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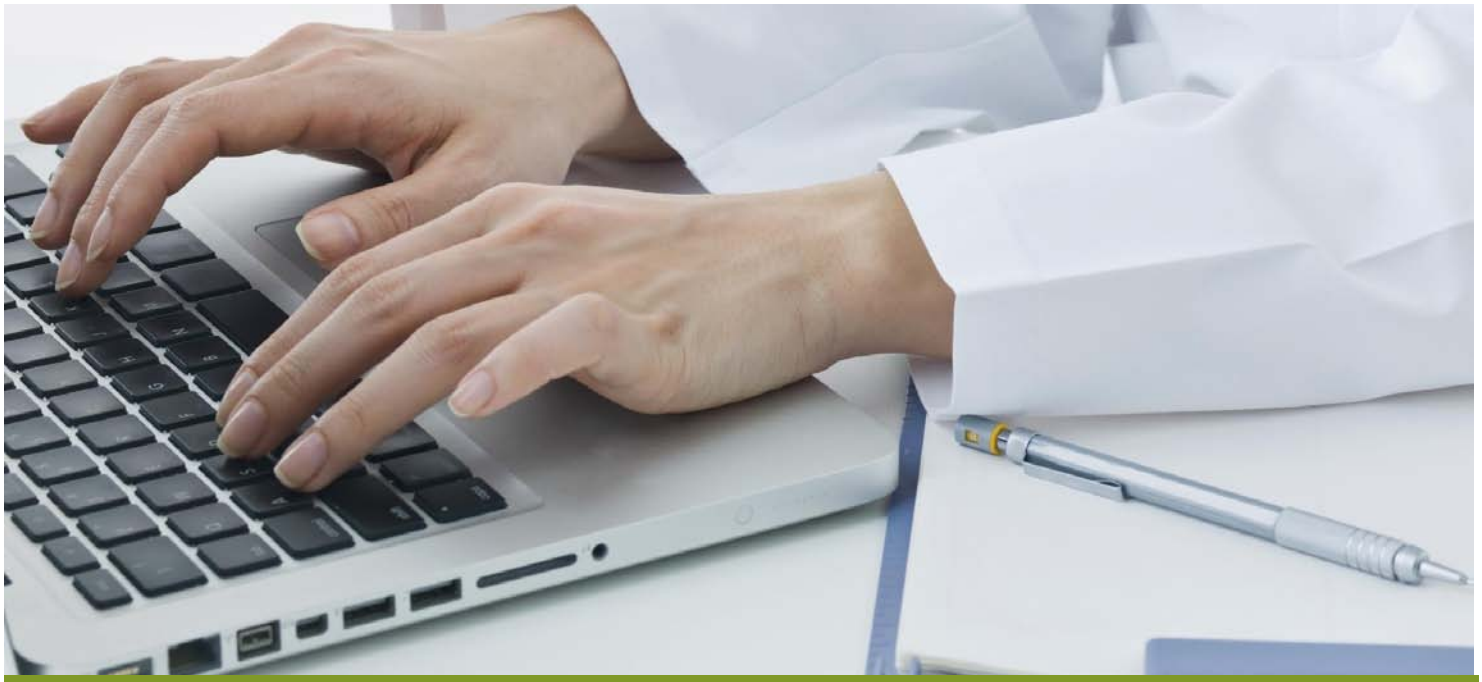

# Adapting the EHR Scribe Model to Community Health Centers:

## The Experience of Shasta Community Health Center's Pilot

PREPARED FOR:

SHASTA COMMUNITY HEALTH CENTER


PREPARED BY:

Kim Ammann Howard
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# Preface


## ACKNOWLEDGEMENTS

BTW *informing change* (BTW) is grateful to the staff at Shasta Community Health Center (SCHC) for their commitment and contribution to this evaluation. In particular we would like to thank SCHC staff members who provided their guidance on the evaluation throughout the study period. We offer a special thanks to Charles Kitzman, Chief Information Officer, Julie Johnston, Director of Finance, and Alexis Parsons, Director of Health Information Services, for their extraordinary assistance with the various aspects of data collection. We are also grateful to the clinicians, scribes, patients and other staff who participated in the evaluation and contributed their time and insights. We also want to acknowledge Blue Shield of California Foundation for their support of this work.



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## ABOUT BTW *informing change*

At BTW we are driven by our purpose of informing change in the nonprofit and philanthropic sectors. We partner with our clients to improve their effectiveness and build a culture of learning and continuous improvement. We produce high-quality, easy-to-understand products that present useful information designed to be readily applied to practice. Our information-based services focus on the fields of health, education, youth engagement and philanthropy.

