RESEARCH

A content analysis of the Meaningful Use clinical summary: do clinical summaries promote patient engagement?

Karen Jiggins

College of Nursing and Health Innovation, Arizona State University, Arizona, USA

Aim: This study analyzed Meaningful Use (MU) clinical summaries (CS) given to 100 older adults (⩾65) from 10 family physicians in an urban primary care practice. **Background:** In the United States, MU was designed to promote and enhance patient engagement in hospitals and clinics across the country, providing financial incentives to physicians attesting to the Meaningful Use of a certified Electronic Health Record by meeting a series of measures and objectives. The CS is intended to support patient and family engagement by communicating elements discussed during the clinical encounter including an updated medication list, problem list, and plan of care (POC). Despite the $27.7 billion spent distributing MU payments to more than 418,000 Eligible Professionals in ambulatory care to date, there is little discussion in the scholarly literature supporting the use of the CS to facilitate patient engagement. **Methods:** Ten CS were accessed from each of 10 family physicians during a regular practice week. Directed content analysis and descriptive statistics were used to evaluate the summaries. Key variables of analysis included diagnoses, medications, plan of care content, availability, completeness, health literacy, format, and readability. **Findings:** CS contained an average of 5.2 diagnoses and 10 medications. Summaries contained vital signs (98%), lab results (9%), smoking status (88%), professional care team members (4%), follow-up appointments (46%), and POC (67%); 37% of CS were judged to be incomplete. Readability scores indicated that a university education was required to understand the CS. CS support patient engagement by supplying information that supports behavior change and self-management, however barriers to patient engagement exist, including (a) access, (b) poor document readability, and (c) a lack of customization to the patient's experience.

Key words: clinical summary; health literacy; meaningful use; older adults; self-management

Patient engagement enjoyed its formal début with the opening act of Meaningful Use, as participating Eligible Professionals were required to produce a clinical summary for patients and families leaving the outpatient clinic. After-visit summaries have been distributed upon discharge from hospitals for many years with varying degrees of success (Institute of Medicine (IOM), 2014) but it was not until the Electronic Health Record (EHR) Incentive Program (known as 'Meaningful Use') administered by the Centers for Medicare and Medicaid Services (CMS) and the Office of the National Coordinator for Health Information Technology (ONC), that ambulatory clinics began distributing a similar document as early as 2012.

The purpose of the clinical summary is to document the plan of care and provide information to assist patients and families in managing their health and healthcare. The clinical summary was designed to further promote patient and family

Correspondence to: Karen Jiggins, PhD, MBA, RN, College of Nursing and Health Innovation, Arizona State University, 500 N 3rd Street Phoenix, AZ 85004, USA. Email: kljiggins@gmail.com

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engagement, a national health priority area (Agency for Healthcare Research and Quality (AHRQ), 2013) and a main goal of the EHR Incentive Program (US Department of Health and Human Services (DHHS), 2010). The clinical summary contains various elements as outlined by ONC/CMS, including an updated medication list, problem list, a list of procedures, labs and other orders, instructions given to the patient based on clinical discussions that took place during the visit, the times and locations of upcoming tests and appointments, recommended patient decision aids, and any recent test results (CMS, 2013).

During Stage 1, clinical summaries were printed for patients at the conclusion of their healthcare encounter with the physician. Stage 2 requires that 5% of patients of EPs access (view), download, and transfer electronic personal health information from a practice-based patient portal to other members of their healthcare team (DHHS, 2010, 2012). The provision of the electronic clinical summary through the patient portal (to more than 50% of patients) is unique to Stage 2, as is the requirement that 5% of the EP's patients use secure messaging (email) to communicate with providers (DHHS, 2012).

Clinical summaries are designed by individual EHR vendors and therefore vary greatly in their composition and style. As long as the clinical summary contains the elements outlined by CMS/ONC, the vendor's product can be certified and Eligible Professionals may attest to Meaningful Use measures using the certified EHR. Individual physician users may have the ability to alter a vendor-designed clinical summary for content or appearance, depending on the individual EHR product deployed at a given site. The degree of manipulation that is possible varies greatly. Some can be customized per user, others per clinic, and some clinical summaries are not modifiable by the physician-client at all.

