

Primary Care Implementation of After-Visit Summaries for Patients with Limited Health Literacy

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EXECUTIVE SUMMARY

Although after-visit summaries (AVS) have become a standard part of visits with the introduction of Meaningful Use criteria in 2009, there has been little research on how AVS are being used currently in primary care. This paper summarizes the major findings from the following: (1) a review of the published literature on AVS, and (2) a series of in-depth interviews with key informants who provided their insights on AVS implementation across several primary care settings.

Overall, we found that both patients and clinicians express interest in having access to an AVS for primary care visits. All studies evaluating the patient perspective on the AVS indicate that patients value the AVS, even when subsequent AVS use varies greatly and recall of the content is poor. From a clinician perspective, the most positive statements around the AVS centered on its potential ability to provide customized patient instructions for follow-up care and its potential to be used as a teaching tool at the conclusion of visits to reinforce key information or decisions. However, most clinicians expressed frustrations with extraneous and incorrect information included on the standard AVS template and did not believe in general that their patients were using the current version of the AVS in a meaningful way.

This paper also provides the following recommendations for better harnessing the potential value of the AVS as expressed by both patients and clinicians: (1) Ensuring that the AVS is easily customized on the basis of the specific needs of the patient and the visit goals; (2) Establishing primary care team responsibilities for AVS completion and review; (3) Creating specific workflows for the practice that outline the steps for communicating with the patient to reinforce AVS content; (4) Providing training for nonclinician staff to take on key aspects of the AVS teach-back process; and (5) If time limits within the clinic exist, using prioritization of the

patient population to ensure that patients with communication barriers such as limited health literacy or limited English proficiency are targeted for AVS review with staff.

INTRODUCTION

After-visit summaries (AVS) have become a standard part of clinical care since the introduction of Meaningful Use criteria as a part of the HITECH Act of 2009.¹ More specifically, Meaningful Use has provided more than \$30 billion to date for the implementation of electronic health records (EHR) throughout the United States, with health care systems and clinicians* attesting to specific metrics certifying that their EHRs meet standards for use. The provision of AVS has been a core Meaningful Use metric for several years,² with the expectation that patients should receive a written clinical summary document for every visit (either via paper or electronically) with detailed data within key categories such as problem list, medication list, immunizations list, and visit instructions. The uptake of Meaningful Use has been extensive, with 94 percent of US hospitals and 77 percent of US office-based health professionals receiving payment for Stage 1 implementation in 2014^{3,4}—implying that the distribution of AVS is now a widespread practice in the United States.

The Meaningful Use mandate for AVS was predicated on several assumptions, such as its ability to improve patient-clinician communication and patient health knowledge—with the longer-term goal of improving patient adherence to treatment plans and clinical outcomes. This issue is particularly important given the large body of literature documenting that patients remember only a fraction of clinician advice and/or future care plans directly following a visit.⁵⁻⁸ Especially for patients with communication barriers, such as limited health literacy or English

* Referring hereafter to physicians as well as nurse practitioners and physician assistants.

proficiency, the AVS might be a particularly valuable tool by which to document medical decisions and care plans, because the gap in patient communication and participatory decision making is most pronounced among more vulnerable patients.⁹⁻¹³ Despite the overall promise of the AVS, research on how the AVS is being deployed and its impact on patients, clinicians, and clinical outcomes has only recently begun to emerge.

Within this context, we set out to accomplish two major objectives within our study. First, we conducted a literature review about AVS to determine the evidence base for using this document in clinical practice. Second, we completed a series of key informant interviews with primary care leaders throughout the country to understand current practices and expectations for using the AVS, with a specific emphasis on the use of the AVS for patients with limited health literacy. After the review and the interviews, we were then able to offer recommendations for using the AVS in a more routinized way.

PART 1: LITERATURE REVIEW ON AVS

Methods

We conducted a literature search on PubMed for the following terms: “after visit summary,” “visit summary,” and “visit discharge.” From these search results, we excluded articles that did not mention or only briefly mentioned the AVS document and articles about online patient portal use or the review of the medical record more broadly, without sufficient details about the patient-facing AVS document generated during the encounter. From this subset of articles, we reviewed the reference lists to add additional referenced articles of relevance that might have been missed by our initial search. Because of the limited number of peer-reviewed articles included in the final review, we also expanded our approach to include other non-peer-

reviewed gray literature on the topic of AVS, through general online searching with the same terms or from direct suggestions from key informants about their ideas for tools and resources in this area.

Results

Our literature search resulted in 40 articles (20 from PubMed and 20 from reference lists and stakeholder referral). Twenty-eight were excluded on the basis of the criteria listed above, resulting in 12 articles included in this review (Table 1).

The four major groups of included articles were categorized as the following:

1. Examples or case studies of AVS implementation in real-world practice (n = 3 unique papers)
2. Patient perceptions of the AVS (n = 3 unique and n = 2 cross-cutting papers)
3. Clinician perceptions of the AVS (n = 1 unique and n = 2 cross-cutting papers)
4. Observational or interventional research using the AVS (n = 3 unique and n = 1 cross-cutting papers)

Table 1. Summary of Articles Included in the AVS Literature Review

Category	Authors, Year	Setting; Population Studied/Described	Study Design and/or Primary Outcome
Examples or case studies of AVS implementation in real-world practice	Bodenheimer and Laing, 2007	General primary care practice; case study of clinical workflows and practices	Description of best practices; after-visit summary as a component of closing the loop within a team-based care model
	Kanter et al., 2010	Integrated care system; patients with outpatient visits within 13 medical centers	Description of proactive office encounter intervention and correlated metrics; clinical quality and care closure performance measures
	Sinsky et al., 2013	Primary care practices; 23 high-performing practices identified via an expert panel	Innovations in primary care content and workflow, including AVS workflow by nonclinician staff
Patient perceptions of	Tang and Newcomb,	Academic hospital; 20 patients with acute and	Qualitative focus groups; preferences for AVS and satisfaction with care

