

CHCN RubiconMD Evaluation

JSI Final Report 2019



Prepared for Community Health Center Network and
California Health Care Foundation
October 17, 2019



CONTENTS

Executive Summary.....	2
Evaluation Report	5
Methods.....	6
Key Findings	8
Recommendations	14
Appendix I: Complete Survey Results	17
Appendix II: Provider Interview Guide.....	26
Appendix III: Provider Key Informant Demographics	28



EXECUTIVE SUMMARY

In January 2019, John Snow, Inc. (JSI) was engaged by Community Health Center Network (CHCN) and the California Health Care Foundation (CHCF) to conduct a qualitative evaluation of CHCN providers' use of the RubiconMD e-consult platform. The primary evaluation questions were:

- What are CHCN providers' overall experiences using RubiconMD?
- What are CHCN providers' perceptions regarding the impact of using RubiconMD?
- To what extent are primary care providers satisfied and/or dissatisfied with RubiconMD, and what are the key drivers of satisfaction and/or dissatisfaction?

To answer these questions, JSI conducted an online provider survey and a set of in-depth interviews with CHCN providers. This report outlines our methodology, key findings, and a set of recommendations for enhancing provider experience, satisfaction, and use of RubiconMD.

Key Findings

Provider Experience: Broadly, providers reported positive experiences with the RubiconMD platform and were grateful to have access to it.

- Most survey respondents agreed that the RubiconMD interface was simple and easy to use.
- Younger providers and providers who more recently completed their medical education were more likely to use RubiconMD. Younger and newer providers reported having less experience managing specialty conditions, and less confidence in their ability to do so without support.
- Prompt use of RubiconMD after account registration and training was associated with more regular use of the platform.
- Providers who use RubiconMD generally felt that they use it as often as they can, and felt confident in their ability to tell the difference between cases that needed referrals and those that could benefit from a RubiconMD consult.

“The majority of my patients are uninsured and/or undocumented, significantly limiting access to desperately needed specialty care. RubiconMD has filled in a major gap in what I am able to provide to patients and how I am able to manage more complicated conditions that would otherwise go untreated. This resource assists me in providing quality care to marginalized patients with limited resources, addressing not only individual health needs, but also helping me to bridge the poor outcomes caused by systemic inequity and social injustice around access to quality health care.”



Perceived Impact on Practice and Quality of Care: The use of RubiconMD improved providers' confidence in their ability to manage specialty conditions, helped reduce referrals to specialty care, improved quality of care for patients, and improved provider job satisfaction.

- Among survey respondents, 70% of high users and 48% of low users felt their knowledge, confidence, and skill in treating specialty conditions was improved through use of RubiconMD.
- 91% of high users and 74% of low users felt their timely access to specialist consultations was improved through use of RubiconMD, and 73% of high users and 59% of low users felt that RubiconMD decreased unnecessary specialist visits. However, conducting a consultation and follow up through RubiconMD requires more time from a primary care provider than simply sending a referral.
- 90% of all survey respondents reported being driven to use RubiconMD by a desire to improve patient experience. 82% of high users and 69% of low users felt the quality of care for their patients was improved as a result of their use of RubiconMD.
- 51% of high users and 38% low users reported that RubiconMD improved their job satisfaction.

"I've been working at [clinic] for six years and nothing has improved the primary care experience for my patients and for me as a provider more than RubiconMD. I LOVE being able to check with specialists about questions big and small, and the feedback I've received is so useful. I've learned so much as well. I cannot imagine working in primary care without access to RubiconMD because it's such an important part of my practice now. Thank you for making it available!"

Provider satisfaction and barriers to use: Overall, providers were satisfied with the platform and felt that the advice they received was timely and high-quality. However, numerous technological, logistical, and personal barriers to use remain.

- The time required for consults and follow up was the biggest reported barrier to increased use of RubiconMD, particularly because the work takes place outside of working hours.
- Technological challenges, including difficulties with loading pictures and labs, electronic health record (EHR) integration, and mobile app use serve as barriers to increased use of the platform.

"I am not given additional time to do these consultations, making them a headache. They require time to create and then to follow-up on. My clinic already demands more and more of me. Adding this on makes me frustrated and resentful of the lack of appreciation for the time that good health care requires."



- Personal connection to specialists is valuable to providers, and experienced providers with their own network of specialist colleagues are less likely to use RubiconMD.
- Some providers expressed strong concerns about legal liability when using RubiconMD. Providers worried that the anonymity of the specialty consultants would leave the primary care provider legally at risk.

Recommendations

Help providers and specialists get to know each other. More frequent opportunities for direct engagement with the local network of specialty providers through in-person events or gatherings, or the availability of more detailed information about specialist consultants could facilitate increased use of the platform.

Consider financial incentives or allocated time for using RubiconMD to increase use and improve provider satisfaction. Financial incentives for use of the platform, or time built into the provider schedule for RubiconMD consults, may encourage low-using providers to use RubiconMD more often and may help providers who are already using RubiconMD feel valued and compensated for the extra work they are doing.

Make platform changes and updates to correct technological pain points and meet user needs. Addressing challenges with uploading photos and labs, EHR integration, and the mobile app would significantly reduce technological barriers that many providers face in using RubiconMD.

Offer “refresher” trainings and tools to remind providers about RubiconMD and its benefits. More frequent trainings would give providers the opportunity to reinforce their new skills and refine their use of the platform. Email or paper reminders could also be useful in prompting providers to use the platform when they have not yet made it a part of their regular practice.



EVALUATION REPORT

Community Health Center Network (CHCN) is a partnership of community health centers serving Medi-Cal members and safety net populations in Alameda and surrounding counties. With eight federally qualified health centers (FQHCs) serving 140,000 Medi-Cal members, CHCN works to advance innovative health policies and provide comprehensive, quality care to their members. CHCN clinics take full professional risk for primary and specialty care, and CHCN provides Medi-Cal Managed Care business operations support to their FQHCs.