Despite the $27.7 billion spent distributing MU payments to more than 514,000 eligible hospitals and professionals in ambulatory care environments to date (CMS, 2014), there is surprisingly little discussion in the scholarly literature about the content of the clinical summary, and even less discussion about whether or not the utilization of a clinical summary actually facilitates patient engagement. As a starting point for further research, this study sought to analyze the Meaningful Use clinical summaries obtained from a certified EHR. IRB approval was obtained through Arizona State University (#00000847).

Methods

Sample

This study sought to analyze 100 clinical summaries selected by convenience sampling. Each summary was produced by practice's Allscripts' Touchworks EHR. The summaries were printed from the charts of patients who were over the age of 65. Patients in this age range, who are Medicare eligible, are known to have multiple diagnoses and medications, and therefore offer a sufficiently complex plan of care for examination. Clinical summaries were included regardless of whether they were printed in office on paper (paper summaries) or pushed to the patient portal for the patient to retrieve online (e-summaries).

Setting

Ten summaries were obtained from the schedules of 10 physicians practicing in an urban family practice group in Arizona. The 10 physician providers were hand selected in consultation with the group's medical director and represented the 'super users' of the practice. Therefore, the clinical summaries examined were expected to be the best and most comprehensive summaries available. The 10 physicians chosen were all boarded and experienced (10–40 years of practice) family physicians (five) or internists (five). There were two female and eight male providers.

Data collection strategy

Data was collected on a Thursday. Each physician's schedule was reviewed starting on Wednesday for eligible patients records. Each appointment on the schedule was reviewed for the age of the patient, choosing patients whose age was 65 or greater, starting with the first appointment of the day and working down to the last appointment of the day. No appointment type was excluded, therefore the collected clinical summaries represent different types of appointments, whether they be annual physicals, acute visits, or follow up appointments for chronic disease management. If 10 summaries were not obtained from the first day's schedule, the previous day's schedule was reviewed (starting at the beginning of clinic working toward the end) until

10 summaries could be obtained. It took an average of 2.2 days (minimum 1 day, maximum 4 days) to retrieve 10 summaries for each physician. If the clinical summary printed was incomplete (eg: missing the plan), a clinical note from that visit was printed so that the plan elements could be examined from the encounter note.

Data management

Clinical summaries were printed from the daily schedule page of each participating physician without accessing the patient's chart, unless the clinical summary was incomplete, in which case, the chart was accessed and a copy of the last office note was also printed. Clinical summaries were marked with an alphanumeric code (physician = A.-J. and case number = 1–10). Identifying patient information (name, date of birth, medical record number) that displayed on the clinical summary or office note was removed from each page by detaching the document headers and footers with a paper cutter. Summaries were reviewed by the clinic's medical director before removal from the site. Folders containing the de-identified clinical summaries were stored in a locked cabinet in a locked research office at ASU. Data from the paper forms were transcribed into a Microsoft Excel spreadsheet and double-checked for accuracy. Data were stored on a dedicated research computer with password protection and encryption using Truecrypt.

Data analysis procedures

Data were analyzed in keeping with general principles of naturalistic research (Denzin and Lincoln, 1994; Sandelowski, 1995; Glaser and Strauss, 2012; Creswell, 2013). Data analysis techniques included descriptive analysis and directed content analysis (Miles and Huberman, 1994; Sandelowski and Leeman, 2012; Creswell, 2013). This type of content analysis, used extensively by health researchers, allows investigators to further describe phenomena that are 'incomplete or would benefit from further description' (Hsieh and Shannon, 2005: 1281). Summaries were read and re-read multiple times. Content such as instructions or information contained under headings such as reason for visit, diagnoses, medications, plan, allergies, and future appointments were hand-keyed into multiple data matrixes (Miles and Huberman, 1994) for analysis. Particular attention

was directed at the content of the plan or orders section of the clinical summary, as this section ought to contain a set of easy-to-follow instructions for patients and families regarding next steps in the treatment or management of disease. Twenty percent of the clinical summaries ($n = 20$) were scanned into a Microsoft Word document so that they could be entered into an online readability index to assess readability (www.online-utility.org).