Category	Authors, Year	Setting; Population Studied/Described	Study Design and/or Primary Outcome
the AVS	1998	chronic care visits	
	Neuberger et al., 2014	Academic medical center; 209 patients with a primary care visit	Cross-sectional survey and interview; accuracy, perspectives, and use of AVS
	Pavlik et al., 2014	Academic hospital; 272 adult primary care patients with ≥ 1 chronic condition	Randomized controlled trial; patient recall of AVS information, satisfaction with care, and adherence to clinician recommendation
	Black et al., 2015	Academic health system; 21 patients with asthma receiving care from and 13 clinicians providing care in primary care and asthma clinics serving low-income urban neighborhoods	Qualitative analysis of focus groups; perspectives about AVS content and uses
	Emani et al., 2016	Academic medical center; 5,370 patients enrolled in patient portal	Cross-sectional survey; awareness, access, and perspectives of AVS use
Clinician perceptions of the AVS	Pavlik et al., 2014	Academic hospital; 272 adult primary care patients with ≥ 1 chronic condition	Qualitative interviews to inform randomized controlled trial; clinician perspectives about facilitators and barriers to AVS use
	Black et al., 2015	Academic health system; primary care and specialty care clinicians and nurses	Qualitative analysis of focus groups; perspectives about AVS content and uses
	Emani et al., 2015	2 academic medical centers; 853 clinicians participating in Meaningful Use program	Cross-sectional survey; perspectives and expectations of AVS use, including ease of use, workload, and effects on health outcomes
Observational or interventional research using the AVS	Dehen et al., 2014	Integrative medicine clinic; 200 patients receiving care before or after AVS implementation	Pre-post intervention study; patient return visits
	Pavlik et al., 2014	Academic hospital; 272 adult primary care patients with ≥ 1 chronic condition	Randomized controlled trial; use of AVS and recall of information after visit
	Anbar et al., 2015	Academic pediatric hospital; 285 child and adolescent patients who had received counseling for medical treatment	Descriptive study with follow-up; patient-reported AVS use following visit
	Jiggins et al., 2016	Urban primary care practice; 100 older adults receiving care from 10 family	Content analysis of AVS; AVS features and content

Category	Authors, Year	Setting; Population Studied/Described	Study Design and/or Primary Outcome
		clinicians	

Examples or Case Studies of AVS Implementation in Real-World Practice

The three articles exploring early implementation of the AVS in practice emphasized the importance of team-based approaches with standard workflows for distributing and reviewing the AVS with patients. In a study of 23 high-performing primary care practices, ranging from private practices to community health centers across the United States,¹⁴ the authors found that high-performing primary care practices encourage team-based responsibility for the AVS with nurses and medical assistants (MAs) preparing, delivering, and reinforcing the AVS and care plan with patients at visit discharge, rather than relying solely on clinicians. Kaiser Permanente Southern California’s implementation of the Proactive Office Encounter represented the second paper in this area¹⁵; it discussed how nonphysician team members, as part of their standard workflow, were responsible for printing the AVS and reviewing it with patients during visit discharge to ensure patient understanding of instructions and follow-up appointments. This practice (in combination with other standard workflows throughout the encounter) contributed to improved clinical quality performance, including 2 percent to 18 percent improvements in colorectal cancer screening, advice to quit smoking, and blood pressure control rates—although the specific impact of AVS distribution within clinic was not separately studied. Finally, Bodenheimer and Laing¹⁶ describe an approach for how the AVS could be integrated into a health coaching model, with the health coach using the AVS as a tool to close the loop with the patients following the clinician visit, that is, asking patients to report back their understanding of tests ordered, referrals, and medication changes.

Patient Perceptions of the AVS

The published literature on patient perspectives on the AVS offered a favorable view of it. Two qualitative studies^{17,18} found that patients valued the AVS, sometimes using it to share information with families and potentially motivating self-care.¹⁷ Although readability was an issue for some patients,¹⁸ many desired more information about their chronic disease and medications. A quantitative study in the Midwest¹⁹ echoed these themes: 84 percent of patients found the AVS useful, and 60 percent found it easy to understand; however, only 41 percent of the 209 patients reported using it after the visit for a specific purpose, generally to share information with family. A recent Massachusetts study of patient perspectives on the AVS—conducted through a patient portal, thereby limiting generalizability to electronically engaged users—found that 55 percent of patients accessed the AVS within five days of a visit, that overall satisfaction was high (3.9 on 1–5 scale), and that the highest perceived value was in the ability to efficiently track visits over time.²⁰

The final and most provocative study was a randomized control trial (RCT) with various content delivered within the AVS among a diverse sample of 272 English- and Spanish-speaking patients, about half of whom preferred Spanish and only 64 percent of whom had adequate health literacy.²¹ This study found that patients across literacy and language subgroups had high satisfaction with the AVS. Patients also wanted the AVS to routinely include specific, individualized explanations of their health problems and personalized health goals, and they expressed the desire for the information on medications and problems lists on the AVS to be up to date and accurate. Not surprisingly, Spanish speakers wished to receive the information in Spanish, even though this option was not available at the time of the study.