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## INTRODUCTION

Shasta Community Health Center (SCHC) was established in 1988 in response to the lack of health care services available for the underserved community in Redding, California and its surrounding areas. With a mission to provide comprehensive, high quality, efficient and effective health care services, SCHC continues to enhance its capacity to meet the needs of a growing patient population. Four years ago, in 2008, this included the adoption of Electronic Health Records (EHR), putting SCHC at the forefront of integrating systems to promote efficiency for its clinical staff and to provide high quality care for its patients. An unanticipated outcome of EHR adoption has been the extra burden of work placed on SCHC clinicians, which to different extents negatively affects their productivity and satisfaction. To address these challenges, in January 2011, SCHC piloted an EHR scribe model. In brief, this involves a scribe being present during the patient visit to enter the appropriate information into the EHR, as dictated by the clinician.

While this practice is fairly prevalent in emergency rooms and to a lesser degree, in specialty care settings, it remains uncommon in community health centers. This provided SCHC with a particularly timely opportunity to assess how scribes could mitigate the above stated challenges as well as applicability of the model to community health centers more broadly. SCHC, with assistance from Blue Shield of California Foundation, contracted with BTW *informing change* (BTW) to assess the model's effectiveness. The evaluation focused on answering the following questions:

- Does clinician satisfaction improve due to having a scribe?
- Does patient satisfaction improve due to having a scribe?
- Does patient chart documentation improve due to having a scribe?
- What impact does the EHR scribe model have on patient visit efficiency and flow?
- What is the fiscal impact of the EHR scribe model?
- What clinician and scribe characteristics are important for the success of the EHR scribe model?

To answer these questions, primary data were collected during the study period, July through October 2011, from clinicians who worked with a scribe (n=6), scribes (n=8), patients who experienced a visit with a scribe (n=221), and key SCHC staff involved in the EHR scribe implementation. Secondary data included a review of patient chart documentation and EHR data extraction for the study period as well as the baseline comparison period, July through October 2010. For the EHR-related data, a comparison group of clinicians who worked with a scribe 14 days or less (n=6) were chosen based on similar specialty, hours worked and experience. A more in depth description of the methods and key limitations can be found in Appendix A.

## EVALUATION FINDINGS

In this section, we provide a summary of key findings for each evaluation question above. Where multiple data sources exist for a specific evaluation topic area, findings were analyzed jointly to provide a more complete picture.

### Does clinician satisfaction improve due to having a scribe?

Overall clinicians are more likely to report being "much more satisfied" or "more satisfied" when working with a scribe as compared to when not working with a scribe (Exhibit 1). The areas with the greatest improvements in satisfaction are the timeliness of chart notes, overall time spent on chart notes and overall job satisfaction. While a fair percentage of clinicians report levels of satisfaction remaining the same regardless of having a scribe, only one clinician reports feeling "less satisfied" in one area: the overall amount of time spent on chart notes.

Exhibit 1

**Clinicians' Satisfaction When Working with a Scribe Compared to Not Working with a Scribe**

(n=5)

| Clinicians' Satisfaction Level* | | | | |
|---|---|---|---|---|
| | Less satisfied | Same level of satisfaction | More satisfied | Much more satisfied |
| Ability to stay on schedule overall | | ✕✕✕ | ✕ | ✕ |
| Timeliness of chart notes | | ✕ | ✕ | ✕✕✕ |
| Time spent on chart notes overall | ✕ | | ✕ | ✕✕✕ |
| Overall accuracy of chart notes | | ✕✕ | ✕✕✕ | |
| Overall workload | | ✕✕ | ✕✕ | ✕ |
| Overall job satisfaction | | ✕ | ✕✕ | ✕✕ |

*Each "✕" represents one clinician.

Clinicians were also asked about the appropriateness of scribes' skills and qualities. With one exception, all clinicians note that they feel "very satisfied" or "somewhat satisfied" with the following scribe attributes:

- Eagerness to help
- Hard working
- Ability to get along with others, particularly the clinician's clinic team
- Interaction with patients
- Service focus

Clinicians report the same levels of satisfaction as noted above with how well they and scribes work together and how well scribes meet their needs.

***"Decreasing stress in the clinical area is very important. The scribe does this by having my notes almost completed."***