Results

A total of 100 clinical summaries were reviewed from 100 patients. The average age of the patients whose clinical summaries were examined was 76 years (65–98). In all, 60% of the sample represented female patients. In total, 11 of the clinical summaries were delivered electronically to patients via the patient portal.

Diagnosis

On average, each clinical summary contained 5.2 diagnoses (1–40). These were listed under a heading labeled 'Today's Diagnoses' suggesting that these lists were comprised of assessed problems not necessarily the greater patient problem list (Figure 1). The diagnosis list was omitted in 19 clinical summaries.

Vital signs

A vital sign panel, including blood pressure, temperature, heart rate, weight, BMI calculated,
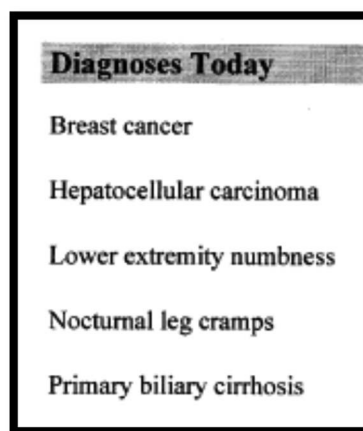
Figure 1 Diagnosis list

Vital Signs

Date/Time	05/28/2014 11:20:00 AM
Blood Pressure	102 / 70
Temperature	96.8 F
Heart Rate	68 bpm
Height	5 ft 2.25 in
Weight	146 lb
BMI Calculated	26.49 kg/m2
BSA Calculated	1.68 m2

Figure 2 Vital sign display

Current Medications:

Medication	Instructions	Reason
Actigall 300 MG Oral Capsule (Ursodiol)	TAKE 1 CAPSULE 4 TIMES DAILY	Primary biliary cirrhosis
Calcium 600 + D TABS	TAKE 1 TABLET TWICE DAILY	Osteoporosis
Flector 1.3 % Transdermal Patch	APPLY 1 PATCH EVERY 12 HOURS PRN PAIN	
Nadolol 20 MG Oral Tablet	TAKE 0.5 TABLET DAILY	Primary biliary cirrhosis
Omeprazole 20 MG Oral Capsule Delayed Release	TAKE 1 CAPSULE DAILY	Barrett's esophagus
ROPINIRole HCl - 0.5 MG Oral Tablet	1/2 pill hs x 2 then one hs x 5 then 2 hs -	Nocturnal leg cramps
Spironolactone 25 MG Oral Tablet	TAKE 1 TABLET TWICE DAILY.	Primary biliary cirrhosis
Tamoxifen Citrate 20 MG Oral Tablet	TAKE 1 TABLET DAILY	Breast cancer
Zinc 50 MG Oral Tablet	TAKE 1 TABLET 4 TIMES DAILY	

Figure 3 Medication display

BSA calculated, and O_2 saturation, was included in 98 of the clinical summaries (Figure 2).

Medications and allergies

Every clinical summary examined contained a medication list ($n = 100$). Each clinical summary contained an average of 10 medications (range = 1–29). A total of 73 medication lists included over the counter medications such as aspirin and vitamins (Figure 3). The presence or absence (ie: NKDA or NDA) of allergies was noted in all but six clinical summaries.

Smoking status

The patient's smoking status appeared in all but 12 clinical summaries.

Care team

Four clinical summaries contained a list of other providers seen by the patient.

Lab results

In two instances lab results were transcribed into the clinical summary by the physician in the plan section. In seven instances, the plan made mention of that fact that lab results were discussed (five) and printed separately and handed to the patient (two).

