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RUNNING HEAD: CLINICAL SUMMARY

Assessing the value of the Meaningful Use Clinical Summary for patients and families
with pediatric asthma

Karen Colorafi, Lee Moua, Michele Shaw, David Ricker, and Julie Postma

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Abstract

Electronic clinical summaries are innovations supported by the Electronic Health Record Incentive Program, known as “Meaningful Use” (MU). The MU clinical summary documents the shared understanding of the plan of care for patients and assists families in managing asthma-related health care. The purpose of this analysis was to identify the communicative value of the summaries to patients and families. Readability measurements, content analysis, and descriptive statistics were employed in a review of twenty clinical summaries and compared with provider encounter notes. The average age of the patients from whom we collected clinical summaries was six years old. **The average reading level of the summaries was ninth grade. Neither summaries or health education contained visual images.** There was a total of nine different asthma diagnoses. ~~A~~ ~~and a~~ full list of diagnoses was present in 45% of summaries. The average medications per patient was 5.75, and there were multiple medication changes noted (dosage adjustment, add, discontinued, and add). Allergies, vital signs, and smoking status were reliably reported (99-100%). Provider orders present included medication, follow up, and return to the clinic instructions. The plan of care was replicated on 45% of summaries. There was variable reporting of various asthma guidelines.

Opportunities to improve the clinical summary include using plain language to promote readability, action, understanding, and health literacy, training providers to standardize their documentation and include asthma action plans, and configuring EHR settings to ensure diagnoses and plan of care is carried over from provider notes to the summary.

Keywords: asthma, health literacy, communication, health education, Meaningful Use

Introduction

In the United States, 8.6% of all children suffer with asthma, but within various racial and sociodemographic groups, rates of childhood asthma can be as high as 13.4% (CDC, 2017a). Asthma is burdensome to patients and families and costly to society and the health systems who deliver care. The prevention and treatment of chronic diseases, specifically asthma, is a national health priority (AHRQ, 2017). The most current asthma guidelines highlight an important principle in patient-centered asthma care: a strong partnership between the clinician, asthma patient, and their caregivers is required for effective asthma treatment and management (National Heart Lung and Blood Institute & National Asthma Education and Prevention Program, 2007). Patient-centered communication, which involves eliciting and understanding patient preferences, understanding unique psychosocial and cultural contexts, and reaching shared understanding of problems and treatments (King & Hoppe 2013), is an essential component of delivering asthma care. Patient-centered communication is thought to help address opportunities for self-management and shifts some responsibility from the provider to the patient (Spooner et. al., 2015).

Electronic innovations in health care have been developed, implemented, and federally incentivized to engage patients and families in chronic disease self-management. Patient portals and electronic clinical summaries are innovations supported by the Electronic Health Record (EHR) Incentive Program (known as “Meaningful Use” [MU]) administered by the Centers for Medicare and Medicaid Services (HealthIT.gov, 2014). The MU clinical summaries, which are shared with patients and families, serve to document the communication and shared decision making that took place during the clinical encounter and act as roadmap for families in managing asthma-related health care after each outpatient visit.

Clinical summaries may be printed or distributed electronically through patient portals. Summaries typically contain, per MU guidelines, critical structured elements (**Figure 1**) including current diagnoses, vital signs, medications, tests, results, orders including follow up instructions and related patient education material (DHHS, 2014b). **These elements are configured from other fields of entry in the EHR.** Clinical summaries, also called “after-visit summaries,” have become a standard part of clinical care, in part because of MU (IOM, 2014; Lyles, C., Gupta, R., Tieu, L., & Fernandez, A. (n.d.)), and are especially helpful for patients with limited health literacy. **The average reading level of a U.S. resident is grade 8, and patient education materials should be written at around a 6th grade level (Badarudeen & Sabharwal, 2010). Further, patients with asthma have voiced the need for clinical summaries to serve as a more comprehensive record of their health and treatment course (Black et al., 2015). In a recent study, patients “objected to the use of medical terminology,” noted conflicting medication instructions, and could not locate other instructions (Black et**

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al., 2015, p. e331). Families who have a child living with asthma want asthma resources that are easy to understand and widely accessible (Shaw & Oneal, 2014).

