BARRIERS TO AND FACILITATORS OF IMPLEMENTATION OF SCREENING, BRIEF INTERVENTION AND REFERRAL TO TREATMENT FOR RISKY SUBSTANCE USE FOR ADOLESCENTS IN PEDIATRIC PRIMARY CARE: A QUALITATIVE INTERVIEW STUDY

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A dissertation submitted to the faculty at the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Doctor of Public Health in the Department of Health Policy and Management in the Gillings School of Global Public Health.

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ABSTRACT

Stacy Sterling: Barriers to and Facilitators of Implementation of Screening, Brief
Intervention and Referral to Treatment for Risky Substance Use for Adolescents Pediatric
Primary Care: A Qualitative Interview Study
(Under the direction of Asheley C. Skinner)

Alcohol and other drug problems can be devastating to adolescents' health, mental

health and well-being, and early detection and intervention are critically important.[1-3]

Pediatric primary care, with its emphasis on health promotion is an opportune setting in

which prevention and early intervention for substance use problems can occur.[4,5] Screening,

brief intervention and referral to treatment (SBIRT) for alcohol and drug use problems is a

public health approach to early intervention for substance use problems endorsed by the

National Institutes of Health, and the Department of Health and Human Services and the

Substance Abuse and Mental Health Services Administration,[6-9] and recommended by major

medical organizations.[10-15] SBIRT for adolescents has not been widely implemented in

pediatric health care settings however, and there is little research on factors contributing to its

implementation in pediatric primary care.[16,17]

This dissertation uses qualitative data from Key Informant interviews with Kaiser

Permanente Northern California (KPNC) and community-based pediatric and specialty

mental health and substance abuse treatment clinicians, policymakers and clinical staff to

examine feasibility and factors – environmental, organizational, provider- and patient-level,

and the nature of the intervention itself – which may inhibit or facilitate implementation of

SBIRT in pediatric primary care. The dissertation culminates in a *Plan for Change* focused

on pragmatic steps to facilitate the implementation of adolescent SBIRT in a large integrated

healthcare delivery system, KPNC. The qualitative analysis and resulting implementation

plan are informed by the findings on implementation outcomes from a cluster-randomized,

hybrid implementation and effectiveness trial of different modalities of delivering SBIRT in

pediatric primary care, conducted in KPNC.

"Youth is a dream, a form of chemical madness."
-F. Scott Fitzgerald, Tales of the Jazz Age

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

AAP   American Academy of Pediatrics

AMA   American Medical Association

AOD   Alcohol and other drug

BHC   Behavioral health clinicians

BI   Brief intervention

CD   Chemical Dependency

CFIR   Consolidated Framework for Implementation Research

EHR   Electronic health record

FQHC   Federally qualified health center

HEDIS   Health Effectiveness Data Information Set

KPNC   Kaiser Permanente Northern California

PCPs   Primary care providers

RCT   Randomized clinical trial

SBIRT   Screening, brief intervention and referral to treatment

CHAPTER 1: INTRODUCTION

Problem Statement

Alcohol and other drug (AOD) problems can be devastating to the health, mental health and life trajectories of adolescents; the National Center on Addiction and Substance Abuse calls adolescent substance abuse "America's #1 Public Health Problem."[18] Although rates of substance use have generally declined over the past forty years among youth in the United States (U.S.), the most recent Monitoring the Future national survey of 8th, 10th and 12th graders found that underage drinking and drug use is still highly prevalent, and the continued high rates of both the use of certain substances (alcohol, marijuana and prescription opioids), and certain practices (e.g., binge drinking), even among young adolescents, are worrisome. In 2015, 10% of 8th graders, 22% of 10th graders and 35% of 12th graders reported past 30-day alcohol use; 3% of 8th graders, 11% of 10th graders and 21% of 12th graders reported having been drunk in the past 30 days, and 7% of 8th graders, 17% of 10th graders, and 21% of 12th graders reported past 30-day marijuana use.[19] Substance use is closely associated with the three leading causes of mortality and morbidity in this age group – accidents, homicide and suicide[20] – as well as with medical[21,22] and mental health comorbidities,[23,24] and early detection and intervention can make a critical difference in adolescents' health and wellbeing.[1-3] Recent studies have demonstrated the significant and potentially irreversible damage which the use of substances, including alcohol and marijuana, the substances most commonly used by adolescents in the U.S., can cause to developing adolescent brains.[25-41] As trusted health care professionals with regular contact with many

adolescents, pediatric primary care providers (PCPs) are ideally placed to identify substance use problems before they become more serious.[4,5]

While behavioral health problems – substance use and mental health – are among the most common pediatric health conditions in the U.S.,[42] far fewer than half the children and adolescents in need of care ever receive services, particularly specialty substance abuse treatment.[43,44] Certain population groups, including Latinos and African Americans, are especially unlikely to receive care.[43-46] Many families never seek care, and many of those that do, because of issues of system capacity and insurance coverage, among others, have difficulty obtaining it.[47] Because most families will never seek specialty care, primary care visits provide critical opportunities to detect substance problems,[48] and more children in the U.S. with behavioral health conditions receive care for these conditions from their primary care provider than from any other type of provider.[49] Studies have found that PCPs may be especially effective agents to provide this care,[4] and adolescents and their parents have been found to be receptive to screening and intervention by pediatricians,[50] and to have positive perceptions of care when their pediatrician discusses "sensitive" topics, including substance use, with them.[51] Effective adolescent substance abuse prevention and early intervention relies on identification and intervention approaches that are effective, feasible, flexible and implementable in real-world clinical settings. As yet however, standardized screening and intervention for adolescent substance use problems has not been widely adopted in pediatric primary care in the United States.