As part of their efforts to provide quality care to their members, CHCN launched a pilot program with a web-based e-consult platform in December 2015, using RubiconMD to connect primary care providers to specialists around the country. CHCN providers have the option to submit clinical questions and supporting documents to the platform to receive a virtual consultation from an appropriate specialist, thus potentially avoiding an unnecessary patient referral or visit to a specialist. The RubiconMD pilot was initiated by CHCN, and in September 2016, the pilot was expanded in partnership with each health centers' leadership team to include all CHCN providers. RubiconMD is funded by the specialty care budget of each health center, but CHCN provides intensive support and program management across clinics. CHCN has also integrated a local network of specialists into RubiconMD in partnership with the local public hospital system; these specialists offer consultations for adult members for a limited number of specialties. As of April 2019, 663 providers had enrolled in RubiconMD, roughly two-thirds of whom had submitted one or more cases to the platform, for a total of over 15,000 consultations.

In January 2019, John Snow, Inc. (JSI), a public health research and consulting organization, was engaged by the California Health Care Foundation (CHCF) and CHCN to conduct a qualitative evaluation of CHCN providers' use of the RubiconMD e-consult platform. The primary evaluation questions are:

- What are CHCN providers' overall experiences using RubiconMD?
- What are CHCN providers' perceptions regarding the impact of using RubiconMD on their subject-matter knowledge, referral practices, capacity, administrative burden, and patient care?
- To what extent are primary care providers satisfied and/or dissatisfied with RubiconMD, and what are the key drivers of satisfaction and/or dissatisfaction?

To answer these questions, JSI conducted an online provider survey and a set of in-depth interviews with CHCN providers. This report outlines our methodology, key findings related to the evaluation questions, and a set of recommendations for enhancing provider experience, satisfaction, and use of RubiconMD.



Methods

Survey Development: In collaboration with CHCN, JSI developed a provider survey, to be administered to CHCN providers online. The survey was reviewed by select staff and providers at CHCN, and updated to incorporate their feedback. The 19-question survey was programmed into SurveyGizmo, and the survey link was distributed to CHCN providers via clinic medical directors. The survey went live on March 5, 2019 and was open through May 28. During this time, reminders were sent to clinic directors in an effort to encourage additional responses. Providers also received a \$25 gift card incentive for completed surveys. The distribution list for the survey included 518 providers at eight clinics, representing all active CHCN providers (regardless of level of RubiconMD use). Additionally, a paper version of the survey was distributed to providers at West Oakland Health, who did not receive the survey over email. The responses received through the paper survey were entered into SurveyGizmo by JSI staff, and included in the analysis.

In total, 139 unique providers completed the survey, representing a total response rate of 25%. There were eight duplicate responses (the same provider completed the survey more than once); in these cases, the provider’s first response was used. The tables in Appendix I outline the complete results from the online provider survey, including responses by provider type (high vs. low user).

Provider Classification: To support analysis of the survey and interviewee selection, JSI completed a classification of the 663 providers ever enrolled in RubiconMD based on their use of the platform. As described in the table below, we selected three criteria to use in classifying providers as “high” users of RubiconMD.

Table 1: High-Using Provider Criteria

	Number of Providers	Number of Consultations
Criterion 1: 4 or more consults per active month OR	48	6,462
Criterion 2: 100+ total consults OR	36	6,265
Criterion 3: Consultations with 15+ specialties (out of 42)	93	9,956
Total Unduplicated High Users <i>(Providers meeting at least one of the above criteria)</i>	107	10,440

Each of these criterion were assessed independently using RubiconMD program data dated April 2, 2019. A provider was classified at a high user if they met at least one criteria, though many providers

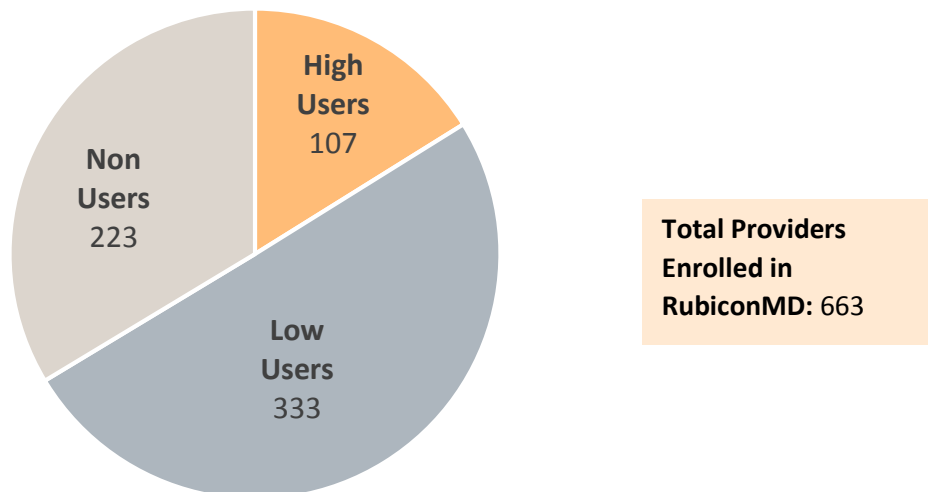


qualified under multiple criteria. “Active months” were defined as months since the first consult completed by the provider, which we have found in previous research to be a better representation of use patterns than months since enrollment in the program. Providers with less than three months of active utilization as of April 2, 2019 were excluded from the analysis.

These criteria were reviewed with and agreed upon by CHCN. At their suggestion, we used termination dates to adjust the number of active months for providers who are no longer working within CHCN. These terminated providers are included in the figures above and in the program data analysis, but did not take part in the survey or interviews. We also reclassified providers who are “on-call” providers as high users; these providers do not work full-time, but were close to meeting at least two criteria for high use.

Providers who did not meet the criteria for high use, but who had submitted at least one consult to RubiconMD, were classified as “low” users (providers with fewer than four consults per active month, fewer than 100 total consults, and consultations with fewer than 15 specialties). These 333 providers (76% of all users of the platform) completed 4,756 consults (32% of all consults). All other providers enrolled in RubiconMD were classified as “non” users, as they had never completed a consultation.