—Shasta clinician

## Concerns About Working with a Scribe

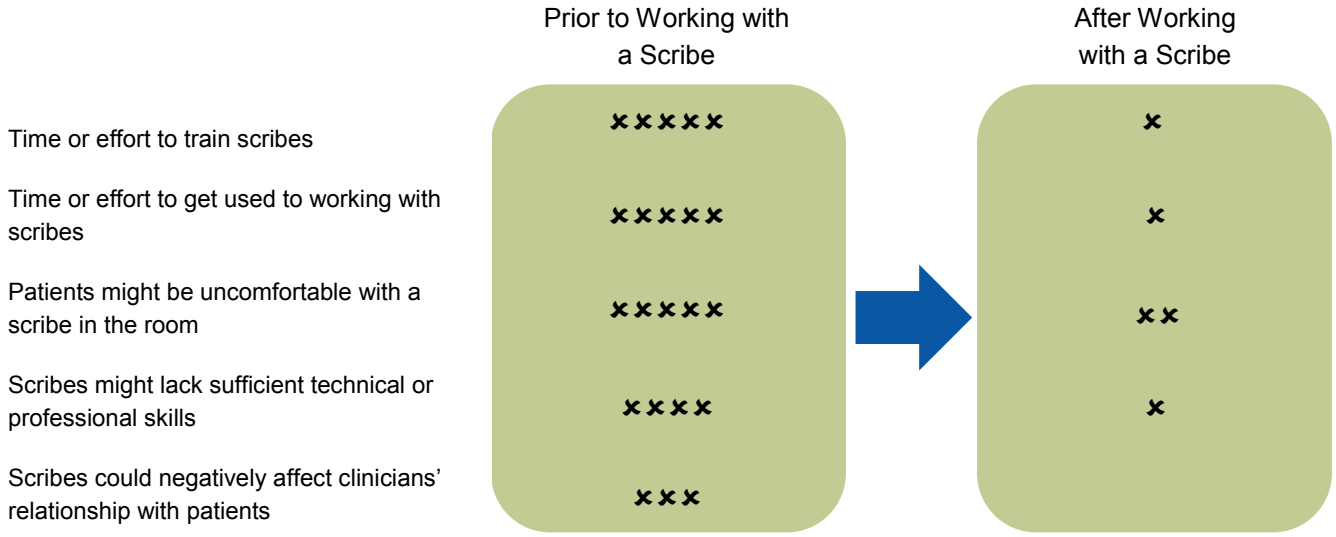
Clinicians were asked to reflect on their concerns about working with a scribe. Exhibit 2 highlights initial concerns (i.e., clinicians' concerns prior to working with a scribe) reported by at least three or more clinicians. These ranged from the time it would take to train and get used to working with a scribe to insufficient skills among scribes to the negative impacts on their patients of having a scribe in the exam room. After working with a scribe, however, most clinicians no longer report having these concerns. For the further development of scribes, clinicians recommend additional training in medical terminology and documentation, appropriate medical coding and note taking. Other concerns that were voiced initially by one or two clinicians (e.g., scribe-clinician relationship, reliance on scribes, not adequately learning how to use EHR) were no longer a concern after working with a scribe.

Clinicians vary in the number of patient visits they think it takes to become comfortable working with a scribe. The mean was 50 patient visits with a range of 20 to 100 patient visits.

Exhibit 2

**Changes in Clinicians' Concerns About Working with a Scribe***

(n=5)




*Each "×" represents one clinician.

## Impact of a Scribe

In reflecting on their overall work experience, four of the five clinicians feel confident that working with a scribe will increase the length of time they stay in clinical care. This included the most senior clinicians.[1] They point to feeling less stressed and overwhelmed and a decrease in their workload. In fact, all clinicians note that the length of their work day has either decreased or remained the same since working with a scribe. As one clinician reflects, "I'm working 10 hour days instead of 12 hour days."

***"Having a scribe is the difference between feeling hopeless and overwhelmed and feeling like it's a doable job and very satisfying."***

—Shasta clinician

Other benefits clinicians note include the positive impact of having another person in the room on patient management and more "face time" with patients. Notes one clinician: "I am able to listen to patients and not worry that I am writing everything down.... Also having another set of ears is helpful for difficult or uncooperative patients."

### SUMMING IT UP: SATISFACTION WITH SCRIBES

**Clinicians' Satisfaction**

- Clinicians report greater satisfaction with the time spent on chart notes, the accuracy of chart notes and their overall workload.
- After working with a scribe, clinicians' initial concerns tend to diminish.
- Almost all clinicians think that they will stay in clinical care longer as a result of having a scribe.

**Patient Satisfaction**

- Most patients did not voice any concerns about having a scribe in the room during their visit.

[1] The average age of clinicians was 52 with a range of 36 to 69 years.

### Does patient satisfaction improve due to having a scribe?

When provided with the opportunity to voice concerns about having a scribe in the room during their clinic visit, almost all patients (90%) say that they did not have concerns. One patient notes, "I agree with having a scribe in the room if it helps the doctor." Those with concerns report issues related to lack of privacy, confidentiality and discomfort with another person's presence during the exam. This sentiment was expressed by one patient who stated, "It is kind of awkward to have a third party listening." Patients could always ask for a scribe to leave a room. Patient satisfaction did not vary by age, ethnicity, gender or type of patient visit (i.e., regular checkup, acute or chronic health issue).