An analysis of the MU clinical summaries from a health system in northwest WA was conducted as part of an ongoing project aimed at improving the quality of asthma care and the communication among members of the patient and family care team. **The purpose of this analysis was to identify the communicative value of the summaries to patients and families.**

~~This paper reports the findings of that analysis. We also document our perceptions about the value of the current clinical summary used in pediatric asthma care for patients and families. Unfortunately, despite two decades of research on health literacy, the documentation that we give to patients and families remains less than ideal.~~

Comment [PJM1]: I think we should cut this so we go right into methods after our purpose statement

Methods

A multi-site, multi-specialty medical group in the Pacific Northwest was our partner for this work. **This project was determined to be exempt from Institutional Review Board (IRB) oversight per the MultiCare Health System (MHS) System.** Practice locations were **purposefully selected** by the medical director of quality for pediatrics at MHS from locations where providers see a higher volume of patients with asthma. **A convenience sample of five summaries from each of four practice locations was obtained,** including three primary care clinics and one pediatric pulmonary clinic. The clinic manager at each site picked a day and worked backwards (since documentation may be added after the appointment) to identify the first 20 patients that qualified based on our inclusion criteria. **Inclusion criteria consisted of:** (a) pediatric patients, (b) who had an asthma diagnosis, and (c) had been seen in a MHS clinic for an asthma-related visit.

Clinical summaries and their accompanying encounter note (the provider's complete documentation of the encounter) were printed from the patient's chart by clinic staff. They were redacted of personally identifiable health information by clinic staff and then shared with the research team. Data from the notes were tabulated and transcribed into **Excel** spreadsheets and double-checked by another member of the research team for accuracy.

Data analysis was guided by the principles of naturalistic research (Creswell, 2013; Denzin, Lincoln, & Giardina, 2006; Glaser & Strauss, 2012; Sandelowski, 1995) including qualitative, directed content analysis (Hsieh & Shannon, 2005) **and modeled after procedures previously tested (Jiggins, 2015)**. Each clinical summary (n=20) was run through an online readability index (www.online-utility.org) **which used three common measures (Flesch, SMOG, and Gunning Fog) to assess readability**, an important quality of written material. **Notably, readability does not take into account other important aspects of communicative value.** To further assess the communicative value of the clinical summaries, we randomly selected one summary from each site (the format varied slightly among sites) and used the CDC Clear Communication Index (<https://www.cdc.gov/ccindex/index.html>) (Alpert, Desens, Krist, Aycock, & Kreps, 2017; CDC, 2015). The Index is a research-based tool that assists in the development and assessment of materials based on evidence-based practices. **The Index contains 20 items, over seven domains, that represent the most important characteristics that promote people's understanding of information**, each with a numerical score of zero or one. The individual scores are converted to an overall score on a scale of 0-100. Although 100 is an ideal score, 90 or higher is passing **indicates that most items on the document are easy to**

understand. ~~to use.~~ The seven domains include: Main Message and Call to Action, Language, Information Design, State of the Science, Behavioral Recommendations, Numbers, and Risk.

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I moved this from results

General headings in the clinical summary such as age, gender, diagnosis, medications, allergies, asthma guidelines, and plan of care were used to organize and tabulate information. Age, gender, and allergies were counted and averaged. Diagnoses were counted and categorized by case. Particular attention was paid to the plan of care as we surmise that the plan section of the note captures the patient-centered communication value of the encounter, as documented by the provider. Each clinical summary was compared to a chart copy of its accompanying provider-documented encounter note, **which is not given to the patient or family.**

Results

A total of 20 clinical summaries, titled “After Visit Summary” were analyzed. The second document, the provider-document encounter note, was alternately titled “Office Note” or “Progress Notes,” depending on the site. Summaries from 12 unique documenting providers were represented in the sample. Twelve of the summaries were written by physicians and eight by nurse practitioners. The average age of the patients whose clinical summaries were examined was 6 years (2 months – 17 years). Forty-five percent of the sample represented female patients.