Figure 1: Provider Classification



Provider Interviews: JSI used the preliminary survey findings and conversations with CHCN to develop an in-depth provider interview guide and a sample of providers to interview, including a cross-section of providers based on clinic, provider type, RubiconMD usage patterns, and age. The full provider interview guide can be found in Appendix II.

From May through July 2019, JSI sent interview request emails to 39 CHCN providers (including up to two follow up emails), and conducted phone interviews with 10 providers. This included nurse



practitioners and physicians from seven clinics; six high-using providers and four low-using providers; and a range of ages and lengths of time practicing medicine. More information on the interview sample can be found in Appendix III.

Key Findings

Through coding of interview transcripts and qualitative and quantitative analysis of survey responses, JSI identified the following key themes and evaluation findings.

Provider Experience

Broadly, providers reported positive experiences with the RubiconMD platform and were grateful to have access to it.

High-using providers who responded to the survey were more likely to report submitting consults on a weekly or monthly basis (77% vs. 49% of low users), while low-using providers were more likely to report that the frequency of submission varied based on patient need (47% vs. 16% of high users). EHR

“Great service. Easy to enter clinical questions quickly to help guide care for next steps either to avoid or while awaiting referrals to specialists.”

integration was the most preferred method for accessing the platform across all survey respondents, followed by accessing the platform through the RubiconMD website; 58% of high users and 74% of low users said that EHR integration was essential to their ability to use the platform for consultations. Most survey respondents (90% of high users and 83% of low users) agreed or strongly agreed that the RubiconMD interface was simple and easy to use. Low users were more likely to report that submitting consults took longer than 10 minutes (35% vs. 23% of high users), while most high users felt a submission required 5-10 minutes to complete. Consults requiring labs, imaging, or photos required more time to compose and submit.

Younger providers and providers who more recently completed their medical education were more likely to use RubiconMD. The average age of all high users of the RubiconMD platform (both physician and midlevel providers) was 40.7 years, compared to 45.8 years for low users and 53.2 years for non-users.¹ Relatedly, on average, high users had fewer years practicing medicine (16.6) than low (22.7) and non-users (20.5). Younger and newer providers reported having less experience managing specialty conditions, and less confidence in their ability to do so without support. For this group, RubiconMD is particularly valuable and accessed more frequently.

Prompt use of RubiconMD after account registration and training was associated with more regular use. For high users, on average, 0.8 months elapsed between RubiconMD account registration (which generally coincides with a provider’s onboarding at CHCN) and submission of the first consult. For low users, the average time between RubiconMD enrollment and first consult submission was 3.8 months.

¹ Data on age and date of completion of medical education was not available for all providers in the sample.



This suggests that using the platform while training is still fresh may help cement the platform as part of a provider’s practice and lead to more sustained use over time.

Providers who use RubiconMD generally felt they were using it as often as they could. Many users who were classified as “low” users under the established criteria described themselves as appreciating the platform and using it whenever they could, and many non-users felt they did not have cases that warranted use of the platform. Providers described using RubiconMD for a narrow range of cases where they aren’t sure something needs a consultation, but don’t know how to manage it themselves. Most providers felt confident in their ability to tell the difference between cases that needed referrals and cases that could benefit from a RubiconMD consult.

“There are things that are well-suited for Rubicon, like when the patient isn’t in acute danger. Something maybe I can manage better and send a consult and use that as a learning experience... If I am worried that I need to send them to a specialist, I am going to send them anyway.”

RubiconMD was particularly beneficial for certain specialties or cases. Fields that have limited specialists available or that are in high demand, like dermatology, were noted as being useful opportunities to use RubiconMD. Pediatrics, pain management, and urology were also identified as valuable specialties to have access to in the platform. One provider described getting advice from two different specialties that were relevant to the same case, and appreciated having multiple perspectives on the problem.

The anonymity of RubiconMD specialists was both a benefit and drawback of the platform. Some providers, particularly providers with less experience, appreciated the anonymity afforded by the platform, as it gave them the liberty to ask questions without judgment or worry that they should already know the answer. However, in cases where a patient ultimately needed a referral, provider felt it would have been beneficial and efficient for the patient to be referred to the same specialist who has already reviewed their case. Additionally, some low-using providers felt uncomfortable relying on a specialist they did not know or whose background they weren’t familiar with.

“The anonymity is helpful because I can ask a really stupid question... but it would be nice to have continuity of specialist for the patient.”

Perceived Impact on Practice and Quality of Care

The use of RubiconMD improved providers’ confidence in their ability to manage specialty conditions. The desire to improve knowledge was a significant driver of RubiconMD use, with 79% of survey respondents reporting a desire to improve their knowledge and skills to treat specialty conditions. Providers described improving their personal knowledge through their experience with RubiconMD consults, and many felt that the RubiconMD consults were easier to learn from than other



sources of knowledge like UpToDate. Among survey respondents, 70% of high users (vs. 48% of low users) felt their knowledge, confidence, and skill in treating specialty conditions was improved or very much improved (four or higher on a five-point scale) through use of RubiconMD.

Providers felt RubiconMD helped reduce referrals to specialty care, though it came at the cost of primary care provider time.

Many providers appreciated the ability to avoid unnecessary referrals and diagnostics, and believed that the use of RubiconMD facilitated access to specialists. 91% of high users (vs. 74% of low users) felt their timely access to specialist consultations was improved or very much improved (four or higher on a five-point scale) through use of RubiconMD, and 73% of high users (vs. 59% of low users) felt the avoidance of unnecessary specialist visits was improved or very much improved. This is particularly valuable given wait times for specialty appointments can be up to two months, compared to

“While RubiconMD is very useful for specialty consults, often it puts the work that would normally be on a consultant back on primary care. With 15 minute visits, this often multiplies the amount of work that I have brought on myself along with increased risk and responsibility.”

several hours for feedback through RubiconMD. Though the use of RubiconMD can save time and cost for patients and reduce unnecessary utilization across the system, conducting a consultation and follow up through RubiconMD requires more time from a primary care provider than simply sending a referral.

Patient experience is important to providers, and they believe that their use of RubiconMD improved quality of care.