***"I like it better with a scribe in the room because the doctor is able to spend more time with me rather than entering the information into the computer."***

—Shasta patient

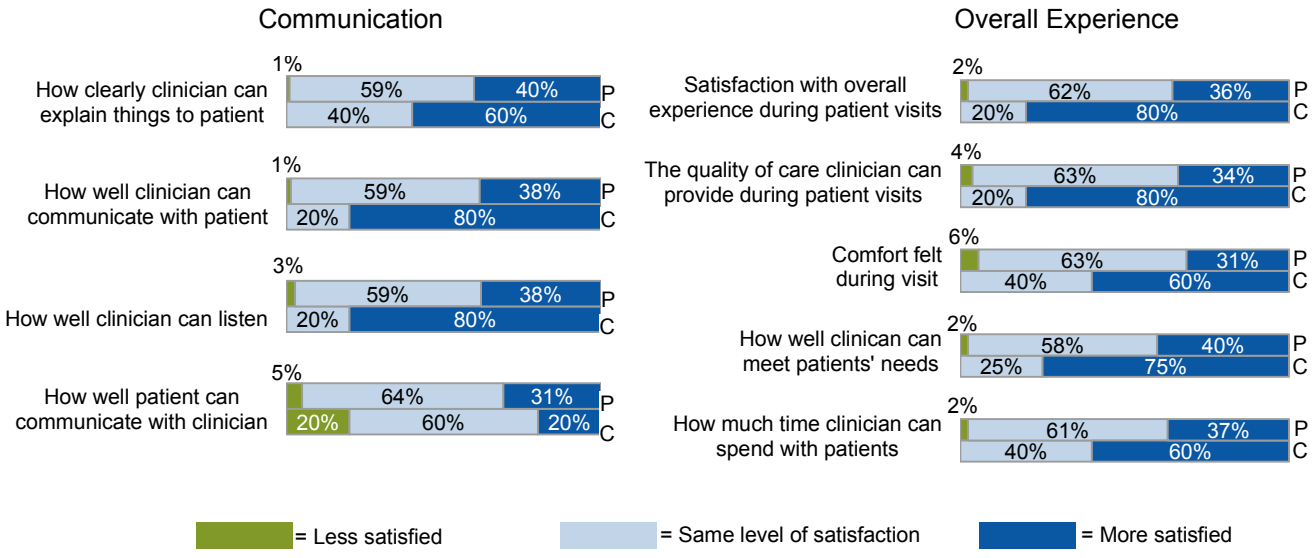
## Patient & Clinician Satisfaction with Scribes

Overall, most clinicians and patients report high levels of satisfaction with the EHR scribe model. They were asked about different aspects of communication between the clinician and patient as well as their overall experience with a scribe in the room. Across these measures, a slightly greater percentage of clinicians note higher levels of satisfaction as compared to patients. The one exception is "how well the patient can communicate with the clinician" for which a slightly greater percentage of patients report higher levels of satisfaction (Exhibit 3).

Exhibit 3

**Clinicians' & Patients' Satisfaction with a Scribe in the Room***

P=Patient (n=217–220); C=Clinician (n=5)




*Some rows do not add up to 100% due to rounding.

### Does patient chart documentation improve due to having a scribe?

The quality and accuracy of patient chart documentation improved among the study group clinicians during the study period as compared to the baseline period for the three key measures described below:

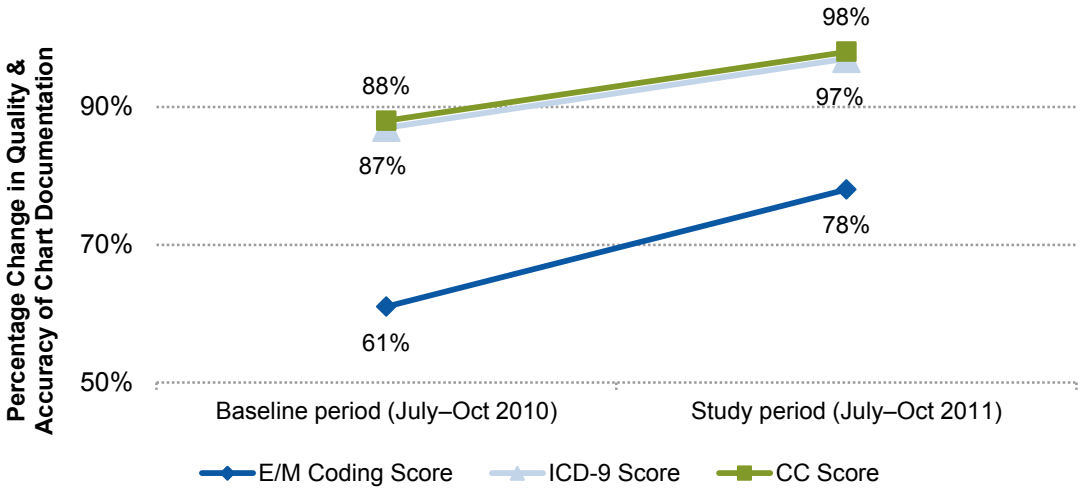
- **Chief Complaint (CC):** Description of the symptom, problem, condition, diagnosis, physician recommended return or other presenting reason for a medical encounter as usually described by the patient.
- **Evaluation and Management Coding (E/M):** A medical billing process that doctors must use to be reimbursed by Medicare, Medicaid programs or private insurance for a patient encounter.
- **International Classification of Diseases and Related Health Problems (ICD-9):** A medical classification that provides codes to classify diseases and a wide variety of signs, symptoms, abnormal findings, complaints, social circumstances and external causes of injury or disease.