Readability and Communicative Value

The clinical summaries were examined for readability (n=20, 100%). **The average reading grade level was calculated at the ninth (9.7) grade level (Table 1), ranging from eighth grade to eleventh grade, depending on the readability assessment used. The average score of the clinical summaries examined with the CDC Clear Communication Index was 38.7, indicating that the items on the document are not easy to understand or use.** The

average page length of the clinical summary was 3.7 pages. The clinical summaries contained no visual images. Two tables were commonly included in the clinical summary, pertaining to the patient's current medication list (**Figure 2**) and vital signs. **The inclusion and placement of material varied by site (Table 2).**

Diagnosis

A total of nine different International Classification of Diseases (ICD) 10 asthma diagnosis codes were collected ranging from J45.20 to J45.991 (**Table 3**). **While diagnoses reliably appeared in the provider's encounter note, they were copied over to the clinical summary for patient and family viewing just 45% (n=9) of the time.** They were missing entirely in three (15%) clinical summaries. **Of note, even when the diagnosis list was present,** in eight summaries (40%) the primary diagnosis related to asthma was missing.

Vital signs

Vital signs, which included SpO₂, were included in all (n=20, 100%) of the clinical summaries examined. Smoking status was noted in 19 (95%) of the summaries. One (5%) summary utilized the "smoking status" field to notate passive exposure to smoke.

Medication and allergies

A list of medications, which also contained vitamins and over the counter medication, was included in all (n=20, 100%) of the clinical summaries examined. Each summary contained an average of 5.8 medications (2-13). There were changes to the medication list noted in all but four (20%) of the summaries. **The medication lists included both trade and generic names of all medications (i.e.: "acetaminophen commonly known as Tylenol"). They also included details that explained what the medication was for (i.e.: "Take by mouth every 4 hours as**

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needed for pain”). It included a bold notice when instructions may have been confusing, such is the case when the same medication is prescribed to be delivered via an inhaler or by nebulization (Figure 2). When a new medication was prescribed during the encounter, it appeared under a separate heading “Where to Get Your Medications” with details about the name and location of the pharmacy and the names and dosages of specific drugs to be picked up. However, the patient and family were not specifically or clearly directed to changes in the medication list, as was the reader of the provider’s encounter note (Figure 3).

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Allergies (or the lack thereof) were noted in 19 (95%) of the clinical summaries.

Allergies were confined to medication-only in some summaries and others included all types of allergens including things like cat dander and dust mites.

Procedures

Four (20%) of the clinical summaries contained a notation of procedures performed in the office during the visit: immunization administration or spirometry assessment.

Lab results

There was no evidence that labs such as allergen testing, or imaging tests such as chest x-rays, were ordered, performed, or resulted in any of the clinical summaries or the encounter notes within this sample.

Plan of care

In 55% of cases (n=11) coming from seven different providers, there was no plan of care included in the clinical summary. In 45% (n=9) of the cases, the plan of care was copied directly from provider notes into the patient’s clinical summary, without modification. The content of

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the plan of care shared with the patient included specific recommendations, referral information, instructions about returning to the clinic, notes about when to go to the emergency room, and medication instructions.

In nine (45%) clinical summaries, patient education material related to the diagnosis of asthma, the common cold, or environmental controls for asthma was included, twice (10%) in Spanish language. **The education material pertaining to the diagnosis of asthma from a third-party vendor was lengthy, contained no graphics, and was identical each time it was provided.**

Asthma Control

An asthma control test score and its corresponding value (i.e. “Asthma control test score: 24. Score of 20 or more suggests patient’s asthma is well controlled”) was never in the clinical summary but was included in three (15%) provider encounter notes.

Asthma Action Plan

Evidence of an asthma action plan (i.e.: “Do you have an asthma action plan that you can refer to for your child? Yes”) was not documented in eleven (55%) clinical summaries. One (5%) clinical summary contained a generic copy of a templated asthma action plan without specific, personalized instructions, presumably because the provider and patient had started to create one during the encounter but did not complete it. Evidence of asthma action plans was found in eight (40%) provider encounter notes, although the actual plan was not available for analysis. There was one (5%) notation indicating there was no action plan. Other related indices of interest to assessing disease management in pediatric asthma include: six (30%) notations cautioning

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patients and families about environmental exposures, five (25%) notations about bronchodilator use within the past year, and four (20%) notations about missing school days.

Discussion

We assessed the communicative value of 20 clinical summaries given to patients and families after a health care encounter with a provider for the care of pediatric asthma. Results indicated that the documents we give to patients and families are lengthy, far exceed recommended reading levels, and fail to pass the “clear communication” test. Medications, allergies, and vital signs were included in all of the clinical summaries. Full problem lists, diagnoses, and the plan of care were not reliably transferred to the clinical summary **from relevant fields in the EHR**. Asthma action plans were missing in over half of the summaries. Procedures and recent results were rarely included in the clinical summaries.