Plan of care

Voice

Medical records have traditionally been written in the third person voice. Four physicians produced clinical summaries in the third person (eg, presumed 'he/she'), essentially giving the patient access to the plan contained in their own encounter note. Five providers primarily used second person to address the reader directly with the subjective or objective case 'you/yours' and recorded this personal version of the plan in their own encounter note. One provider made broad use of

the first person 'I/we', as if giving personal and direct instructions to the patient. Three providers moved back and forth between first, second, and third person voice (Figure 4) extensively.

Synchronicity and completeness

In 33 situations, the plan contained in the clinical summary was different than the plan contained in the provider's encounter note. In 11 cases, this corresponded directly to the number of e-summaries produced by the provider. During the time frame of this study, there was a technical problem that prevented the plan section of the encounter note from displaying on the 11 e-summaries. Six paper summaries contained no plan for the patient at all and 10 summaries contained a plan with only follow-up information (eg, 'Return to clinic in 6 weeks to evaluate above problem') (Figure 5). Five summaries included only medication changes in the plan.

Follow-up

In 46 instances, the plan contained specific instructions about when to follow-up with the physician. In 30 of those instances, a call out box highlighted the follow-up appointment in a separate area of the clinical summary.

Content

The plans contained the following elements (Figure 6): notes about seeing a provider for which a referral was required (23), notes about the diagnosis (23), notes about procedures completed in the office such as ear lavage, cryotherapy, suture removal or vaccine administration (13), orders for radiology (27), orders for laboratory (37), notes about the discussion of lab results with patients (9), medication changes (48), notes or specific instructions for patients about those medication changes (17), notes about the patient's personal health plan such as immunizations or routine health screenings that were due (11), and instructions or comments for patients (40). In 46 instances, medication changes were highlighted with a separate call out box in addition to the medication list (Figure 7).
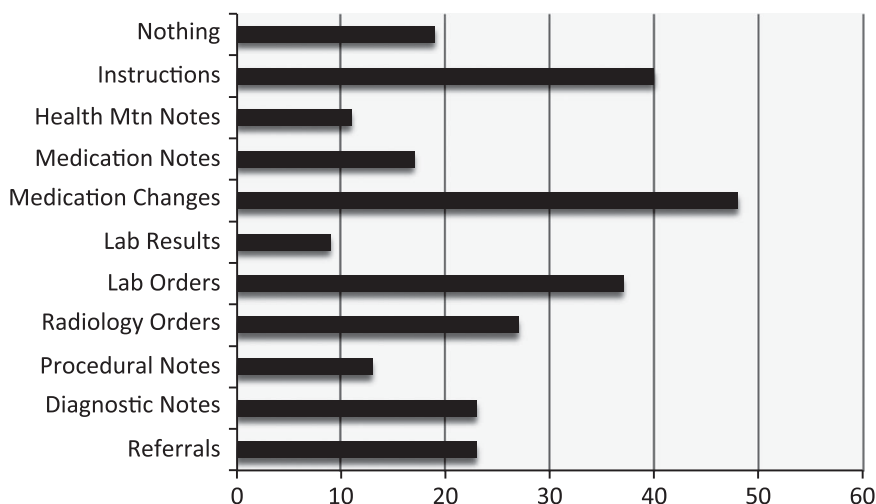

Plan:
Tamsulosin HCl - 0.4 MG Oral Capsule;TAKE 1 CAPSULE BY MOUTH EVERY DAY; Qty90; R1; Rx
TraZODone HCl - 50 MG Oral Tablet;TAKE 1 TO 2 TABLETS BY MOUTH AT BEDTIME AS NEEDED; Qty180; R1; Rx
SPINE. I THINK THE LUMP IS A LIPOMA, COULD BE REACTIVE TO THE STITCHES THAT ARE IN THERE. I WOULDN'T WORRY ABOUT IT. DR. ███████ WILL LOOK AGAIN AT POST OP. KEEP UP THE
WALKING. YOU ARE DOING REALLY WELL.
VOIDING ISSUES. I HAVE GIVEN YOU A PERSCRIPTION FOR FLOMAX. GENERIC NAME TAMSULOSIN. IT IS OK TO STOP THE AVODARY
SLEEPING: WE WILL TRY TRAZODONE. START WITH ONE FOR A FEW NIGHTS THEN YOU CAN GO TO TWO IF YOU NEED TO. YOU CAN FEEL A LITTLE HUNG OVER FROM IT. BUT THAT USUALLY GOES AWAY WITH TIME.