Clinician Perceptions of the AVS

The literature on clinician perspectives on the AVS focuses almost exclusively on physicians. In the formative phase of designing the RCT that studied varied AVS content, Pavlik et al.²¹ found that physicians viewed the AVS as a potentially useful tool for patient care and patient education, yet were concerned that the lack of tailoring of the AVS to the needs of specific patients, particularly with regard to literacy level, and the current inability to provide the AVS in Spanish would diminish AVS appeal and impact. Furthermore, they were concerned about the clinician time involved in updating the problem and medication lists. These perspectives were echoed in a qualitative study by Black et al., where clinicians expressed frustration with their inability to readily tailor the AVS to highlight key information and with what they perceived as poor formatting and readability for patients with low literacy or language barriers.¹⁸ These clinicians also expressed some frustration with errors in medication lists and extraneous information (administrative codes) found on the AVS. However, they too viewed the AVS as a potentially useful tool.

Finally, a recent detailed survey was completed among 853 clinicians associated with two academic medical centers.²² While 80 percent acknowledged that the AVS was easy to generate and provide to patients, about three-fourths of the respondents reported a negative effect of generating and providing the AVS on the workload of office staff (78 percent) and the workload of clinicians (76 percent). This extra workload was not perceived to add meaningful contribution to care: three-quarters (75 percent) rated the AVS effectiveness as poor or fair. Although primary care clinicians were somewhat more likely than specialists to believe that the AVS contributed to patient-centered care, the overall sample perceived neither a negative nor positive effect. In all, two-thirds of clinicians (66 percent) reported little or no satisfaction with the AVS as currently constituted.

Observational or Interventional Research Using the AVS

Only four articles included in this review evaluated an intervention centered on the application of AVS in a clinical setting. Studies included a content analysis of AVS given to older adults at the end of the clinical visit²³ and three studies that tracked various patient outcomes following the receipt of an AVS.^{21,24,25} In the content analysis, the author evaluated 100 visit summaries given to older adults in an urban family practice setting.²³ In addition to problem list and medications (which were present 100 percent of the time), vital signs (98 percent), smoking status (88 percent), and personalized care plans (67 percent) were the most common sections of AVS. Despite the ability to tailor some components of the AVS, the study found that a university-level education was required to understand an AVS when examined for readability and that a high level of variability existed in the content and completeness of AVS between clinicians.

In the remaining studies evaluating the impact of the AVS, the outcome measures included number of return visits,²⁵ proportion of patients keeping and referencing the AVS at home,^{21,24} recall of medical information,²¹ and self-reported treatment adherence.²¹ Dehen et al. found no relationship between receipt of the AVS and the mean number of return acupuncture visits.²⁵ With regard to referring to the AVS at a later time, the studies found mixed findings about the use of the AVS following the visit. One study reported that only 13 percent of patients reported referring to the AVS within a few days of the visit,²¹ and another study of pediatric behavioral health patients reported high anecdotal rates of keeping or using their highly personalized AVS (which was customized with images of their favorite animals or inspirational quotes).²⁴ Finally, the Pavlik et al. RCT described above found no significant differences in patient adherence, satisfaction, or recall of medical information when directly comparing

different types of AVS documents with varying amounts of content.²¹ Interestingly, overall recall was low (patients remembered less than 33 percent of the content categories displayed on the AVS) and was unrelated to the health literacy status of participants or the amount of content information displayed in the AVS.

Summary

Overall, to date there are only a handful of studies published on the use of AVS in primary care practice. Most of these studies used weaker designs (such as case studies or convenience samples with pre-post self-reported measures), with only 5 of the 12 included studies^{17,18,20-22} using in-depth survey, qualitative, or experimental methods. Among this relatively small sample of published literature, we can draw several broad conclusions:

- Patients are highly satisfied with the AVS.
- A substantial portion of patients reported intending to use the AVS after their visits, but fewer patients appear to routinely refer to the document after the visit.
- The only RCT on this topic varied the number of categories within the AVS (as opposed to receiving versus not receiving the AVS); the authors found no significant impact of different-length AVS documents on patient recall or self-reported medication adherence at follow-up.
- Clinicians are less satisfied than patients with the AVS, especially with regard to their ability to easily provide accurate and customized information.
- Several studies commented on the potential for the AVS to be a valuable tool, especially with more comprehensive workflows that used the AVS to reinforce key information from the encounter.
- Language barriers are present in the current iterations of the AVS.

Future research is needed to understand if and how the AVS truly contributes to improved patient outcomes and to directly compare the impact of different workflows of AVS distribution. For example, there has been nothing published that provides insight on the electronic delivery of AVS (such as through an online patient portal) versus hard-copy dissemination, and there is no research that compares different workflows for reinforcing information contained in the AVS—both of which might provide insights into the mechanisms for how the document is related to patient understanding and recall.

PART 2: KEY INFORMANT INTERVIEWS

Methods

Our team used a combination of purposive and reputational sampling of known leaders in primary care to identify key stakeholders for the interviews. First, we contacted leaders from two large national studies of high-performing primary care practices^{14,26} who participated in the interview process as well as referred us to specific institutions for additional key informant contacts. This process resulted in a total of five key informant interviews. Second, we used our existing personal networks of well-respected safety net and academic primary care practices to identify an additional four key informants.

This mix of recruiting methodology allowed for a varied representation among academic, safety net, and private practice (including large integrated delivery systems) sites in the final sample (Table 2). Although we did not specifically sample by EHR product, the majority of participants were currently using Epic in their setting (which is becoming more commonplace in many health care settings nationwide²⁷), although the three primary care leaders interviewed had

experience across multiple sites and therefore commented on their experience with AVS versions more broadly.