There is a great deal to learn from evaluating these findings from the patient and family perspective. Of paramount importance is the ability of the clinical summary to communicate important aspects about the care of a chronically ill patient **among the patient, their family**, and the patient’s care team. For a pediatric patient with asthma, that care team can be extensive and may include **coordination among** the patient, family members, primary care and specialty doctors and nurses, **respiratory therapists**, school nurse, home health nurse, and others (e.g. child care provider, coach) (American Academy of Pediatrics [AAP], 2017a; AAP, 2017b; Bergert, Patel, Kimata, Zhang, & Matthews, 2014).

It is therefore important that the clinical summary be *accurate and reliable*. Care plans are centered upon a diagnosis and consequently, clinical summaries should reliably contain accurate diagnoses. **Findings indicated this was not the case**. Fixing this is relatively simple

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from a technology perspective. The practice must ensure that the field where providers are documenting the primary diagnosis or orders are being displayed in the clinical summary report. If the provider documents in a field on the encounter note that is not a part of the clinical summary report, the patient and family will not see the information. Providers and staff often have the ability to document the same thing in multiple fields within the EHR. For example, a primary diagnosis for the encounter can be entered into the problem list, recorded in an assessment section, noted in the plan, or entered into specialized billing documentation. The clinical summary is simply a report that is configured to pull fields from the encounter documentation and elsewhere in the EHR. For example, the review of systems and physical exam templates are not typically built into the clinical summary but the vital signs, recent test results, and plan sections are. To achieve reliable results, all clinical summaries should be designed to follow the same format so essential fields are always relayed to the patient and family. **Providers have expressed the need for training to learn how to reliably document in the same place, so** that essential elements from encounter documentation are captured in automated reports like the clinical summary (Black et al, 2015).

Comment [JP4]: Could cut. Some of this is now in introduction. (. The clinical summary is simply a report that is configured to pull fields from the encounter documentation and elsewhere in the EHR)

Comment [JP5]: I cut this from above: "...does not require additional time or effort from the documenter."

b/c providers do need training.

Ideally, the clinical summary would be tailored to meet patient and family needs, preferences, and goals versus ~~for example, the~~ templated language seen in the patient education. ~~This~~ represents a traditional approach to health education: we try to provide as much information as we can, given the opportunity. One might imagine that for a family with a child who has a chronic diagnosis, templated generic material may become redundant over time and therefore lose its effectiveness. More effective approaches to health education include targeting materials to a specific population (i.e.: children with asthma and their families, low income

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families, families from a particular racial and ethnic background, families who live in subsidized housing), personalizing material (i.e.: using the child's name to focus the reader's attention), and tailoring, whereby materials are created to reach one specific person, based on unique characteristics, related to an outcome of shared interest, derived from individual assessment (Kreuter, Lezin, Kreuter, & Green, 1998).

Patient education material that was shorter, focused, and addressed a unique aspect of asthma care could be presented on a schedule or based upon the topic of discussion during a particular encounter. This principle was observed in one instance where the encounter note plan documented environmental controls that were tailored to a specific child and family. However, the education did not appear in the clinical summary to remind the patient and family what was discussed and, presumably, agreed upon as a shared goal for self-management. Instead, the education material included in the clinical summary was generic and not personalized, but was specifically related to asthma environmental control. Tailoring health messages is a technique long-proven to positively impact behavioral and clinical outcomes (Matthew, Kreuter, Farrell, Olevitch, & Brenna, 2000; M. Kreuter, Lezin, Kreuter, & Green, 1998), can be easily facilitated by health information technology, and is in alignment with national best practices related to patient-centered care whereby specific patient and family goals are assessed and documented (King & Hoppe, 2013).