The accuracy of CC and ICD-9 coding increased 10 percentage points from 88% to 98% for CC scores and 87% to 97% for ICD-9 scores. The greatest improvement took place with E/M coding scores with a 17 percentage point increase in accuracy from 61% to 78% (Exhibit 4).

Exhibit 4

**Improvements in Quality & Accuracy of Chart Documentation Among Clinicians Before & After Using a Scribe**

(n=6)




### What impact does the EHR scribe model have on patient visit efficiency and flow?

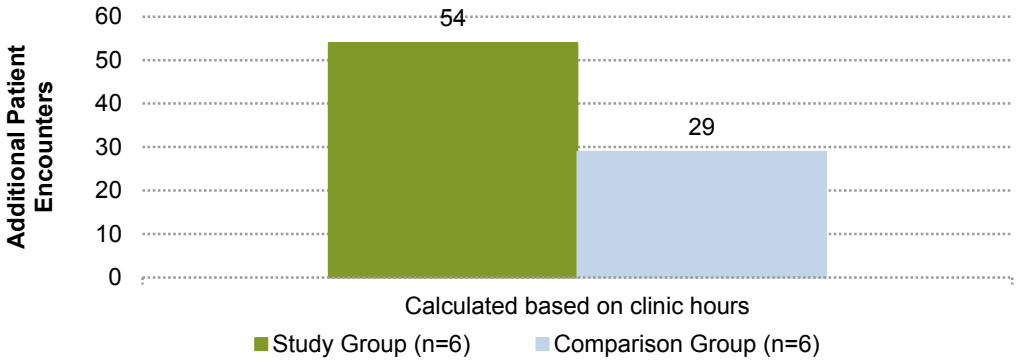
To assess the impact of having a scribe on patient visit efficiency and flow, the number of additional patient encounters was calculated[2] for clinicians in the study group as well as those in the comparison group. The study group saw, on average, an additional 54 patients during the study period as compared to the baseline period. The comparison group saw, on average, an additional 29 patients during the study period as compared to the baseline period (Exhibit 5). Based on these calculations, the EHR scribe model appears to have positively impacted patient

[2] Additional patient encounters is based on the difference between the 2011 actual patients and 2011 expected patients; the latter of which is determined by 2011 clinic hours and 2010 productivity.

flow at SCHC with clinicians who use a scribe on average seeing 25 more patients over the four month period, as compared to the comparison group.

Exhibit 5

**Average Additional Patient Encounters Per Clinician in the Study Group & the Comparison Group**

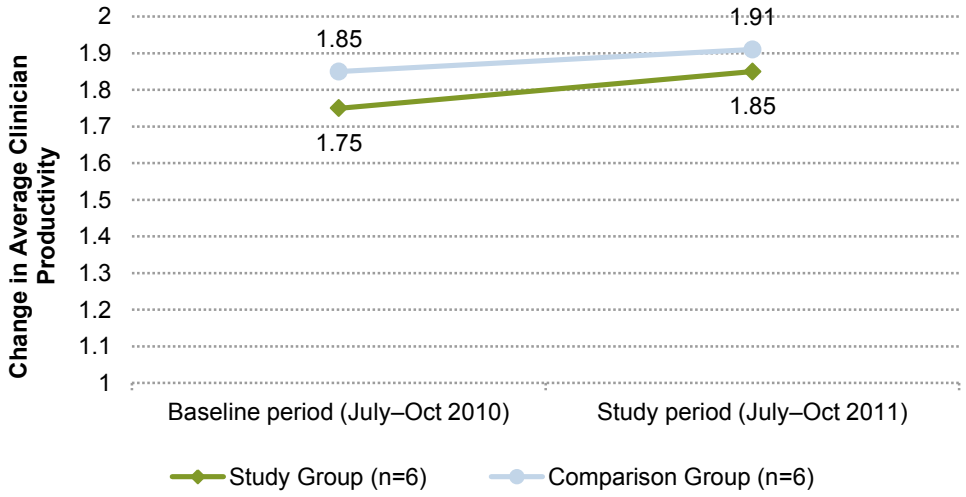



## What is the fiscal impact of the EHR scribe model?

Clinician productivity and clinician revenues were used to assess the fiscal impact of the EHR scribe model. The average productivity rate[3] among clinicians in the study group was lower during the baseline period as well as the study period as compared to the comparison group. However, the average productivity rate for clinicians in the study group increased at twice the rate (6%) as that for the comparison group (3%) (Exhibit 6).