Table 2. Summary of Key Informants by Site and Role

Site #	Key Informant Site	Role	Location
1	Safety net practice	Director of quality	Oregon
2	Safety net practice	Internist	Colorado
3	Safety net academic practice	Director of primary care excellence	California
4	Safety net academic practice	Associate division chief of primary care	New York
5	Academic practice	Medical director	Massachusetts
6	Academic practice	Division chief	Massachusetts
7	Private practice	Internist	Wisconsin
8	Integrated delivery system	Director of primary care excellence	Washington
9	Integrated delivery system	Director of quality	California

For each interview, we used a semi-structured interview guide to capture the same types of information from each site. Probes included the following: how they and other clinicians in their setting used the AVS in their practice (i.e., which fields were emphasized, how it is distributed, which team members were involved), their perceptions of the usefulness of the AVS, their views of ways to improve AVS use in the near future, and their specific insights on how the AVS impacts care for patients with limited health literacy. Because of their national leadership roles in primary care, three of the nine participants in addition reflected broadly about their perceptions of AVS use in different types of primary care practices across the country.

Results

Current State of AVS Implementation

First, all participants reflected on the current practices of using the AVS, mostly within their own settings but also more globally in primary care sites if they were familiar with the

standard practices at multiple sites. A summary of the current practices stated in each interview is found in Table 3, including the team member responsible for the AVS distribution.

Table 3. Current State of AVS Implementation in High-Performing Primary Care Sites

Site	Current AVS Workflow	Team Member Distributing AVS
Site 1: Safety net practice	<ul style="list-style-type: none"> • Paper copy of AVS (around two pages) given to patients at end of visit <ul style="list-style-type: none"> ○ Standard MA work to check out patients with mostly administrative tasks such as scheduling visits/lab draws • Clinicians spend more time with patients with higher needs, such as limited health literacy • Clinic also has an interdisciplinary workgroup to work on standardized nonjargon language to use within the AVS to meet patient literacy needs 	MA
Site 2: Safety net practice	<ul style="list-style-type: none"> • Before recent Epic implementation, used a handwritten after-visit note for communicating specialty appointments and labs • 80–90 percent of patients receive it • AVS prepared by clinician; MA gives to patients and goes through it with them to highlight important parts 	MA
Site 3: Academic, safety net practice	<ul style="list-style-type: none"> • AVS could be a great tool if used for teach-back but almost never sees it actually used or implemented in the right way <ul style="list-style-type: none"> ○ Across many sites, they aren't using the AVS, or it gets printed and handed to patient without explanation • In most primary care practices, practice transformation emphasis and workflows do not even think about visit discharge as an important process and don't pay attention to AVS/visit discharge 	Unclear role
Site 4: Academic, safety net practice	<ul style="list-style-type: none"> • Clinicians give printed AVS to almost all patients <ul style="list-style-type: none"> ○ Clinicians will circle sections for patients to look at • Patients who need the information on the AVS the most have the longest and most difficult-to-process documents (>4 pages long) 	Clinician
Site 5: Academic practice	<ul style="list-style-type: none"> • Standard process for AVS printing at the front desk at every visit • Majority of patients are now turning down the option to print the AVS • Many clinicians customize patient instructions in the AVS with simpler language 	Front desk

	<ul style="list-style-type: none"> • AVS has become more meaningful for some high-risk patients, who are prioritized to have a formal care planning process that is documented in AVS 	
Site 6: Academic practice	<ul style="list-style-type: none"> • AVS from previous visit was handed out by secretary prior to appointment, then current AVS distributed by secretary at the end of the appointment <ul style="list-style-type: none"> ○ Not using MAs or other staff • Patients like it, but clinicians don't (partly because doesn't fit in well with workflow) 	Front desk
Site 7: Private practice	<ul style="list-style-type: none"> • Currently a standard practice to print out an AVS for all patients; usually an MD doing this with clear steps to walk through what's most important for patients • Most valuable features are (1) "smartphrases," keystroke shortcuts within the EHR for commonly used language that pull in custom and updated information and (2) personalized "Patient Information" section 	Clinician
Site 8: Integrated delivery system	<ul style="list-style-type: none"> • Has rarely seen self-management support/"active teach-back" done in a standardized way even in high-performing primary care practices • Not a strong believer that paper alone will do much for patient understanding/engagement; does not think patients are currently using AVS at all after it is printed out • Not a clear depiction of MA vs. clinician doing this now 	Unclear role
Site 9: Integrated delivery system	<ul style="list-style-type: none"> • AVS as one of many ways system/clinician communicates with patient • Handed out by both MAs and clinicians in current practices • Clinicians can customize with stock pull-down "smartphrases" (to bring in standard patient education) or free text • The AVS is both cluttered and long but contains useful information 	Both MAs and clinicians

When discussing these existing workflows, various sites had several areas of commonality:

1. Consistent dissemination of a hard-copy AVS. Most practices mentioned that they were handing out the AVS at the overwhelming majority (if not 100 percent) of visits in order to reach Meaningful Use metrics. As a concrete reflection of this standardized process, many practices had put printers in every exam room with the specific twofold purpose of making printed AVS distribution more seamless and reducing errors in handing out the wrong AVS to patients.

In addition, the majority of these high-functioning primary care sites had robust practices of customizing the information within the AVS itself, most often within the “patient instructions” section of the document in which specific information about lifestyle modifications or information about taking new medicines was entered. One participant stated, “I would say . . . [that] probably the sections that are most used by the clinician are the blank free text space where you do write out some instructions.”

2. Perception that the patients like the AVS, but not sure if they use the information on it.

Several participants stated that there was a general sense that patients like receiving the AVS. One said, “We have seen some comments in our patient experience surveys that patients like [the AVS].” Another noted, “Patients actually really, really like having the information.”