Figure 4 Range of voice in the plan of care

Plan in clinical summary:

Plan:
    PATIENT TO RETURN TO CLINIC IN: 1 MONTH

    TO EVALUATE ABOVE PROBLEM

Plan in encounter note:

Assessment
Abnormal liver function test (790.6) (R79.89); PROBABLY NAFLD- INCREASING POSSIBLY DUE TO RAPID WEIGHT RECHECK TODAY WITH IRON STUDIES. PT'S LIPITOR WAS DECREASED AND METFORMIN WAS DECREASED.
Type 2 diabetes mellitus (250.00) (E11.9); PT'S METFORMIN DECREASED TO 500 BID LAST MONTH DUE TO WEIGHT LOSS AND LOWER HBA1C. CONSIDER DECREASING MEDS EVEN FURTHER.
Neck pain (723.1) (M54.2); OBTAIN XRAY- POSSIBLE RADICULOPATHY.
Orders
    PATIENT TO RETURN TO CLINIC IN: 1 MONTH

Figure 5 Asynchronous plans

Figure 6 Plan of care content

Figure 7 Medication changes in plan highlighted with a call – out box

Availability

A clinical summary was judged to be complete if it contained a problem list, medication list, and a plan of care. A total of 37 paper-based summaries were judged to be incomplete (Figure 8). Reasons for the incomplete paper-based summaries are presented in Table 1. Twelve summaries were not given to patients at check-out, either because the note was not complete (3) or the summary was simply not printed (9). Six clinical summaries were missing a plan of care, and 19 were missing a problem list. Two physicians accounted for half (51%) of the incomplete summaries; 100% of the clinical summaries from one physician and 90% from another were incomplete. Four physicians had no incomplete paper summaries (Table 1).

Figure 8   Electronic clinical summary without a plan of care

Table 1   Incomplete (paper) clinical summaries: physician variation

Physician	Incomplete	No plan	FU only	No probs	Not printed
A	0		10		
C	0				
D	0				
G	0				
F	3				3
J	3				3
B	6				6
I	6	6			
E	9			9	
H	10			10	
	37	6	10	19	12

Readability

A subset of the paper summaries were examined for readability ($n = 20$). A combination of four indexes that determine the amount of education in years a reader must have in order to be comfortable reading the material (Coleman Liau, Flesh Kincaid, Automated Reliability Index, SMOG), demonstrated that the reader of a clinical summary must have been college educated (average of 18.72 years) in order to be comfortable with reading the document. The average Gunning Fog index was 15.37. An ideal score is 7–8; scores above 12 are not suitable for most readers. The average Flesch Reading Ease score was 43.92, indicating that the summaries were only suitable for university graduates (Table 2).

Table 2 Readability scores

Readability indexes	Mean	Range	Suitable for
Gunning Fog	15.37	11.94–18.56	>12 not suitable for most people
Flesch Reading Ease	43.92	27.61–56.46	University graduates
Coleman Liau	37.30	7.98–12.1	University graduates
Flesch Kincaid	12.37	9.14–16.8	12th graders
ARI	11.08	6.79–15.98	11th graders
SMOG	13.73	11.56–15.56	College students

Discussion

This study represents an initial attempt to examine the content of Meaningful Use clinical summaries from a practice receiving payments from the federal EHR Incentive Program. A core principle in national quality improvement strategies is the engagement of chronically ill patients in the creation and execution of their treatment plans. Patient engagement is most commonly defined as the 'actions individuals must take to obtain the greatest benefit from the health care services available to them' (CAH, 2010; Gruman *et al.*, 2010). A growing body of evidence demonstrates that patient engagement for individuals with chronic illness results in better adherence, superior self-management skills, improved quality of life, enhanced functional and symptom status, fewer re-hospitalizations, and lower health care costs (Hibbard *et al.*, 2009; Greene *et al.*, 2013; Hibbard and Greene, 2013; Hibbard *et al.*, 2013).