90% of all survey respondents reported being driven to use RubiconMD by a desire to improve patient experience, and 82% of high users (vs. 61% of low users) felt the quality of care for their patients was improved or very much improved (four or higher on a five-point scale) as a result of their use of RubiconMD. Providers noted the scarcity of specialists, particularly in certain fields, which can lead to delays in specialty care for patients. Providers felt that RubiconMD facilitated access to specialists, and to more comprehensive care for patients. Providers reported that many patients and their families felt empowered knowing that their provider was accessing a specialty consultation on their behalf. In addition to helping patients avoid unnecessary visits to specialists, providers found RubiconMD to be helpful in preparing patients for necessary specialty care by identifying labs or diagnostics that could be run prior to specialty follow up care.

“The majority of my patients are uninsured and/or undocumented, significantly limiting access to desperately needed specialty care. RubiconMD has filled in a major gap in what I am able to provide to patients and how I am able to manage more complicated conditions that would otherwise go untreated. This resource assists me in providing quality care to marginalized patients with limited resources, addressing not only individual health needs, but also helping me to bridge the poor outcomes caused by systemic inequity and social injustice around access to quality health care.”



Provider job satisfaction may be improved through the use of RubiconMD. Among survey respondents, 51% of high users and 38% of low users felt their job satisfaction was improved or very much improved (4 or higher on a 5-point scale) as a result of their use of RubiconMD. Improvement in job satisfaction may be particularly valuable in clinics and environments (like the safety net) where provider turnover is a significant challenge.

“Rubicon has been a great tool for my professional development and has definitely improved patient care.”

Provider Satisfaction and Barriers to Use

Providers who are satisfied with RubiconMD are more likely to be high users. 75% of high users rated their satisfaction with RubiconMD at eight or higher (out of 10), compared to only 50% of low users, and 88% of high users reported being very likely to recommend RubiconMD to colleagues (scoring eight or higher on a 10-point scale), compared to 61% of low users. Many providers found the service to be extremely valuable, despite the technologic or other challenges they faced in using it.

“I’ve been working at [clinic] for six years and nothing has improved the primary care experience for my patients and for me as a provider more than RubiconMD. I LOVE being able to check with specialists about questions big and small, and the feedback I’ve received is so useful. I’ve learned so much as well. I cannot imagine working in Primary Care without access to RubiconMD because it’s such an important part of my practice now. Thank you for making it available!”

Lack of time is one of the greatest barriers to RubiconMD use.

The time required for consultations was the biggest reported barrier to increased use of RubiconMD (65% of high users and 60% of low users strongly agreed or agreed that it was a barrier). Because providers do not have time to complete consults during or between patient visits, they typically submit consults at the end of the day. This makes consults feel like “extra work”, as opposed to making a referral which can be done during clinic time. As one provider said, “Every minute I’ve ever spent on Rubicon consults has been outside of work hours.” Adding to this workload is the fact that, unlike with referrals, consultations through RubiconMD also require additional time spent following up on the recommendations made by the specialist.

“I am not given additional time to do these consultations, making them a headache. They require time to create and then to follow-up on. My clinic already demands more and more of me. Adding this on makes me frustrated and resentful of the lack of appreciation for the time that good health care requires.”



At CHCN clinics, the work of submitting and following up on consultations through RubiconMD is happening in the context of the FQHC Prospective Payment System (PPS). FQHC primary care providers have more limited time per visit than specialists, with no time in between visits. This revenue model leaves FQHC providers with little or no flexible time, making it very challenging to do work that is not billable, like consultations through RubiconMD.

Specialist advice is high-quality, with limited exceptions.

Providers were generally satisfied with the quality of advice, and described receiving many thoughtful, helpful, and appropriate consultations. However, there were several instances where providers received responses that were careless or suggested the specialist had not taken the time to read the initial submission. This was frustrating to providers who had spent some of their limited time to write thorough consultation requests. Providers also felt that some of the advice they received regarding tests to run or treatments to initiate were not feasible in resource-limited primary care settings.

“I’ve had one consult in particular that was absolutely wonderful and very helpful. It was amazingly supportive also because the consultant recognized how difficult the work is that we are doing. I found that touching and it really lifted my morale. I read it out loud to my colleagues. That one was superb.”

Some providers expressed strong concerns about legal liability when using RubiconMD. Providers felt that specialists may have to cover themselves for the worst-case scenario, and thus would offer overly conservative advice (“For example, recommending a biopsy for low likelihood of problem skin lesion”). Conversely, some providers worried that the anonymity of the specialty consultants and the lack of complete documentation by the primary care provider on whom they consulted would leave the primary care provider legally at risk. They also expressed concerns that less experienced providers would enter information into the consult that aligns with a preconceived diagnosis; without being able to review the full chart, a specialist is “no longer a second set of eyes to catch what has been missed and interpret the facts in a new light”. For some providers, concerns about legal risk was a driving factor behind the choice not to use the platform.

Numerous specific technological challenges serve as barriers to increased use of RubiconMD.

Respondents named errors and challenges with loading pictures as one of their primary complaints. To load pictures, providers often had to take pictures with their phones, email the photos to themselves (which requires access to wireless internet, which was not available at all clinics), and then upload them to the e-consult. This didn’t always work, and providers felt it was inefficient and increased the length of time required to submit a consult.



“I find uploading photos to be cumbersome. Since we usually take the photos on our phones, I would like to be able to access the photos from my Rubicon app instead of having to have the app already open and the consult started to take the photos, as that takes up more time during the patient visit and I usually do my consults during my admin time at the end of clinic or next day.”

Another primary complaint was the lack of effective EHR integration. Though RubiconMD is integrated with an EHR used by numerous clinics, depending on the EHR and quality of the integration process, integration can be “slow, unreliable, and cumbersome”. Providers reported that some information did not transfer over as it should and that they often resorted to using the web version instead. Providers also expressed a desire for more of the patient information to automatically integrate into the e-consult.

Respondents also expressed a desire to be able to automatically upload lab results and scans, and to have the consultation flow back into the patient’s chart for continuity of care and permanent record keeping. Many providers expressed frustration with the phone app, saying it functioned inconsistently. Some providers were also unaware that the app was available on Android phones; this highlights the need for increased communication or training on what is possible in the platform.