Exhibit 6

**Changes in the Average Productivity Rate Among Clinicians in the Study Group & the Comparison Group**

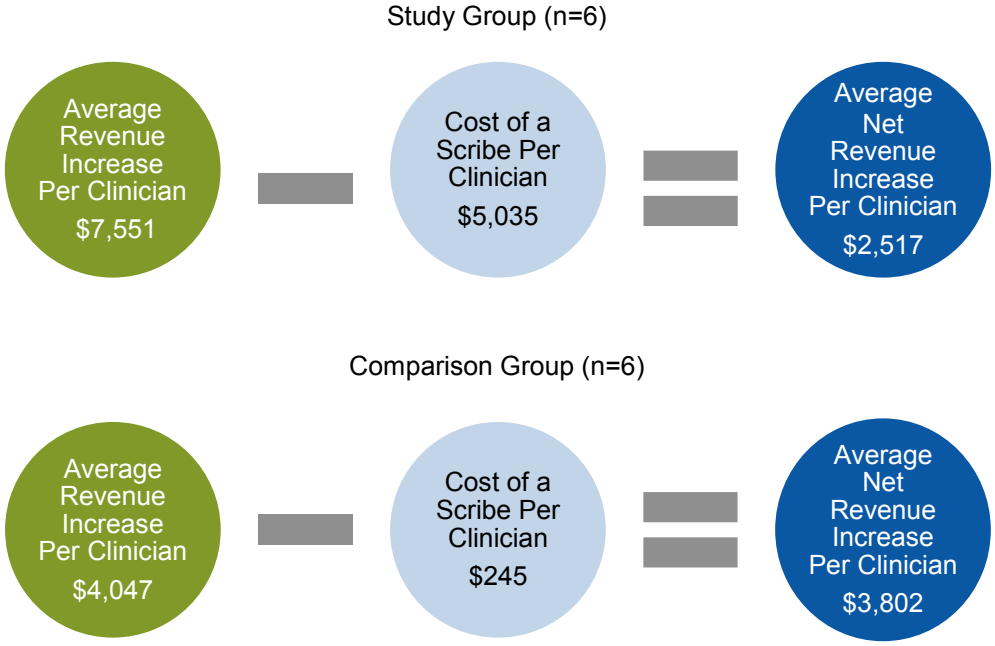



[3] Average productivity rate is based on number of clinic encounters divided by clinic hours.

To evaluate the impact of the EHR scribe model on clinic revenues, average revenue per clinician[4] and the related costs for a scribe[5] were computed to calculate the average net revenue per clinician for both the study group and comparison group. The study group demonstrated higher average revenues per clinician as compared to the comparison group, $7,551 and $4,047 respectively, due to the greater number of additional patient encounters (Exhibit 7). However, the average cost of a scribe in the study group, $5,035, offset this gain and resulted in lower average net revenues per clinician than in the comparison group ($2,517 versus $3,802 respectively). Ultimately, while the use of scribes resulted in a gain in revenue for the study group, because the cost of a scribe demands additional funds, the study group did not attain as much of a gain in net revenue as the comparison group.

Exhibit 7

**Average Net Revenue Per Clinician for the Study Group & Comparison Group**




## What clinician and scribe characteristics are important for the success of the EHR scribe model?

Clinicians, scribes and key SCHC staff involved in the model's implementation provided feedback on what contributes to a successful EHR scribe model. They were asked specifically about the qualities of clinicians that best compliment scribes, characteristics of a successful scribe and important considerations for a successful scribe-clinician match.

[4] Average revenue is calculated by multiplying additional patient encounters by $140.

[5] This includes an hourly wage of $13 for scribes multiplied by 1.3 to account for administrative costs multiplied by scribe hours billed. This does not include the initial cost of scribe training or the ongoing cost of scribe development.

### Key Characteristics of Clinicians Best Suited to Work with an EHR Scribe

Based on their experiences working with clinicians, scribes note a few important characteristics that make a clinician best suited to work with a scribe, including adaptability, good communication skills and an understanding of scribes' role and how to best utilize them during a patient visit. Staff overseeing project implementation describe the importance of clinician readiness for a scribe, which includes a willingness to invest upfront time to get the scribe up to speed, learn a new way of working, and delegate. Some clinicians and staff note the value of the EHR scribe model for specific types of patient visits such as preventive, urgent care and specialty care. They raise the point that patients with more complicated health issues may be too difficult for a scribe without medical training.

Some staff reflect on the importance of having at least one clinician advocate to encourage those who may be resistant to the model. While a number of SCHC clinicians were resistant to working with a scribe when the project began, over time, an increasing number of clinicians have been requesting a scribe. This, in large part, has been a result of clinician peers talking about their positive scribe experience and the tangible aforementioned benefits. It also has been invaluable to have a highly competent lead scribe with strong interpersonal skills and sensitivity to clinicians' needs who can work with them throughout the process.

### Key Characteristics of a Successful Scribe

Clinicians identify what they think are the most important technical skills and capabilities for a scribe to be successful. Most commonly they note knowledge of medical terminology, spelling skills and experience with EHR. Less commonly noted are backgrounds or skills related to college education, experience in the health care field and communication skills. Scribes echo similar sentiments, adding the need for scribes to be able to think quickly and deal with stressful patients. Other staff also reflect on the importance of scribes who are friendly and fascinated with people and learning.