Despite these comments, we saw that few if any respondents understood whether and how patients actually used the AVS following the encounter. The most common sentiment expressed during the interviews was: “I have no idea how many after-visit summaries make it to the waste basket on the way out.” Another common sentiment was: “I think the patient treats it like they would treat any other confusing piece of paper, which is either to throw it away before they leave the clinic or after they get home.” This was true even if the AVS had customized instructions or details about upcoming appointments on it. In one instance where the clinic began to specifically ask patients if they wanted the AVS printed out, the number of AVS handed out dropped significantly. According to one respondent, “In fact, some patients get upset when I print them out because they think we’re not being environmentally sound.”

3. Little widespread use of the AVS as a direct teaching tool. While there was a wide range in how the AVS was being used to reinforce information or provide education/counseling to patients at the end of the visit, the majority of practices did not do this in a standard way. Most

practices simply printed the document out and handed it to patients as they left. One participant summed up this current state of implementation as follows:

I've yet to find anyone, anyplace where someone goes over the After Visit Summary with the patient. And I've asked many places [even in high-performing sites] because it seems so obvious that you want to do that in terms of closing the loop. . . . It's such a terrific way to close the loop, and it's just surprising. People just don't do it.

In contrast, a little less than half of the interviewees did mention circling/highlighting important information on the AVS to emphasize specific written information on the document. However, it appeared to be a standard or routinized practice for the majority of clinicians at only a couple of sites. For example, one participant stated:

I feel I give [out the AVS] when I want to highlight something. . . . [For example,] I changed her meds, and I wanted to make sure she knew which one she was picking up, [but for] one of my regular patients, there was nothing new so I didn't give [an AVS] to him.

Note that the safety net practices appeared to be more likely to have a process for closing the communication process with patients at the end of the visit using the AVS, perhaps because of their greater experience in communication practices for more vulnerable patient populations.

Best and Worst Features of the Current AVS

We also asked the interviewees their opinion about the best and worst features of the AVS. These responses are summarized in Table 4. There was widespread consensus that the patient instructions section was the most useful feature, largely because of its flexibility and customization. In addition, the medication list was mentioned often as a useful section, especially if it was accurate and could reflect direct changes during the encounter. Finally, participants mentioned other useful features of their AVS that are not required sections within the Meaningful Use criteria, such as upcoming visit lists and customized care plans.

Table 4. Best and Worst Features of the Current AVS

Site	Best Features of AVS	Worst Features of AVS
Site 1: Safety net practice	Clinic already created a committee that has “been paying special attention to things like the white space and exactly how much is on [the AVS]. . . . [They] created dot phrases [keystroke shortcuts that insert standardized language] to change [wording for] referrals and for procedure orders that explain more of what the thing is or what type of doctor and persons are being referred to [in plain language].”	“I just go in and wipe all of that extra stuff out [to make the AVS more useful].”
Site 2: Safety net practice	<p>“I think giving the patients an easy-to-read list of their medications is probably the most important thing.”</p> <p>“I think after that, just a brief outline of what their instructions and what the goals of that appointment were.”</p>	“I think we do need to redesign our AVS, for sure. I’ve had the chance to take more of a look at it. I just feel like the order it’s presented in is a little bit difficult for patients to understand, and it’s all clunky.”
Site 3: Academic, safety net practice	“They [need] the essential components of the care plan, particularly any changes in the care plan, and not all the other stuff that it has.”	<p>“Well, number one is they [need to be] really short. . . . It really should be a like a page.”</p> <p>“It doesn’t indicate that instead of doing A, you’re going to do B. . . . If it doesn’t do that, then it’s really not helpful. . . . It really has to show the change in the care plan.”</p>
Site 4: Academic, safety net practice	<p>Wants the AVS to be organized as follows to say to his patients: “Here are your meds in a clear and organized way. Here are the tests or the upcoming appointments that you have. Here’s individualized instructions for you.”</p> <p>“You can also attach educational pieces out of the EMR, and that often has some pictures. That is more like an educational handout. While it comes at the end of the AVS, I feel like it’s sort of a separate piece.”</p>	<p>“It’s just very busy appearing in format. . . . The patients that [it] might be the most useful [for] are the patients that are on the most medicines. The more medicines you are [on], the more busy it looks. It’s not in a table format. It’s mostly just words across the page.”</p> <p>“I feel like the document is big and cumbersome and bulky, and I think that most of us feel like, ‘Oh, my God. Too much. This is useless.’ Or it could be more useful if it was more targeted, so I think people have taken it and tried to target the things they wanted individual patients to look at, not even giving them</p>

		<p>the other pages.”</p> <p>“I think the least valuable is the problems [list].”</p>
Site 5: Academic practice	<p>“Epic [is] very easy, it has good stuff in the patient instruction section.”</p> <p>“The [care] goal section of Epic [is what we are focusing on now].”</p> <p>“I do actually think we need to have their meds every time. . . . They need educational materials and meds and goals and care plans.”</p>	<p>“One of things we’ve learned is shorter is better.”</p> <p>“Unfortunately, all this other stuff comes out too [when you print the AVS]. . . . Whether you could just say, ‘I only want these two sections here,’ I don’t know if that’s possible.”</p> <p>“The other thing is, we don’t really need to hand the patient their problem list every time.”</p>
Site 6: Academic practice	<p>“I guess the medication has probably been the single most useful because that takes a lot of reconciliation. It’s so hard, and there are so often mistakes with it.”</p> <p>“I think [adding] some of the patient education information would be very nice.”</p>	<p>“[The AVS] would have to be set up in a better way from the usability perspective because right now, for me to go find the information like that, it’s hidden.”</p>
Site 7: Private practice	<p>“Patient information. . . . I’ve got lots of SmartPhrases that are relevant to different topics.”</p>	<p>“It’s a lot of junk on there that just gets thrown in. . . . I can see people get overwhelmed with information.”</p> <p>“The problem list . . . that’s a long thing but I think that’s maybe unnecessary.”</p>
Site 8: Integrated delivery system	<p>“AVS include lots of behavior or often include behavioral recommendations [in customized patient instructions and care goal/plan sections]. That’s one of the beauties of putting it in the hands of the health coach.”</p>	<p>“The [AVS] that I get here . . . have far more information than I would ever want to know.”</p>
Site 9: Integrated delivery system	<p>“I think each doctor has their own ways of educational links they call up. . . . Stuff like that which you might not put in your notes but you should tell the patient verbally or put it in [the] instructions [section of AVS].”</p> <p>“I think it’s the utility here having the med list on the AVS as well as in our</p>	<p>“To me, one of the big issues is the clutter that gets in there. Some of them are way too long, and even if you wrote down the language to the sixth grade level . . . some of these things read like <i>War and Peace</i>.”</p>