It is also important that the clinical summary meet *readability standards and have communicative value*. Patient education materials should not be written higher than a sixth-grade level, which is well below the ninth grade average of the analyzed clinical summaries (Badarudeen & Sabharwal, 2010). Health literacy, defined as the degree to which individuals

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have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (Institute of Medicine, 2004), is a significant problem in the United States and elsewhere. More than 60 million American adults have limited health literacy and as caregivers, they can give wrong medication dosages, facilitate unnecessary treatments, and cause adverse events (Andrulis & Brach, 2007; Shone, Conn, Sanders, & Halterman, 2009). **Studies have also demonstrated that the use of a low-literacy asthma action plan can improve provider-parent communication (Yin, Gupta, Tomopoulos et al., 2016), overall parental knowledge about asthma medications and the proper use of a spacer (Yin, Gupta, Mendelsohn et al., 2017).**

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There is a plethora of guidance material available to healthcare organizations and EHR developers to ensure that material we give to patients meets health literacy or plain language standards (CDC, 2017b). Despite the imperative to do so (Agency for Healthcare Research and Quality, 2015; Brach et al., 2012), and the availability of guidance material, there is little evidence that the MU clinical summary is meeting these standards. For example, the top of the clinical summaries in our sample began with a heading that read “What We Need You To Do”. This is promising, as it directs the reader’s attention to something important which presumably follows the bold subject heading. Often, the first thing to follow this heading was the date, time, and location of follow up appointments along with relevant details (provider name, department phone number). Just as often, the medication list appeared next under the heading (when appointments were not recorded, for example, when the instruction was to “follow up as needed” as noted in the plan). Medications and routine medical follow up are important aspects of chronic disease management and do deserve a prominent place in the clinical summary. However, other

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elements of the care plan, such as ways to avoid environmental triggers for asthma, could also appear more prominently under the “What We Need You To Do” heading.

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The CDC Clear Communication Index suggests that material given to patients contain one main message located at the top/beginning of the material that is emphasized with visual cues (CDC, 2016). Subsequent material is meant to support the main message and include a call to action with behavioral recommendations. Furthermore, main messages are to use the active voice and words common to the intended audience (i.e: “plain language”). The clinical summaries in our sample contained over three pages of “things to do.” Often the key message was either missing, such as when the plan section was not complete or not present, or was easily lost, such as when the plan was behind two pages of education material titled “What is Asthma?”

We know that material given to patients is ideally “chunked” into small segments, displayed in bulleted or numbered lists organized under specific headings. This guidance allows us to consider some interesting possibilities for redesigning the clinical summary. For example, the heading “What We Need You To Do” could be changed to “What I Need To Do” (patient-centered, empowered, active voice) and followed by a shorter, personalized, bulleted list that was then followed by pertinent details that were easier to read (Figure 4). We caution against the inclusion of abbreviations and EHR codes that have no meaning for patients and only serve to confuse (Figure 5). Providing a short list to patients and families may improve the readability of the clinical summary (CDC, 2015) and provides an avenue for future research. Likewise, **when asked their opinion of format improvements for clinical summaries, providers recommended moving instructions to the first page, changing font size and color, highlighting important information, and providing images of medication (Black et al.,**

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2015). Technology can also be used to eliminate extra work on the part of the documenting provider, such as using translation tables to change difficult to understand words, instructions with numbers, or supplementing with templated, structured instructions when possible.

Finally, the clinical summary should reflect *best practices* for asthma care. Federal and state resources have been directed to the distribution of evidence based best practices for asthma (National Heart Lung and Blood Institute & National Asthma Education and Prevention Program, 2007), WADOH, n.d.) They emphasize assessment of asthma severity for initial assessment and treatment and asthma control, which focuses on reducing impairment and reducing risk for ongoing monitoring. A written asthma action plan is called for and can help the care team by clearly outlining the proper use of preventative and rescue medications, addressing environmental factors, teaching self-management skills, and appropriate monitoring strategies. There is some evidence that health providers have not consistently or widely used asthma guidelines, even though guidelines have been in existence for years, which may be due in part to a lack of awareness or understanding (Braido, 2013), the complexities of making the asthma diagnosis in small children (Cave & Atkinson, 2014), or the structural complexities inherent in clinical practice (Tilson, 2015). Best practices, by definition, are proven through experience and research to reliably produce a desired outcome and are therefore important to use in the care of children with asthma. Research suggests that patients **and families** are hungry for meaningful conversations **about asthma** with their providers about the latest medical evidence and the ways in which global best practices align with individual personal attitudes, beliefs, and preferences (Alston & McCabe, 2012; Alston, et al., 2012; Rance & Trent, 2005; Sleath et al., 2012; Shaw &

Oneal, 2014; Washington et al., 2012). The inclusion of evidence based practices in patient material, whether it be the result of today's spirometry or tomorrow's referral for an environmental home visit, can help to foster discussion between patients and providers about information and decision making, two elements considered essential in the delivery of patient-centered communication.