“The feedback from specialists is invaluable, but the effort it takes to upload labs, imaging, or other documents really discourages me from using RubiconMD. There is not a smooth system to save transfer these data to RubiconMD website, and the cumbersome way of downloading files from EHR onto a folder and then uploading into RubiconMD often doesn't work anyways. I would use RubiconMD a lot more if not for this barrier.”

CME credit for RubiconMD use is appreciated, but not a driver of platform use. Most providers who use RubiconMD were aware that CME credit could be earned through RubiconMD, and reported taking advantage of the benefit. Among survey respondents, 80% of high users and 69% of low users reported being aware of the benefit. However, among non-users who responded to the survey, only 40% were aware that CME credits were available. CME credit was not identified as an important factor in dictating use of the platform; many providers said they would continue to use the platform in the same way if the credit was not available. Among high users, 68% said CME credit was not an important factor in their decision to use RubiconMD (scoring one or two on a five-point scale), and only 5% said it was extremely important. Among low users, 57% said CME credit was not an important factor compared to 6% who identified it as extremely important.



Personal, human connection is important. Providers expressed a desire to know more about the specialists they were consulting with and how specialty providers are recruited by RubiconMD. Many providers feel more comfortable working with other providers whom they know and trust, and have built relationships with. This was a barrier to the use of RubiconMD particularly for more experienced providers—over years of practicing, they had built up their own network of colleagues and specialists whom they could call on when looking for advice. They were more likely to call someone they know over the phone than to submit an e-consult to an anonymous specialist.

*“I have ways to get consults with people I know, and prefer to talk with people I know. I don't trust people I don't know-- **I've worked with so many good and bad docs over the years, to be anonymous doesn't work for me.**”*

Mandatory RubiconMD consultations are challenging for primary care providers with limited time. Providers described being required to submit RubiconMD consults before being permitted to refer patients to particular providers or specialties (specifically, urology and dermatology). Primary care providers were unhappy with the idea of mandatory consults, because of the additional burden consults place on providers' already limited time. Additionally, they felt that requiring consults implies that primary care providers don't know when their patient needs to see a specialist, which can erode the relationship of trust and respect between providers and clinic leadership.

“I would not ever agree to mandatory RubiconMD consults. This is insulting to primary care... Specialists have an hour visits with their patients. We have 15 minutes. You have to trust primary care to make specialty referrals.”

More frequent trainings or refresher trainings may be needed. Respondents who used RubiconMD frequently felt that their colleagues may not be using the platform because they don't know how, particularly older providers who may have less experience with technology. Additionally, the confusion and frustration around photo uploading, mobile app use, and EHR integration suggests that enhanced training on these topics could be valuable. Some providers also reported difficulty in remembering to use the platform and suggested reminders, such as a small flyer or a prompt on their phone.



RECOMMENDATIONS

Help providers and specialists get to know each other. Though technology can be a useful tool in delivering care, nothing can replace human connection. Primary care providers, particularly those with hesitancy to consult with anonymous providers or concerns about liability, want to get consultations from providers they know and trust. These providers may benefit from a more personal connection to local RubiconMD specialists. Providers noted that there have been opportunities in the past to meet RubiconMD providers from the local network in person, and that they found that interaction very helpful. More frequent opportunities for engagement with the local network of specialists through in-person events or gatherings, or the availability of more detailed information about specialist consultants could facilitate increased use of the platform.

Consider financial incentives for using RubiconMD to increase use and improve provider satisfaction. Many providers reported conducting RubiconMD consults outside of work hours, due to the nature of their clinic schedules (including short patient visits with no time in between). This work feels uncompensated and additional to their already-full work load. Financial incentives for use of the platform may encourage low-using providers to use RubiconMD more often, and may help providers who are already using RubiconMD to feel valued and compensated for the extra work they are doing.

Support integration of RubiconMD into clinic workflow. Reducing the amount of time providers need to spend on RubiconMD outside of work hours could facilitate increased use of the platform. High-using providers could offer advice on how to efficiently submit consults during clinic time, or clinics could consider identifying support personnel to aide in the submission of consults (including photo and lab uploading).

Make platform changes and updates to correct technological pain points and meet user needs. Addressing challenges with uploading photos and labs, ensuring high-quality EHR integration, and facilitating improved use of the mobile app would significantly reduce technological barriers that many providers face in using RubiconMD. Effective EHR integration is particularly important, given the proportion of survey respondents who said integration was essential to their ability to use the platform (58% of high users and 74% of low users). These changes would also reduce the amount of time required to submit a consult, which may lead to increased use of the platform. Other provider suggestions for enhancements to the platform included the option to consult with an internal medicine doctor, the ability to video call or have live access to a specialist, or offering a camera that interfaced directly with the EHR to easily upload photos and avoid the use of a cell phone during a patient visit. One approach to making such changes would be to engage with a small group of providers who could test and refine changes to the platform in real-time, to ensure the updated platform meets user need.

Consider implementation of RubiconMD as a tool to improve job satisfaction. Provider burnout and turnover are significant and costly challenges for FQHCs. RubiconMD's ability to improve provider job



satisfaction, in addition to improving patient care, makes it a valuable tool for retention and cost saving.

Continue to provide centralized, intensive program management and support to clinics. Throughout the implementation of RubiconMD, CHCN has championed the program and provided close management for providers and clinics. CHCN has committed time and resources to training, monitoring, soliciting provider feedback, and platform improvements. Having this support centralized at CHCN is efficient and allow clinics to take advantage of the RubiconMD program with little overhead, reducing a potential barrier to platform implementation and use.