	patient portal.”	
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Overcoming Barriers: Desire to Use the AVS Better to Improve Patient Knowledge and Comprehension

Despite this range in current practices, nearly all key informants believed that the AVS offers huge potential to improve care and outcomes. For example, interviewees did not think that the AVS would be phased out in their program in the near future—regardless of pending changes in the Meaningful Use program—because it has inherent value as documentation of important patient information. For example, participants made such statements as the following: “I don’t think the AVS would ever become obsolete.” “I feel like the concept is a great idea.” “I think it’s a great thing. I think it could be really important. I don’t think it’s important the way it’s used now, but I think it could be extremely important and extremely helpful.”

Instead, the barriers to using the AVS more effectively centered around several implementation-related topics:

1. Lack of clear team roles and workflows for AVS use. Respondents acknowledged that it is essential to have clear roles and responsibilities around using the AVS to reinforce information for patients but that this was not yet the norm. For example, one participant stated, “Even as . . . division chief, I don’t really have a good sense of how many people or how everybody [in clinic disseminates the AVS].” In the few practices where workflows were designed in part to reinforce information on the AVS, the clinician or the MA was assigned responsibility for this task. Many participants specifically mentioned that they believed that nonclinician staff might be best situated within the clinical workflow to discuss next steps with patients, especially concrete administrative tasks (such as getting to an upcoming appointment) and lifestyle behaviors (such as initiating a new exercise routine to prevent back injuries). For example, the single practice that

had a standard workflow for MAs to conduct visit discharge at the conclusion of all visits commented, “MAs really like it. They like being part of the process of closing the loop and just helping the patient with those final details.” Other participants agreed that nonclinicians could be used better to do this visit discharge work but knew that additional processes and training would likely be necessary to achieve this goal. One respondent said, “I mean, what’s [written down] in the AVS will probably not be enough to supply somebody like an MA with enough information that she can answer patient questions. On the other hand, if she’s sitting in the room and scribing, I think she could.”

Another participant noted:

I think one of the challenges with that is the docs doing a good enough job conveying what information they want to highlight [after the visit] and the staff member understanding how to highlight that [for the patient]. Some of that could be done with training and maybe better communication either in person or electronically between the physician and the nursing staff.

A third participant said:

The problem is the MA would have to know which part of the After Visit Summary to go over because you don’t want to go over more than like a couple of things, because people are not going to walk out of the practice remembering eight or ten things. Ideally, they will remember one or two of the most important things.

2. Need for sufficient time to deliver robust patient education/teach-back. There was clear tension between the need to give more patient-centered instructions and the lack of time available during a single clinical encounter. One participant stated this problem as follows:

We only get a 20-minute appointment with our patients, and so sometimes we have to move pretty fast; we talk fast, and I always worry about how much my patients actually absorb from their instructions and what I told them our plan is. . . . I think time to spend more time with our patients will be helpful [as a goal for future care].

Not only would patient understanding of all relevant information take up a significant amount of time, but this process could potentially open the door for initiating a whole new

discussion with patients as well. For example, one participant stated: “You know what happens when you go over things with patients. They start asking all these questions: ‘Do I really need to do this?’ It becomes more than just making sure the patients understand what the care plan is.”

Finally, some clinicians are not finished charting at the conclusion of a visit (preferring to finish their notes at a later time), making the information on the hard-copy AVS at the conclusion of a visit potentially incomplete. For example, one participant expressed this idea as follows: “Sometimes the doctor is not done putting stuff in [the EHR], and the changes that happen at that visit don’t necessarily make it into the exact [AVS printed during the visit]—and that’s a little bit of an issue.”

3. *“[The AVS] seems to want to serve too many purposes.”* Many comments were made about the fact that the same AVS document was trying to convey many different types of information all at once—from medication initiation and renewal to lifestyle advice/instructions to upcoming appointment lists. Similarly, clinicians wrote a wide variety of different patient instructions within the free-text section of the AVS that was not always easily categorized. This made the current versions of the AVS very long and difficult to sift through to find the most meaningful information for that specific visit. Table 4 includes many examples of how the breadth and length of the AVS was a major hindrance to using the document as a clear teaching tool.

4. *Difficulty of tailoring the AVS to literacy level and language.* Several interviewees spoke to the fact that the AVS needed to be available in other languages and said that more of the information should be written at a lower reading level and without medical jargon. They believed that the ease of customizing the medical content in this way—especially within the patient instructions section of the AVS—was a critical pathway to improving patient communication at

the conclusion of a visit. In addition, such written customization of the AVS could also improve the overall verbal communication process with patients to emphasize the most important details from the visit. One respondent noted, “[We’d like to find] a way to do like the med chart with pictures, not just all words. . . . [The AVS is] basically four pages of words.” Another interviewee said, “For our folks that speak other languages, we are really limited in terms of written instructions we can provide for them. I don’t have any good workaround for that.”