Limitations

There are limitations to our analysis. **Our sampling approach limits generalizability of study findings, as it was not a probability-based sample.** That said, **practice locations were purposefully selected to provide variation in practitioner and site which offers a greater breadth of review.** We did not select summaries based on provider or appointment type. During the analysis we noticed variation that could be explained by the documenting provider. For example, all of the summaries from Site A were from the same physician provider and all of the summaries looked the same (full plan was included, no education material). At Site C, the summaries came from three different **nurse practitioners** (no plan, education material included) and we speculated that variations in the clinical summary template might have been explained by a visit type that was staffed by **nurse practitioner** versus physician provider. There were between site and within site differences noted. These observations suggest that differences may be due to documentation templates that vary between site, appointment type, reason for visit, or provider type and offers an opportunity for quality improvement initiatives. All summaries were produced by a single EHR vendor and were collected only from pediatric patients with asthma-related diagnoses. **Although only one quarter of the summaries were reviewed for**

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communicative value, reviewing each summary was not considered necessary as the summary template was consistent within sites.

Conclusion

Improving communication between care providers, and patients and families with chronic disease is a critical element of successful self-management. The clinical summary is an important tool for documenting and facilitating communication among members of the patient's care team. Despite decades of research into best practices and state and federal guidance on the provision of patient-friendly, patient-centered documents, clinics continue to distribute information to patients and families that is **hard to read, incomplete, and of poor communicative value.** We must **collaborate with patients and families, providers and EHR developers** to make use of the CDC's Clear Communication Index and other publicly available tools to improve the quality of the clinical summary we give to patients and families, **so that asthma management is optimized.**

Declaration of interest: *The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.*

Disclosures:

The authors have no conflicts of interest to declare.

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Table 1 Readability Scores.

Measure	Defined	Average * (n = 20)
Flesch	•Considered the oldest and most accurate •Created by Robert Flesch •Formula subtracts average number of syllables per word from average sentence length to produce a value known as “readability ease”	8
SMOG	•The “simplified measure of gobbledygook” (SMOG) test •Created by Colin Harrison •Requires evaluators to select one page of text, count 10 sentences located at random from that page, count the number of words which have three or more syllables	10
Gunning Fog	•Created by Robert Gunning in an attempt to reduce the “fog”	11

- associated with reading
- Index calculates an average sentence length from a random passage of at least 100 words

*Scores are converted to an average reading grade level by the online calculator for ease of comparison

Table 2 Order of elements in the clinical summary by site.

Element	Site A	Site B	Site C	Site D
Site contact info	-	1	-	-
Follow up	5	2	1	1
Medication list	1	3	2	2
Pharmacy pick up	2	4	3	-
Apts to be scheduled	3	-	-	-
Med admin/Procedures	8	-	4	3
Assessment	-	-	-	4
Plan	4	-	-	5
Pt education	-	5	5	-
Vital signs	5	6	6	6
Problem list	-	7	7	-
Allergies	6	8	8	7
Immunizations	7	9	9	8

Indicates that the element was not included in the clinical summary

Table 3 Asthma Diagnoses.

ICD10 Code	Description	Frequency (%)
J45.20	Mild intermittent asthma, uncomplicated	2 (10)
J45.21	Mild intermittent asthma with acute exacerbation	1 (5)
J45.30	Mild persistent asthma, uncomplicated	5 (25)
J45.31	Mild intermittent asthma with acute exacerbation	1 (5)
J45.40	Moderate persistent asthma, uncomplicated	3 (15)
J45.41	Moderate intermittent asthma with acute exacerbation	1 (5)
J45.901	Unspecified asthma with acute exacerbation	4 (20)
J45.909	Unspecified asthma, uncomplicated	1 (5)
J45.991	Cough variant asthma	2 (10)

CMS has defined the clinical summary as “an after-visit summary that provides a patient with relevant and actionable information and instructions containing:

- the patient name
- provider’s office contact information
- date and location of visit
- updated medication list
- updated vitals
- reason(s) for visit
- procedures
- other instructions based on clinical discussions that took place during the office visit
- updates to a problem list, immunizations or medications administered during visit
- summary of topics covered/considered during visit
- time and location of next appointment/testing if scheduled
- a recommended appointment time if not scheduled
- list of other appointments and tests that the patient needs to schedule with contact information
- recommended patient decision aids
- laboratory and other diagnostic test orders
- test/laboratory results (if received before 24 hours after visit)
- symptoms.”