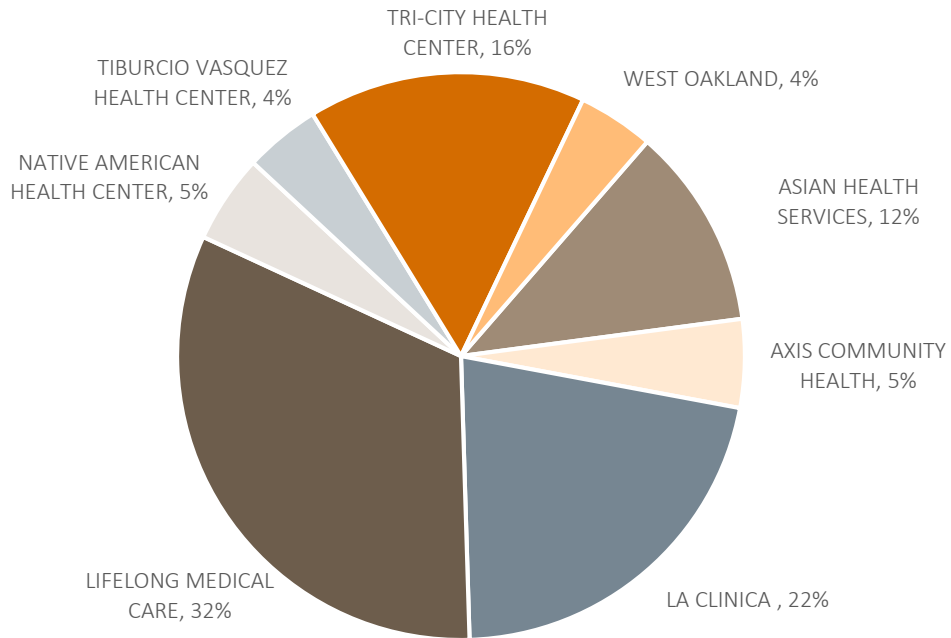
Offer “refresher” trainings and tools to remind providers about RubiconMD and its benefits. More frequent trainings would give providers the opportunity to reinforce their new skills and refine their use of the platform. This is particularly valuable for providers who had a long gap between their initial training and their first use of Rubicon; the longer the gap between training and first use, the less likely a provider is to be a high user. Trainings could also focus on specific topics, like EHR integration or use of the mobile app, for providers who are familiar with the platform but would like to be more efficient. Email or paper reminders could also be useful in prompting providers to use the platform when they have not yet made it a part of their regular practice, or to inform non-using providers about the benefits of RubiconMD use (including CME credits).

Carefully consider whether or not to make consultation through RubiconMD mandatory prior to referral. Some primary care providers felt strongly that requiring consultation through RubiconMD prior to making a referral was inappropriate and insulting to providers. However, such a requirement could help reduce the burden on certain specialties and could save costs across the system. Prior to implementing a RubiconMD mandate, there may be value in educating primary care providers on the value of requiring e-consults, or collaborating with them on other solutions. For example, FQHC payment reform could facilitate changes that would make time spent conducting econsults billable, thus reducing the burden on primary care providers.

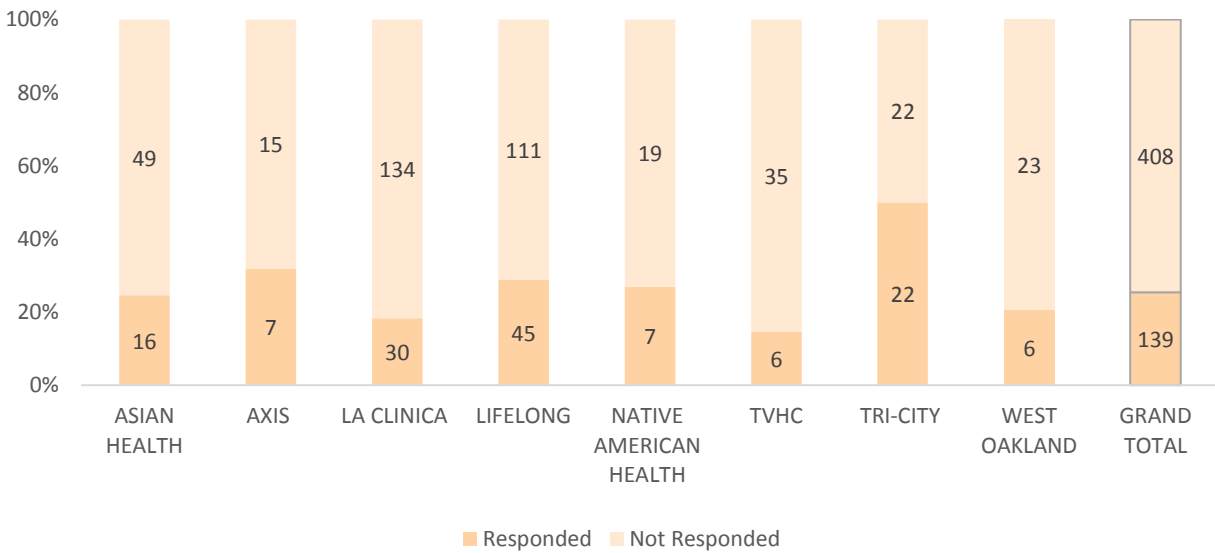


APPENDIX I: COMPLETE SURVEY RESULTS

Distribution of Survey Responses by Clinic



Survey Response Rate by Clinic





Question 1 How did you hear about the RubiconMD platform?

	High Users (N= 43)	Low Users (N=81)	All Users (N=135)
Provider exposure to Rubicon			
Recruiter	2%	4%	3%
Clinic medical director	70%	67%	64%
Clinic IT staff	5%	7%	7%
Colleague	21%	14%	19%
Other	2%	9%	7%

Question 2 Do you know that providers can earn CME credits for using RubiconMD?

	High Users (N= 44)	Low Users (N=83)	All Users (N=139)
Provider knowledge of CME credit from using Rubicon			
Yes	80%	69%	71%
No	20%	31%	29%

Question 3 On average, how often do you submit a consult to the RubiconMD platform?

	High Users (N= 44)	Low Users (N=83)	All Users (N=139)
Frequency of consult submission			
Daily	5%	0%	1%
One or more times a week	36%	10%	17%
One or more times a month	41%	39%	37%
It varies, depends on patient need	16%	47%	35%
We haven't had a chance to use Rubicon yet	2%	4%	8%
Don't know	0%	1%	1%

Question 4 What is your preferred method for accessing the RubiconMD Platform?