Because this inability to tailor content was such an issue with the current version of the AVS, one site was already taking the literacy-appropriate customization of the AVS into their own hands by establishing a quality improvement committee specifically focused on improving the readability of the AVS: “We have a health literacy committee which is a subcommittee of our QI committee that . . . reviewed . . . plain language needs [for the AVS].”

The full summary of these and other specific ideas for improving the use of the AVS in real-world primary care practice is shown in Table 5.

Table 5. Ideas for Improving AVS Implementation and Use in Primary Care

Category	Recommendations	Specific Interventions
Tailoring content of the AVS	<p>Improve the ability of patients to understand the AVS by improving design (Sites 2, 5, 6).</p> <p>Streamline the AVS to provide more targeted information (Sites 4, 7, 9).</p> <p>Increase customization of the AVS to focus on information that patients want (Sites 1, 5, 8).</p>	<p>Allow clinicians to select certain sections to print or only give specific sections to patients (Site 4).</p> <p>Measure and record language preference, health literacy status, and other characteristics in patients’ charts and then customize the AVS to meet their needs (Sites 1, 6).</p> <p>Develop AVS customization tools to annotate within a template to make it personalized on the basis of how doctors chart/write notes (Site 8).</p> <p>Extend the content of the AVS beyond text, using symbols and audiovisuals (Sites 2–4, 6).</p>

<p>Creating a standardized process for AVS use within a team-based care model</p>	<p>Create a standardized process and designated roles for AVS implementation (clinician vs. other team member) (Sites 2, 4–8).</p> <p>In partnership with clinicians, medical assistants, health coaches, or other team members can use the AVS to effectively close the loop with patients (Sites 1-3, 5, 6, 8).</p>	<p>Train staff with high-level skills, including motivational interviewing, to promote effective use of the AVS (Sites 1, 3, 5, 6, 8).</p> <p>Transmit key points from clinician to medical assistant following a clinic visit (Site 3).</p> <p>Include printers in each clinic room to print the AVS before the end of the visit (Sites 1, 4).</p>
<p>Closing the loop and promoting understanding of care goals</p>	<p>Use the AVS as the foundation of patient teach-back (Sites 2, 5, 8).</p> <p>Use the AVS to improve care planning and communication in between visits (Sites 2, 5, 8).</p>	<p>Emphasize key points and personalized instructions with patients before the end of the visit (Sites 2, 4, 7, 9).</p> <p>Build in sufficient time to effectively explain the AVS, especially with patients with complex medical conditions, limited health literacy, or other barriers (Sites 1–4).</p> <p>Document care goal/plans within the AVS (Sites 3, 5, 7).</p>

Summary

In our key informant interviews, we intentionally sampled high-performing practices where we anticipated the most extensive use of AVS in routine care. We found that the experiences and barriers to AVS implementation were similar across these high-performing sites, regardless of whether we were interviewing integrated delivery system, safety net clinic, or academic-affiliated practices. Some of the major conclusions from these interviews included the following:

- The hard-copy AVS was distributed in almost all encounters.

- Even among our sample of high performers, there was variability in the dissemination and implementation of the AVS, with (1) widespread uncertainty about whether the patients valued/used the AVS and (2) few routine workflows in place for reinforcing or educating patients about specific content on the AVS.
- Even practices with long-standing EHR use faced barriers to using the AVS as a direct teaching tool during the visit, mostly because of unclear workflows and insufficient time for the appropriate primary care team member to handle this task.
- The most useful feature of the AVS appeared to be the customizable patient instructions section, but the respondents thought that this information was often buried in the midst of other content. Other sections of the AVS were also seen as useful (such as medication lists), but clinicians wanted more control over which sections to include for certain types of patients/visits.
- Despite these challenges, the interviewees were optimistic about the ability of the AVS to become a cornerstone of visit discharge patient education practices in the near future.

Overall, it is clear that improving the content of the AVS is necessary to improving overall implementation, but content improvements alone are not sufficient without simultaneous workflow changes to support use and patient understanding. Future research could provide much more insight by comparing different types of workflows within real-world practices. In addition, participants had little insight about whether electronic distribution of the AVS via the online patient portal would ever replace hard-copy distribution, which is another knowledge gap for future investigation.

PART 3: RECOMMENDATIONS FOR USING THE AVS IN A MORE ROUTINIZED FASHION FOR PATIENT EDUCATION

Taking together the major findings from both the literature review and the key informant interviews, we see that patients and clinicians support the use of the AVS as a key tool to reinforce patient instructions and care plans. The published evidence in this area laid out high patient satisfaction with the AVS, and the key informant interviews reinforced the idea that personalized patient instructions are captured best in a document like the AVS. However, both the literature and the key informant interviews outlined some overarching challenges in making the AVS more useful. In terms of the published literature, there was little evidence that the AVS led to improved patient awareness or adherence, and this finding mirrored the barriers highlighted within the key informant interviews that the AVS was not routinely used to reinforce specific information or concepts with patients.

To move the field forward, we put forth below key recommendations for improving the primary care implementation of the AVS to make it a more foundational element of patient education and communication. These recommendations are relevant for all patients and health care settings, but they are likely to have the most impact for patients with communication barriers during health care encounters, such as patients with limited health literacy.

Figure 1 outlines several of these recommendations and includes examples of specific workflows from various sites.