The promise of the clinical summary is tremendous. A thoughtfully crafted clinical summary that contains a plan of care can help patients and families engage by supporting the behaviors in the patient engagement framework (Table 3), such as communicating with heath care professionals, making good treatment decisions, and promoting health (CAH, 2010; Gruman *et al.*, 2010). For example, when the physicians in this study provided a list of diagnoses and medications, they helped patients communicate with other health care professionals. When they provided a summary of the preventative care items that were due, they acted to encourage patients to get preventive health care. When the clinical summaries mentioned the need for a completed advanced life directive, they helped patients plan for the end of life.

The clinical summaries gathered from this practice were produced for older adults, where they are, arguably, desperately needed to enhance engagement with chronic disease self-management. Older adults are more likely to bear the burden of chronic disease; as many as 80% of the 38 million adults over the age of 65 in the United States manage at least one chronic disease (CDC, 2013). Over two-thirds of Medicare beneficiaries have at least two chronic conditions and 14% of Medicare beneficiaries have six or more (Anderson, 2010; CDC, 2013; Lochner *et al.*, 2013). For these patients, the clinical summary they receive provides a foundation for chronic disease self-management and engagement in health-promoting behaviors. It is therefore vitally important that the clinical summary contain a plan they can use to monitor their health. Approximately two-thirds of patients received a clinical summary they could use for these purposes and just less than half of the summaries in this study provided clear, actionable, and thoughtful instructions for patients that can be used to enhanced engagement. The plan of care illuminated in this sample demonstrated the variety, complexity and depth of issues managed by primary care providers (PCP) and patients. Significant barriers may prevent the Meaningful Use clinical summary from being as effective as possible in engaging older adults and they will be highlighted here.

Barrier to patient engagement: health literacy

In addition to living with multiple chronic diseases, older adults experience dramatically lower levels of health literacy, defined as 'the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions' (IOM, 2004: 3). Rates of limited health literacy are high among older adults (Oldfield and

Table 3 Clinical summary elements that support engagement through the Engagement Behavior Framework (CAH, 2010; Gruman *et al.*, 2010)

Engagement behavior framework element	Clinical summary element
Communicate with health care professionals	List of diagnoses, medications
Organize health care	List of appointments, insurance information[a], summary of medical condition, summary of recent test results
Make good treatment decisions	Summary of plan from treating physician
Participate in treatment	Education[a] regarding medication and items in the plan
Promote health	List of health promotion activities recommended, follow plan of care guidelines
Get preventative health care	Summary of health maintenance items due
Plan for end of life	Evaluation of advanced directives and medical power of attorney
Seek health knowledge	Information about personal risk factors[a], education about personal health targets[a] and health/disease knowledge

[a]Elements not observed in this study but that are able to render on the clinical summary document.

Dreher, 2010; Berkman *et al.*, 2011) with only 3% of older adults scoring in the proficient range (Kutner *et al.*, 2006). Limited health literacy is significantly correlated with the ability to engage in the healthcare system and self-management behaviors (Gazmararian *et al.*, 2003; Coulter, 2012; Koh *et al.*, 2013; Parker, 2013). Readability scores for the subset of clinical summaries tested revealed reading comprehension levels that were suitable only for those comfortable with extremely complex material; those in the 11/12th grades or with a college education. Previous research suggests that patient reading comprehension ranges from grade 5.4 to 10.8 in outpatient clinics and that 40% of patients tested read at the 5th grade level or below (Andrus and Roth, 2002). Generally speaking, patient education material should be written at a sixth grade level or below (Safeer and Keenan, 2005). Clearly, clinical summaries need to be re-worked to reduce complexity and bring down the reading level to levels that reach greater portions of the population.