While staff reflect on the benefits of being able to hire scribes with college degrees, they also reflect on the value of scribes who may not have such degrees but who come to the position with prior exposure to clinical care and knowledge of medical terminology. Clinicians, scribes and other staff highlight the benefit of hiring scribes on the medical pathway (e.g., someone who plans to pursue clinical training as a nurse, physician's assistant or doctor) and the rich experience that scribing provides. Some remark, however, that while this may be helpful in the short run, it could mean shorter tenure at the health center.

### Establishing a Successful Scribe-Clinician Match

Clinicians and scribes vocalize similar thoughts on what makes a successful scribe-clinician match. They note the importance of preparing both scribes and clinicians to work together. For scribes, this involves a formal and intensive training that includes the following: 1) a general introductory training for all scribes, 2) an opportunity to shadow the lead scribe and matching clinician to watch "scribing in action," and 3) an opportunity to practice "scribing" under the watchful eye of the same scribe-clinician pair and receive constructive feedback. Next, customized trainings take place to facilitate a good fit between an individual scribe and clinician. The lead scribe works with the clinician for a short time to inform decisions about the most appropriate scribe-clinician match. Once the scribe-clinician match is made, it is important to allow adequate time for the scribe to work with the clinician to learn specific preferences, which vary among SCHC clinicians. As one scribe describes, "Every clinician is so different. We really have to adapt to their style.... Once you get that down, you are good." The importance of developing a consistent and stable relationship is a strong theme addressed by both clinicians and scribes; such a relationship facilitates trust, strong communication and good rapport. Sharing information among scribes about clinician preferences and experiences also has been helpful when a scribe-clinician match shifts temporarily or permanently (e.g., due to a scribe being sick or leaving their position).

## LOOKING FORWARD

This pilot of the EHR scribe model sets forth the foundation for a more informed discussion on the continuous efforts to advance and develop best practices in a health care setting. With EHRs becoming the standard of practice in the clinical environment and the increase in popularity of scribes, the marriage of the two seems like a natural next step. This study sheds light on a relatively new approach for integrating the EHR scribe model into community health centers. In spite of the evaluation's limitations due to the EHR scribe implementation being in its early stages and the small number of participating clinicians, the model builds on positive anecdotal stories and shows promise in a number of key impact areas. Overall, there was a neutral or positive impact of having a scribe for both clinicians and patients. Improvements in patient chart documentation, which is critical for patient care, safety and reimbursement, occurred across all measures, with small percentage changes having practical importance. While the impact of additional patient encounters and net fiscal gains may not be as high in the study group as desired, these impacts may improve over time, among individual SCHC physicians currently using a scribe and as other clinicians begin to do so. It also will be important to continue to assess which clinicians are best suited for a scribe, considering such factors as baseline productivity, newness to the health center and timeframe in which the highest productivity levels are realized. The extent to which the role of scribes can be broadened should also be considered. For example, scribes could assume duties typically undertaken by medical assistants, which do not require medical licensure (e.g., contacting patients with normal lab results, scheduling referrals, preparing patient tracking reports). The collection of additional data over time will allow for more definitive conclusions including the practice of providing a scribe to every clinician in community health centers as compared to matching scribes to those clinicians who can become even more efficient. It will also be helpful to assess the effectiveness of all of these study measures at other community health centers to get a greater sample both within and outside of SCHC.

# Evaluation Methods

## DATA COLLECTION METHODS

BTW worked with Shasta Community Health Center (SCHC) staff to develop a robust evaluation plan that integrates a mixed methods approach of data collection strategies and incorporates feedback from all populations impacted by the EHR scribe model. The table below summarizes the evaluation methods utilized, including timeframe, type of data collection and sample for each key outcome measure. Subsequently, we provide some additional detail about each method.

| Outcome Measure | Timeframe | Type of Data Collection | Sample Type and Size |
|---|---|---|---|
| **Satisfaction**: Assess satisfaction with the EHR scribe model for clinicians and patients. | Jul–Nov 2011 | 1 clinician focus group | 3 participants* |
| | | Clinician satisfaction survey | 5 participants |
| | | Patient satisfaction survey | 221 participants |
| **Chart Documentation**: Review patient charts to assess accuracy and quality. | Jul–Oct 2011** | Chart reviews | 6 participants |
| **Efficiency**: Assess EHR data for billable clinic hours. | Jul–Oct 2011** | EHR data extraction | 12 participants*** |
| **Fiscal Contribution**: Assess EHR data for average revenues per clinician. | Jul–Oct 2011** | EHR data extraction | 12 participants*** |
| **Lessons Learned**: Provide insight on important characteristics of clinicians who use scribes, scribes and the scribe-clinician match. | May–Nov 2011 | 2 scribe focus groups | July: 6 participants<br>November: 6 participants |
| | | Periodic reflections with key staff involved in model implementation**** | Average of 5 per meeting |

* One of these participants was not included in other clinician data collection sources.
** Baseline data also was extracted for these measures from the July–October 2010 time period.
*** This consists of a study group of six SCHC clinicians and a comparison group of six SCHC clinicians.
**** Data from the clinician focus group and satisfaction survey also was utilized.