	High Users (N= 43)	Low Users (N=80)	All Users
--	-----------------------	---------------------	--------------



			(N=128)
Preferred method of submission			
Mobile app	12%	8%	9%
Through integration in the EHR	44%	56%	52%
Directly through RubiconMD web page	40%	31%	32%
No preference	2%	3%	4%
Don't know	2%	3%	3%

Question 5 Typically, how long does it take you to compose and submit an initial consult request through RubiconMD?

	High Users (N= 43)	Low Users (N=80)	All Users (N=128)
Time per consult			
0-5 minutes	19%	18%	18%
6-10 minutes	58%	45%	49%
11-15 minutes	21%	25%	23%
More than 15 minutes	2%	10%	7%
Don't know	0%	3%	2%

Question 6 For the following statements, please reflect on your experience interacting with the RubiconMD support, technology, and workflow. Using the scale of 'Strongly Agree' to 'Strongly Disagree', please indicate the extent to which you agree/disagree with the statement. Please circle one response per statement.

	High Users (N= 43)	Low Users (N=80)	All Users (N=127)
The orientation on RubiconMD helped me get started using the system.			
Strongly Agree	12%	19%	17%
Agree	33%	43%	40%
Neither Agree nor Disagree	43%	28%	33%
Disagree	10%	10%	10%



Strongly Disagree	2%	1%	2%
I have developed an appropriate workflow to integrate the use of RubiconMD into my current practices.			
Strongly Agree	19%	13%	14%
Agree	48%	44%	46%
Neither Agree nor Disagree	17%	26%	23%
Disagree	14%	15%	14%
Strongly Disagree	2%	3%	2%
The RubiconMD interface is simple and easy to use.			
Strongly Agree	30%	25%	27%
Agree	60%	58%	58%
Neither Agree nor Disagree	9%	8%	9%
Disagree	0%	9%	5%
Strongly Disagree	0%	1%	1%
RubiconMD technical support requests are handled in a timely manner.			
Strongly Agree	9%	23%	18%
Agree	26%	23%	24%
Neither Agree nor Disagree	65%	51%	56%
Disagree	0%	4%	2%
Strongly Disagree	0%	0%	0%
EHR integration is essential to my ability to use the RubiconMD platform for consultations.			
Strongly Agree	30%	34%	33%
Agree	28%	40%	35%
Neither Agree nor Disagree	23%	15%	19%
Disagree	16%	11%	13%
Strongly Disagree	2%	0%	1%
The RubiconMD mobile app is essential to my ability to use the RubiconMD platform for consultations.			
Strongly Agree	28%	14%	18%
Agree	28%	28%	26%



Neither Agree nor Disagree	16%	35%	30%
Disagree	21%	18%	19%
Strongly Disagree	7%	5%	6%

Question 7 What factors go into your decision to use RubiconMD for specialty consultations? For each statement, please indicate the extent to which this was an important consideration in your decision to use the system for specialty consultations. Using the scale from 1 to 5 where '1' is 'Not at All Important' and '5' is 'Extremely Important'.

	High Users (N= 43)	Low Users (N=80)	All Users (N=127)
Interest in exploring the use of technology to improve patient outcomes.			
Not at all Important	60%	28%	39%
2	14%	25%	22%
3	7%	23%	16%
4	12%	16%	16%
Extremely Important	7%	6%	6%
Don't know	0%	3%	2%
Desire to improve knowledge and skills to treat specialty conditions.			
Not at all Important	0%	5%	3%
2	9%	5%	6%
3	5%	14%	12%
4	23%	20%	22%
Extremely Important	63%	56%	57%
Don't know	0%	0%	0%
CME credit for completing specialty consultations.			
Not at all Important	47%	26%	33%
2	21%	31%	27%
3	7%	21%	16%
4	16%	10%	14%
Extremely Important	5%	6%	6%
Don't know	5%	5%	5%
Desire to improve patient experience.			
Not at all Important	0%	5%	3%
2	0%	1%	1%
3	2%	6%	6%



4	26%	26%	25%
Extremely Important	71%	61%	65%
Don't know	0%	0%	0%
Use or promotion of the system by my colleagues or clinical leadership.			
Not at all Important	26%	22%	23%
2	26%	25%	24%
3	28%	24%	26%
4	14%	15%	15%
Extremely Important	2%	11%	9%
Don't know	5%	3%	3%

Question 8 For the following statements, please reflect on how using the RubiconMD consult platform may have impacted your service delivery and patient care. Using a scale of 1 to 5, where '1' is 'Not at All Improved' and '5' is 'Very Much Improved', please circle a response that best reflects how you feel for each of the following statements.

	High Users (N= 43)	Low Users (N=80)	All Users (N=127)
Knowledge, confidence, and skill in treating specialty conditions			
Not at all improved	0%	3%	2%
2	14%	15%	13%
3	16%	34%	28%
4	40%	25%	31%
Very much improved	30%	23%	25%
Don't know	0%	1%	1%
Timely access to specialist consultations			
Not at all improved	0%	1%	1%
2	2%	5%	4%
3	5%	18%	13%
4	26%	25%	25%
Very much improved	65%	49%	55%
Don't know	2%	3%	2%
Patient experience			
Not at all improved	0%	4%	2%
2	2%	13%	9%
3	30%	25%	26%
4	40%	29%	33%



Very much improved	28%	25%	27%
Don't know	0%	5%	3%
Quality of care for patients			
Not at all improved	0%	5%	3%
2	2%	9%	6%
3	16%	23%	20%
4	35%	30%	32%
Very much improved	47%	31%	37%
Don't know	0%	3%	2%
Avoidance of unnecessary specialist referrals			
Not at all improved	2%	5%	4%
2	12%	13%	12%
3	12%	16%	15%
4	33%	35%	33%
Very much improved	40%	24%	31%
Don't know	2%	6%	5%
Satisfaction with my job			
Not at all improved	7%	13%	10%
2	14%	23%	20%
3	28%	26%	27%
4	23%	23%	23%
Very much improved	28%	15%	20%
Don't know	0%	1%	1%

Question 9 What factors are barriers to your use of the platform? Please indicate your level of agreement with the statements below using a scale of 1 to 5, where '1' is 'Strongly Agree' and '5' is 'Strongly Disagree'.