Clinical summaries need to be much less complex, and EHR vendors ought to create these documents with the principles of health literate documents in mind. While call-out boxes are helpful for important pieces of information, such as those used for follow-up appointments and medication changes, the diagnoses contained on the clinical summaries were often recorded in ICD or SNOMED language without translation, for example, Lumbar Disc Degeneration, Solitary Pulmonary Nodule, Leukocytosis, Cellulitis, or
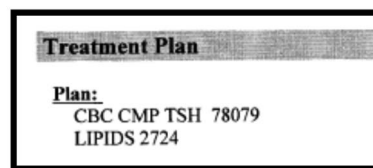
Figure 9 Lab orders with CPT codes that may be hard to understand

Hypomagnesemia, which an older adult is unlikely to understand. Similarly, one wonders how many patients understand was BSA stands for, why they should be concerned about their body surface area, or what they should do about it (Figure 2). Some summaries contained acronyms such as CPE, FU, CBC, and CMP as well as CPT codes (Figure 9). While common to healthcare providers and staff, these data points may be confusing or meaningless for the patients we serve. We should aim to include only relevant, meaningful information on the clinical summary and refrain from displaying elements that are not actionable or helpful. Not only is this good practice for the creation of patient education material, but presenting only relevant and motivating information particularly helps those with limited health literacy.

Barrier to patient engagement: computer use

Older adults are less likely than younger patients to use the computer, especially for the purpose of gathering health related information

(Jiggins, 2014). Although 69% of US households reportedly use the internet, users are disproportionately younger, healthier, wealthier, and more educated than non-users (Wen *et al.*, 2010; Choi and DiNotto, 2013). Only about half of all adults over the age of 65 in the United States use a computer (Keenan, 2009), and only 34% of those over the age of 76 (Zickhur and Madden, 2012). Indeed, only 11% of the summaries in this study were pushed to a patient portal, reflecting the preferences of older adults *not* to use the computer/internet. Only patients with an email address and stated preference for the e-summary received one; all others were printed. Although Meaningful Use Stage 2 cautiously encourages the use of health information technology for consumers, such as patient portals and secure messaging with providers (DHHS, 2012), the large and growing cohort of older adults in this country may not be able to interact with the healthcare system in new and increasingly electronic ways.

Barrier to patient engagement: availability

In order to support engagement behaviors, the clinical summary must be transmitted to the patient. In 48% of the cases, a complete clinical summary was not made available to patients at the end of their visit. A portion of these (11%) were due to technical problems outside of the practice's control, such as EHR vendor programming errors, causing the e-summaries to render poorly (Figure 10). Problems such as these put physicians in the difficult position of not complying with federal policy through no fault of their own, and more importantly, cause a missed opportunity to affect the patient experience. However, the variability found between physicians (ranging from 0 to 10 incomplete clinical summaries each) suggests that individual users have a significant impact on the availability and quality of the clinical summary (Table 1).

Barrier to patient engagement: user variation

Great variation was noted between physicians in the type of information they communicated to patients, and one can assume, the amount of time spent creating the plan of care. The voice in which physicians selected was interesting and warrants further study. The PCPs in this sample took great

care to provide reassurance and instructions to their patients in a casual, friendly countenance. While some clinical summaries contained a sparse message to 'return to clinic to evaluate above problem' which communicates very little in the way of chronic disease management, other physicians created hand-keyed plans that were incredibly detailed and personal, reflecting the intimate relationship patients and families have with their PCPs. For example, 'If you cannot get with the VA, call me and we will get a referral to another dermatologist,' 'Put the drops in and close your eyes for about a minute. It does sting, but really helps,' 'You need to work on exercise and weight loss. Exercise is important. Your blood pressure looks good,' and 'We discussed your lab results today and I hope I answered all of your questions. If not, please let me know.'

EHR vendor technology can be helpful in these instances when certain phrases likely to be utilized frequently can be created ahead of time and dropped in the note as needed, such as 'Continue current therapy as prescribed,' 'Please call if symptoms worsen or fail to resolve as further evaluation may be needed,' 'An option for your imaging is (name, phone, and address of vendor),' 'We've given you a copy of your labs for your reference,' or 'Please read and review the health maintenance handout we gave you today.' They can make the plan appear more personal to the patient without taking a large amount of time on the part of the physician (Figure 11). The reliability with which elements such as vital signs, diagnoses and medication lists, and smoking status appeared in the clinical summaries testify to the power of good programming.

