clinicians and patients to rely on additional written communication to maximize understanding and adherence (6,9).

While our sample was overall highly educated, our results indicate that those with lower educational attainment are less likely to consult the AVS. The text-heavy format of the AVS utilized at this specific medical practice, rather than easier to digest formats, may account for this finding. Alternative formats that include pictograms and graphics, as well as the use of AVS teach-back methods prior to the patient's departure from the practice may allow for more accessible communications specifically for patients with low health

Table 1. Demographic Characteristics of Patients by Self-Report of After Visit Summary Consultation (n = 355).

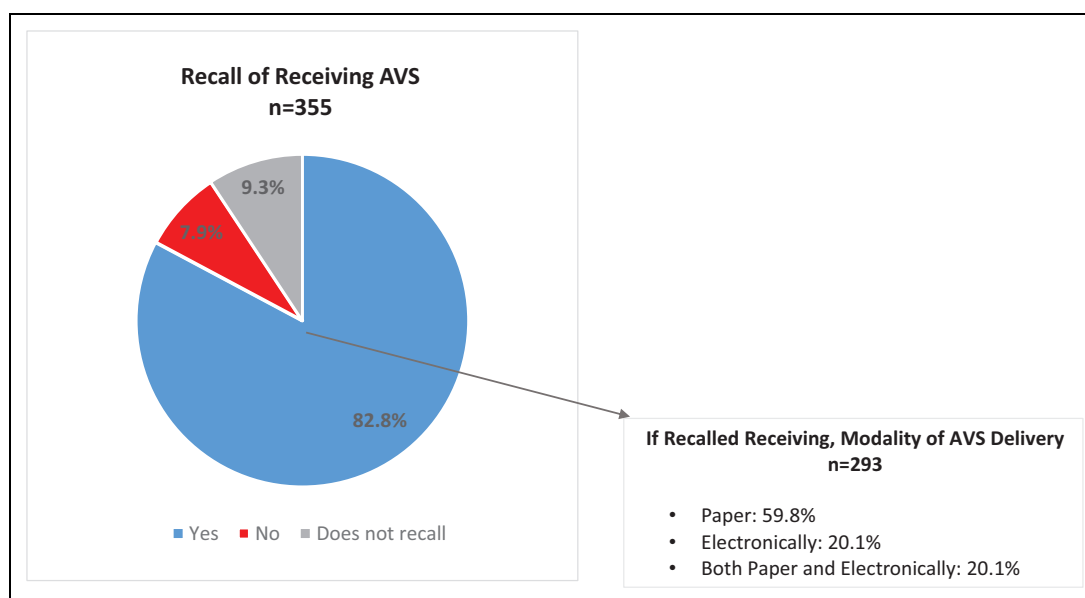
	Yes, n = 194, n (%)	No, n = 161, n (%)	Total, n = 355, n (%)	P Value
Age (range 20-95)				
mean \pm SD	56.5 \pm 16.5	52.3 \pm 15.2	54.6 \pm 16.1	.280
Gender				
Male	100 (51.6)	87 (54.0)	187 (52.7)	.640
Female	94 (48.5)	74 (46.0)	168 (47.3)	
Education				
High school or less	17 (8.8)	29 (18.0)	46 (13.0)	.034
Some college or more	135 (69.6)	99 (61.5)	234 (65.9)	
Unknown	42 (21.7)	33 (20.5)	75 (21.1)	
Race/ethnicity ^a				
White	108 (57.5)	90 (57.7)	198 (57.7)	.332
Asian/Asian American	26 (13.8)	12 (7.7)	38 (11.1)	
Black/African American	26 (13.8)	30 (19.2)	56 (16.3)	
Latino/Hispanic	20 (10.6)	16 (10.3)	36 (10.5)	
Other	8 (4.3)	8 (5.1)	16 (4.7)	
Type of visit clinician				
Attending	109 (56.2)	83 (51.5)	192 (54.1)	.356
Resident	85 (43.8)	78 (48.5)	163 (45.9)	
Insurance ^{b,c}				
Private	84 (44.0)	76 (47.5)	160 (45.6)	.165
Medicare	78 (40.8)	51 (31.9)	129 (36.8)	
Medicaid	29 (15.2)	33 (20.6)	62 (17.7)	

Abbreviation: SD, standard deviation.

^aMissing data for 11 participants.

^bMissing data for 4 participants.

^cMedicare and Medicaid are both forms of medical coverage available in the United States. Medicare is a federal health insurance plan available to individuals aged 65 years and older or to those with specific disabling health conditions. Medicaid is a federal program administered by individual states and provides health coverage to individuals with low income.

**Figure 1.** Patient recall of receiving an AVS. AVS indicates after visit summary.

literacy (9). Previous studies have also shown that a combination of both written and oral information results in improved retention of information when compared to each modality in isolation (11,12). It is unclear why Asians were

the race-ethnic group most likely to consult the AVS, and this deserves further exploration.

While the AVS is no longer a requirement for health-care professionals, health-care organizations in the United States

Table 2. Association of Individual Characteristics With the Likelihood of AVS Consultation.

	OR	95% CI
Age	1.24	1.03-1.48
Gender		
Male	Ref	
Female	1.24	0.78-1.98
Education		
High school or less	Ref	
Some college or more	3.08	1.46-6.49
Unknown	3.27	1.40-7.67
Race/ethnicity		
White	Ref	
Asian/Asian American	2.68	1.21-5.91
Black/African American	0.82	0.42-1.60
Latino/Hispanic	1.86	0.82-4.21
Other	1.51	0.47-4.81
Type of visit clinician		
Attending	Ref	
Resident	0.82	0.52-1.31
Insurance		
Private	Ref	
Medicare	1.28	0.69-2.35
Medicaid	1.06	0.53-2.12

Abbreviations: AVS, after visit summary; CI, confidence interval; OR, odds ratio.

have prioritized patients' electronic access to their health information (5). Some EHRs, such as Epic (EpicCare, Epic Systems; Verona, Wisconsin), continue to make the AVS automatically available electronically for patients enrolled in the EHR's online portal; thus, continuing to optimize the AVS is critical for clearer, more accessible health communication.

Limitations

Limitations of this study include a cross-sectional design, data collection limited to a single academic primary care practice preventing generalizability of the results, lack of verification of receiving the AVS, and potential recall bias on the part of participants. While we did include educational attainment, we did not have a direct measure of health literacy. Chart review verified that while most patients correctly recalled receiving personalized instructions, others did not, suggesting that some who answered that the instructions were easy to understand and useful may have been referring to the AVS in its entirety. The remainder of our data were self-report. In addition, we were not able to investigate the association of personalized instructions or tailoring of the AVS with outcomes such as adherence or disease management.

Conclusion

Our finding of patient engagement with the AVS is encouraging and suggests that the use of the AVS as a

communication tool is, in fact, useful to patients. While limited, the literature on AVS show that patients find the tool very useful but have identified numerous ways it can be improved (6,9). Our study verifies past findings but also uncovers an important disparity that not all patients benefit equally. In fact, those at highest risk for poor communication and understanding after a visit—those with lower educational attainment and likely limited health literacy—appear least likely to engage with the AVS. In addition, the AVS in this practice, and likely many others, is currently only available in English, necessarily excluding those with limited English proficiency from benefit. The potential practical implication of the study is that both the format and implementation of the AVS in practice should be made accessible to all, with particular emphasis on those most vulnerable to communication errors.

Author's Note

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Declaration of Conflicting Interests

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