Figure 1. Element contained in the Clinical Summary.

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What We Need You To Do	
What You Need to Do	
Follow-Up Return in about 1 month (around 12/22/2016) for asthma follow up.	
Your Medication List	
This list is accurate as of: 11/22/16 11:24 AM. Always use your most recent med list.	
aerochamber-child w/mask (yellow) Quantity: 1 Each	Details Inhale 1 Each by mouth every 4 hours as needed. DEA #BB6993162
* albuterol 90 mcg/act Aers Quantity: 1 Inhaler Commonly known as: PROVENTIL HFA, VENTOLIN HFA	Inhale 1-2 Puffs by mouth every 4 hours as needed for wheezing or shortness of breath.
* albuterol (2.5 MG/3ML) 0.083% Nebu Quantity: 360 Each Commonly known as: PROVENTIL	Inhale 3 mL by nebulization every 4 hours as needed for wheezing.
budesonide 0.5 MG/2ML Susp Quantity: 120 mL Commonly known as: PULMICORT	Inhale 2 mL by nebulization twice daily for 30 days.
cetirizine 5 MG/5ML Syrup Quantity: 300 mL Commonly known as: ZYRTEC CHILDRENS ALLERGY	Take 10 mL by mouth once daily for 30 days.
Nebulizer Compressor Misc Quantity: 1 Each	Use as directed with Albuterol every 4 hrs as needed for wheezing/asthma.
* Notice: This list has 2 medication(s) that are the same as other medications prescribed for you. Read the directions carefully, and ask your doctor or other care provider to review them with you.	

<fig id="fig2"><number>Figure 2.</number></ti></fig> Medication List</ti></fig>

Discontinued Meds This Encounter	
oxycodone (ROXICODONE) 5 MG Tab	SIG Take 1-2 Tabs by mouth every 6 hours as needed for severe pain (scale 8-10).
Reason for Discontinue : Discontinued by provider	
polyethylene glycol (MIRALAX) Pack	Take 1 Packet by mouth once daily as needed.
Reason for Discontinue : Discontinued by provider	

<fig id="fig3"><number>Figure 3.</number></ti></fig> Medication change clearly documented in the provider's encounter note</ti></fig>

In the provider's note	In the clinical summary
Influenza immunization advised.	I suggest you get a flu shot.
Avoidance of dust mite exposure.	Stay away from dust mites.
Continue with medications as previously prescribed.	Continue to use your same medications.
Call or RTC for fast or tight breathing, problems breathing, shortness of breath, severe coughing, ill appearance, worsening sx, fever or worsening SX.	Call or come back to clinic for fast or tight breathing, problem breathing, very bad coughing, or fever.
Tools such as the Health Research for Action's <i>Plain Language World List</i> and the National Center for Health Marketing's <i>Plain Language Thesaurus</i> were helpful in translating this text and improved average readability scores by 24%.	

Figure 4. Easier to read plan items

What We Need You To Do			
Your Scheduled Appointments			
12/14/2016 9:30 AM	Provider MBCHC LAB	Department Mary Bridge Laboratory	Dept Phone 253-403-1187
What You Need to Do			
Future Orders		Complete By	Expires
O PANEL-BREATH TOLERANCE 0.25 HR		11/30/2016	3/30/2017
O PANEL-BREATH TOLERANCE 0.5 HR		11/30/2016	3/30/2017
O PANEL-BREATH TOLERANCE 0.75 HR		11/30/2016	3/30/2017
O PANEL-BREATH TOLERANCE 1 HR		11/30/2016	3/30/2017
O PANEL-BREATH TOLERANCE 1.5 HR		11/30/2016	3/30/2017
O PANEL-BREATH TOLERANCE 2 HR		11/30/2016	3/30/2017
O PANEL-BREATH TOLERANCE 2.5 HR		11/30/2016	3/30/2017
O PANEL-BREATH TOLERANCE FAST		11/30/2016	3/30/2017
What You Need to Do			
Future Orders		Complete By	Expires
O ASTHMA ALLERGENS, REGION 17		11/15/2016	3/15/2017

Figure 5. Examples of EHR coded language that may be confusing or difficult to understand

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