Limitations

Limitations for this study include the sample size (*n* = 100) of summaries collected. The results suggest that one physician tends to produce the same type of clinical summaries (eg, making the same errors of omission), and so sampling fewer summaries from more physicians may have been more revealing. In addition, no appointment type was excluded from this study. Since ~10% of the summaries collected were not distributed to patients because the clinical note was incomplete, it may have been interesting to analyze summaries based on appointment type to determine if

Figure 10   Uninterpretable e-summary
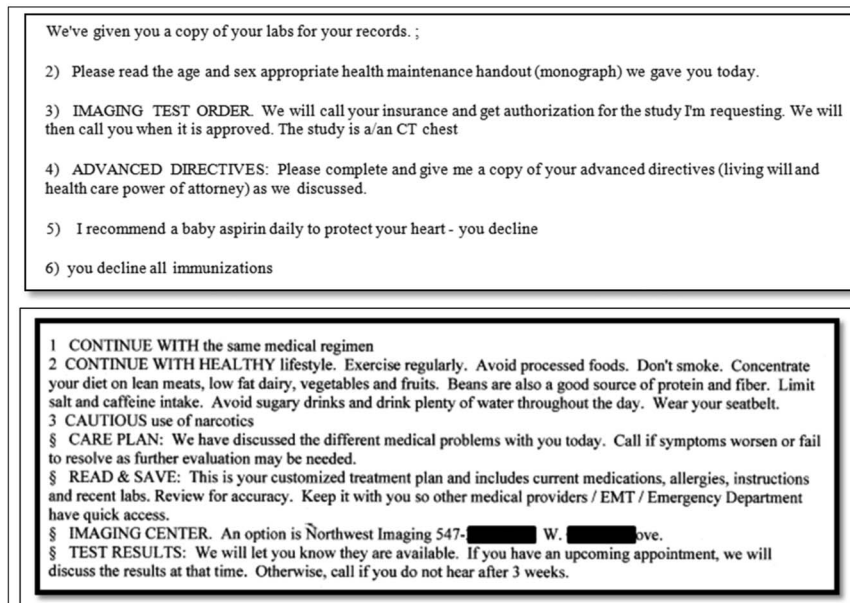
Figure 11 Examples of plans using template items

documentation requirements or habits changed based on this variable.

Conclusions and practice implications

In conclusion, the Meaningful Use clinical summary can and likely does enhance patient and family engagement, but there are significant barriers that stand in the way of its effective use which need to be resolved. These include (a) reducing the complexity of the clinical summary and increasing its readability, including eliminating technical issues that make the e-summary less useful, (b) advocating for patients who will not or cannot use the computer, together with policy changes that stop penalizing physicians for distributing clinical summaries on paper to older adults, (c) addressing physician variation in documentation, and (d) improving the reliability of distribution of the clinical summary.

As our documentation and technology becomes more sophisticated, thanks in large part to the success of the Meaningful Use program, so will the information we produce from the EHR. We must harness the opportunity to improve the clinical summary and enhance engagement in a cohort of Medicare-eligible older adults with multiple comorbidities, previously found to have the lowest levels of activation, or propensity to engage, in the nation (Hibbard and Cunningham, 2008). Electronic summaries hold even more promise as they could be programmed to allow patients to click on hyperlinks and learn more about diagnoses, treatments, or medication, or to compare costs of radiology orders at various imaging centers. Imagine moving from a text-based list of action items toward an interactive plan that demonstrates with video how to perform back stretching exercises or how to change a dressing, or that links you to a cooking show demonstrating heart-healthy meal preparation techniques. With emerging technology and informatics, the opportunity to effectively communicate with our patients, through the clinical summary and through other methods, will take a quantum leap forward, and patient engagement will as well.

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Conflicts of Interest

None.

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