	High Users (N= 43)	Low Users (N=79)	All Users (N=127)
Time needed for entry of consultations.			
Strongly Agree	14%	19%	17%
2	51%	41%	43%
3	9%	15%	13%
4	16%	20%	19%
Strongly disagree	9%	4%	6%



N/A	0%	1%	2%
Concern about the privacy of my patients.			
Strongly Agree	0%	3%	2%
2	2%	1%	2%
3	16%	13%	13%
4	33%	41%	37%
Strongly disagree	49%	41%	44%
N/A	0%	3%	2%
Lack of confidence in my ability to use the RubiconMD technology.			
Strongly Agree	0%	3%	2%
2	0%	8%	6%
3	7%	14%	11%
4	23%	33%	29%
Strongly disagree	70%	39%	49%
N/A	0%	4%	3%
Lack of access to the necessary technology to use the RubiconMD system effectively			
Strongly Agree	0%	1%	1%
2	19%	5%	10%
3	7%	16%	12%
4	30%	35%	34%
Strongly disagree	40%	39%	40%
N/A	5%	3%	4%

Question 10 Overall, how satisfied are you with your experience with the RubiconMD platform? Use the scale below where '0' is 'Not at all satisfied' and '10' is 'Extremely Satisfied' and circle one option.

	High Users (N=43)	Low Users (N=80)	All Users (N=125)
Overall satisfaction			
0 Not At All Satisfied	0%	0%	0%
1	0%	0%	0%
2	2%	0%	2%
3	0%	3%	1%
4	0%	1%	1%
5	2%	9%	6%



6	5%	6%	6%
7	16%	28%	24%
8	40%	25%	30%
9	26%	13%	17%
10 Extremely Satisfied	9%	14%	13%
N/A	0%	3%	2%

Question 11 How likely are you to recommend RubiconMD to your colleagues? Use the scale below where '0' is 'Not at All Likely' and '10' is 'Extremely Likely' and circle one option.

	High Users (N=42)	Low Users (N=79)	All Users (N=123)
Likelihood of recommendation			
0 Not At All Likely	0%	0%	0%
1	0%	0%	0%
2	2%	1%	2%
3	0%	1%	1%
4	0%	0%	0%
5	0%	9%	5%
6	5%	9%	7%
7	5%	16%	14%
8	26%	15%	19%
9	24%	9%	15%
10 Extremely Likely	38%	37%	37%
N/A	0%	3%	2%



APPENDIX II: PROVIDER INTERVIEW GUIDE

Good _____ and thank you for taking the time to speak with us. My name is Robin Haller and my colleague Tea Slater is here assisting me. We both work for John Snow, Inc., a public health research and consulting organization in Berkeley. We have been contracted by Community Health Center Network to gather information about use of the RubiconMD consult platform, a web-based system that links primary care providers and specialists to improve the quality of patient care. CHCN is interested in better understanding your needs and how use of the RubiconMD platform is impacting service delivery and patient care. We are interested in your opinions, regardless of how often you have used the RubiconMD consult platform. We are conducting interviews with a diverse group of providers, as well as conducting an online survey. All of your responses will be kept confidential; JSI will analyze and aggregate all of our findings into a report to CHCN.

The interview should take about 30 minutes. As a token of our appreciation for your time, we will offer a \$50 gift card to each interview participant, which will be emailed to you after the interview. Thank you again for making time to talk with us.

Do you have any questions before we get started?

Tea will be taking notes; do you mind if we record the conversation as well?

1. To get started, please tell us about your practice at [clinic].
 - Do you work at [clinic] full time?
 - How many patients do you typically see a day?
 - Do you work at multiple sites?
2. Have you heard of the RubiconMD e-consult platform?
 - If yes, how did you hear about it?
3. Do you use RubiconMD?
 - Had you ever used an e-consult platform or other telehealth technology before this?
4. Do your colleagues at [clinic] use Rubicon?
 - Why not?
5. Why did you decide to use RubiconMD?
 - *Probes:* Improve personal knowledge and skills; improve patient experience; use technology to improve patient outcomes; CME credits



6. I'd like to talk about how you use RubiconMD.
 - Generally, how often do you submit a consult to the RubiconMD platform?
 - How do you prefer to access the RubiconMD Platform? Is RubiconMD integrated into your EHR?
 - How do you decide to use RubiconMD for a given patient encounter?
 - *Probes*: Use for certain specialties? For certain types of cases? Has this changed over time?
 - Typically, how long does it take you to compose and submit an initial consult request through RubiconMD?
 - When are you submitting your consults? At the end of the day, end of the week, during the day?

7. What do you like best about RubiconMD?
 - Do you like that the specialists are not the same people your patients would see in person?

8. How has your use of RubiconMD impacted your work? What has changed for you and your patients?

9. What are the main barriers to your use / increased use of RubiconMD?
 - *Probes*: lack of time, lack of appropriate technology (computer, Wifi), not comfortable with technology, concern for patient privacy

10. What changes would make it easier for you to use / increase your use of RubiconMD?
 - Increased support or training from CHCN? What type of support?
 - Better technical support or training from RubiconMD?
 - Access to technology/hardware?
 - Changes in your workflow/the way you practice?
 - Changes to the RubiconMD interface?

11. Overall, has RubiconMD met your expectations?

12. Would you recommend RubiconMD to your colleagues? Why or why not?

13. Is there anything else you would like to share with us as feedback to support refinement of RubiconMD?



APPENDIX III: PROVIDER KEY INFORMANT DEMOGRAPHICS

Provider Demographics (n=10)	
Clinic	
Asian Health Services	10%
La Clinica de la Raza	20%
LifeLong Health	10%
Native American Health Center	10%
Tri City Health Center	10%
Tiburcio Vasquez Health Center	20%
West Oakland Health Center	20%
Age	
<59	70%
60+	10%
Unknown	20%
Type	
Nurse Practitioner	50%
Physician	50%
Rubicon Use Frequency	
High	60%
Low	40%