**Clinicians** included in the study group had worked with a scribe for at least 50 patient visits during the six-week period prior to the start of the study period, July–October 2011, and continued to work with scribes during this period. Three clinicians participated in an in-person focus group at the onset of their scribe experience in July 2011. Five of the six clinicians in the study group completed a short online clinician satisfaction survey in October 2011 (the sixth clinician no longer worked at the clinic at the time of survey administration). SCHC clinicians were eligible to be in the comparison group if they had a history of working with a scribe for 14 days or less since November 2010. Each clinician in the study group was matched with a clinician based on specialty, hours worked and clinical experience. In general clinicians in the study group had lower baseline productivity as compared to those in the comparison group.

**Patients** were administered a patient survey by telephone by an SCHC staff person during July–November 2011. Patients were eligible to take the survey if they were 18 years of age or older, their primary language was English and they had been examined by an SCHC clinician in the study group[1] within the last three weeks with a scribe in the room as well as the same clinician within a 14 month period without a scribe being present in the room. On a weekly basis, SCHC staff generated a list of eligible patients to contact and attempted to reach approximately 5 patients per clinician each week, with an ultimate goal of 50 patients per clinician. Patients could be contacted multiple times within their three week eligibility period; however, they could be surveyed only once per clinician. For two clinicians the goal of 50 was not reached due to eligibility criteria for patient inclusion; forty-five surveys were completed for one of these clinicians and 18 for the other clinician.

Survey findings show that the responding patients closely resemble the demographics at SCHC. A total of 221 patients were surveyed on their experience with their clinician when having a scribe in the room. The composition of the patient population was predominately white (82.5%) and had a small Hispanic/Latino make-up (5.6%); majority female (65.5%); and ranged in age from 18–88 years (mean of 53.41 years). Patients reported seeing their clinician an average of 5.09 times per year with the number of visits ranging from 2 to 54. While 68.3% reported that their clinic visit was for some form of a chronic or acute health issue, 31.7% identified the main reason for their visit as a regular checkup.

**Scribes** participated in two focus groups to discuss their experiences as a scribe. The first took place in person in July 2011 and the second by phone in November 2011. Four of the six scribes in each focus group participated in both. Three of the six scribes in the first focus group and five of the six in the second focus group are the scribes primarily assigned to one of the clinicians in the study group; the other scribes have less regular experience with the study group's clinicians.

**Chart reviews** were conducted by SCHC staff on a monthly basis during the four-month baseline period from July–October 2010 and again a year later when a scribe was present during the study period from July–October 2011. A standard evaluation and management scoring tool was used to assess each chart. For each clinician in the study, this amounted to approximately 5 patient charts each month for a total of 20 charts per clinician in the baseline period and another 20 in the study period.

**EHR data extractions** were conducted by SCHC staff for all clinicians participating in the study group and comparison group for the baseline period and study period. Data were extracted to assess the following:

- Average clinic billable hours—based on the hours clinicians bill for clinic work
- Additional patient encounters—based on the difference between the 2011 actual patients seen and 2011 expected patients seen (based on 2010 productivity and 2011 clinic hours)

[1] One study group clinician's patients were not surveyed since he worked primarily with patients on the Health Outreach for People Everywhere (HOPE) van, many of whom would not meet the study's eligibility requirements for patients.

- Productivity—based on clinic encounters divided by clinic hours
- Revenues—based on the difference between the average revenue and the cost of a scribe

SCHC's more unique hourly billing structure allows for an in depth analysis of patient visit efficiency and organizational fiscal impact. Clinic hours were used for calculations rather than total organizational hours a clinician may work since this may include other factors not related to the impact of the EHR scribe model such as administrative duties, vacation hours and other benefited paid hours (e.g., conferences, continuing medical education).

## EVALUATION LIMITATIONS

The following limitations should be taken into account when reviewing the evaluation findings:

- The study group size was small with only 6 clinicians; as a result, it compromised the power for statistical analysis as well as the ability to control for other factors that may impact outcomes.
- There was not a consistent trend in EHR-related data across clinicians in the study group or comparison group over time.
- Data focus on a four-month implementation period during the EHR scribe model's first year rather than a longer time period later in implementation. As a result, the EHR scribe model may not have reached its full effectiveness.
- Clinicians in the study group were not working with scribes 100% of their clinic hours. On average, they worked 72% of their clinic hours with a scribe over the four months. This may limit scribes' effectiveness in improving clinician productivity and, eventually, the net revenue.
- Scribes were not consistently matched to the same clinician; therefore, data reflect any scribe working with a clinician.

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