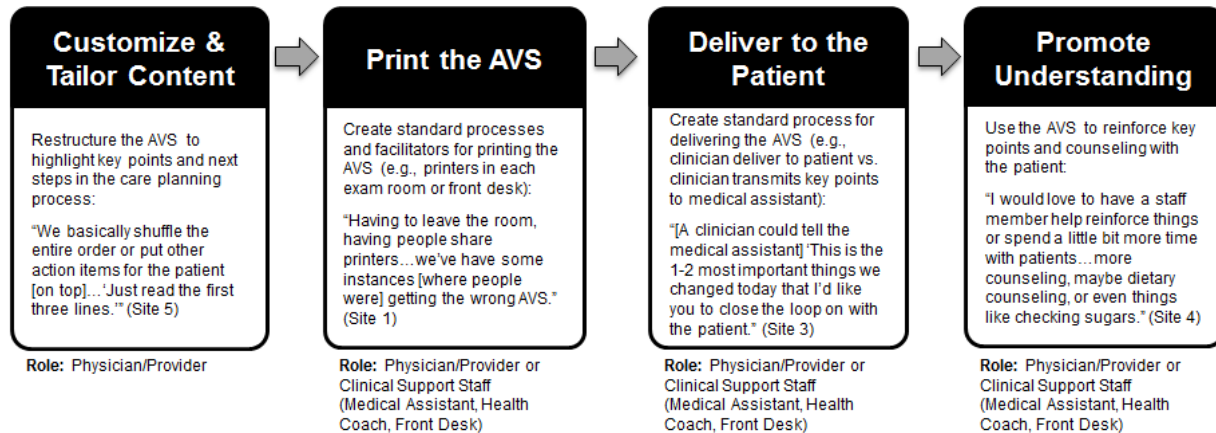


Figure 1. Visit Discharge Workflow and Examples of AVS Implementation

1. *Ensuring that the AVS is easily customized on the basis of the specific needs of the patient and the visit goals, incorporating shortcuts to pull in up-to-date information and simple ways to tailor on the basis of literacy level and preferred language.*

Our work suggests that there is not a universal set of information that needs to be provided for every patient at every visit. Maintaining the flexibility of the AVS while allowing the easiest customization and personalization appears to be a primary strategy to make the document more relevant within existing practice. For example, the medication list might be one of the most important elements if a new prescription was ordered during the visit, and it would be helpful for clinicians to be able to emphasize this section if needed. Similarly, the ability to use shortcuts such as Epic “smartphrases” to pull in customized information could be particularly important for the care planning process when patients are working on lifestyle modifications. Note that only one site in our study was working on evaluating the literacy level of the information presented in the AVS, and only a few sites were working on customizing patient instructions on the AVS in

languages other than English, suggesting a high need for better customization at these two fundamental domains at a minimum.

2. *Establishing primary care team responsibilities for AVS completion and review.*

Different primary care team members were responsible for printing, distributing, and reviewing the AVS across the high-performing sites in this study. Different practices appeared to have success with either the primary care clinician or the medical assistant responsible for this task, suggesting that each site might want to customize the roles as necessary. However, most participants agreed that involving nonclinician staff in at least some steps of this process would likely yield the most benefit.

3. *Creating specific workflows for the practice that outline the steps for communicating with the patient to reinforce AVS content.*

A couple of key informants in our study were using the AVS to teach patients and reinforce key messages for next steps. These sites appeared to have a defined workflow for “visit discharge,” which also allowed them to assign responsibility to either a clinician or another team member (most often an MA) to not only disseminate the AVS but also highlight key information on the document. The role of teach-back²⁸ in this process was key, as patients should be able to repeat back their understanding of the information to ensure clarity between patients and the health care team. This critical step of using the AVS document in combination with dedicated in-person contact has the most potential for increasing patient awareness and engagement, especially for low-literacy patients.

4. *Providing training for nonclinician staff to take on key aspects of the AVS teach-back process.*

Because the respondents gave many examples of using the AVS in flexible ways for a myriad of communication needs, it is clear that nonclinician staff would likely need additional skills training in patient-centered communication strategies such as teach-back or closing the loop to be able to reinforce messages across these topics. Many interviewees specifically mentioned using nonclinician staff to do some of the AVS communication but were unsure about the skill sets within their existing teams to do this effectively. For example, MAs might be currently well suited to discuss the upcoming appointment list with patients on their AVS, but they might not know how to assess patient understanding of care plans and medication changes or how to reinforce what was written in the AVS to improve patient understanding. If the primary care practice is looking to specifically use the AVS for goal setting and action planning for patients with chronic illness (especially around lifestyle modification behaviors), another set of skills in motivational interviewing and/or health coaching might be considered as well.

5. *(If time limits within clinic exist) Using prioritization of the patient population to ensure that patients with communication barriers such as limited health literacy or limited English proficiency are targeted for AVS review with staff.*

Because of clear resource limitations in existing primary care practices, it might make the most sense to first roll out the teach-back using the AVS among a prespecified group of high-risk patients who need the most time going through all the information within the document, such as patients with multiple conditions and patients with limited health literacy or other communication barriers where closing the loop is particularly important. To make this recommendation a reality, we understand that additional staffing is likely required to meet the level of patient communication needs. Safety net settings that care

for a disproportionate burden of patients with limited health literacy or other communication barriers might need additional reimbursement or staffing models to be able to conduct meaningful teach-back with all patients in their practice who need assistance reviewing the essential next steps from the visit.

CONCLUSION

Moving forward, we believe that the AVS will continue to be a routine part of primary care. We envision increased utility of the AVS for both patients and clinicians as the field improves on the content and design of this document. Moreover, we see the concurrent widespread adoption of team-based primary care as complementary to the implementation of AVS within patient-centered medical homes, especially as teams work out new roles and responsibilities for patient communication that could be anchored in AVS content. Ongoing research should be helpful in elucidating best practices.

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