Screening, brief intervention and referral to treatment (SBIRT) is a public health approach to early intervention for substance use problems endorsed by the National Institutes of Health, and the Department of Health and Human Services and the Substance Abuse and

Mental Health Services Administration.[6-9] SBIRT may vary in how it is delivered – in length, type of clinician, format, etc. – but it is most commonly informed by Motivational Interviewing, a therapeutic approach that has been used to address a wide variety of behavioral health problems, but most extensively with substance use. It is patient-centered and non-confrontational, and focuses on increasing readiness to change and self-efficacy, using empathic listening techniques, and increasing the perceived discrepancy between actual and ideal behavior.[52] Interventions incorporating motivational interviewing techniques are thought to be particularly well-suited to the developmental stage of adolescents, due to their non-confrontational, non-judgmental approach,[53] and frequent incorporation of decisional balance exercises,[54] and studies have found that motivational interviewing can be effective for reducing substance use in adolescents,[54-56] including those with co-occurring substance use and mental health conditions.[57] While many brief interventions, particularly those designed to be delivered by physicians in busy medical settings, do not incorporate all the components of motivational interviewing, most are informed by the motivational interviewing approach and can be adapted to a variety of settings and interventionists.

The efficacy, effectiveness, cost-effectiveness and feasibility of alcohol SBIRT in adult primary care has been well-documented,[58-62] although the evidence on the efficacy of adult SBIRT for illicit drugs is mixed.[63-66] There is a smaller but growing body of research suggesting that SBIRT may also be effective for adolescents,[67-73] and a recent meta-analysis found that alcohol screening and brief intervention produced significant reductions in both alcohol use and related problems among adolescents and young adults, across diverse populations and modalities.[54] Nevertheless, the efficacy and effectiveness literature is less robust than for adults, the cost-effectiveness of SBIRT for adolescents has yet to be

established,[74] and there is little research on factors contributing to its implementation in pediatric primary care.[16,17] Based upon reviews of the evidence,[75,76] the U.S. Preventive Services Task Force determined that the evidence for screening and behavioral interventions in pediatric primary care is currently insufficient to recommend its use, for either alcohol,[77] or illicit and non-medical prescription drug use.[78]

While the research literature on SBIRT for adolescents in primary care is still developing, intuitively and anecdotally, identifying risky health behaviors in the context of primary care provider visits, and pediatricians and patient discussions about avoiding risky behavior or minimizing risks, would certainly seem to be sound clinical practice and consistent with the preventative orientation of pediatric primary care. National pediatric and adolescent medical organizations agree, and many have issued guidelines that specifically endorse regular alcohol and drug screening for adolescents. The American Academy of Pediatrics (AAP) suggests that substance use be included in the health history taken at each visit starting at the age of 8, and their 2016 "Recommendations for Pediatric Preventive Health Care" recommends alcohol and drug use assessment beginning at age 11, including: "*risk assessment to be performed with appropriate action to follow, if positive*."[15] Similarly, the American Medical Association's (AMA) Guidelines for Adolescent Preventive Services recommends that youth from 11 to 21 should have at least an annual preventive health visit, with screening for alcohol and drug use conducted at each visit.[10,11,79-81]

Other forces are also driving the dissemination and adoption of SBIRT for adolescents, including major philanthropic investments, such as the Conrad N. Hilton Foundation's $50 Million Substance Use Prevention Initiative https://www.hiltonfoundation.org/priorities/substance-use-prevention, which is directed

toward supporting multi-pronged, prevention and early intervention efforts aimed at reducing adolescent substance abuse. In spite of this growing momentum for the adoption of SBIRT for adolescents however, most health systems – public and private – have not implemented routine SBIRT for adolescents, and the NIH has recently called for research on both its effectiveness and factors related to its implementation for adolescents.[9] Findings from this dissertation add to what is known about the challenges and opportunities involved in implementing SBIRT in pediatric primary care.

Topic

A qualitative exploration of the environmental, organizational, provider and patient and intervention factors which inhibit or facilitate implementation of SBIRT for adolescents in pediatric primary care to improve early identification of and intervention for substance use problems among adolescents, and development of a plan for implementing SBIRT in pediatric primary care across a large, integrated healthcare delivery system.

This dissertation uses qualitative Key Informant interview data from a cluster-randomized, hybrid implementation and effectiveness trial (RCT) examining implementation outcomes and effectiveness and cost-effectiveness of adolescent SBIRT in an integrated healthcare delivery system, Kaiser Permanente Northern California (KPNC). The RCT randomized Pediatric Primary Care Providers (PCPs) in a large Pediatrics clinic to one of three arms – a Usual Care arm and two alternative modes of delivering SBIRT: 1) by PCPs, and 2) by Behavioral Health Clinicians (BHCs). Pediatricians and BHCs were trained in the same empirically-supported SBIRT protocol, treatment fidelity was monitored, and performance feedback provided to both types of clinicians. The RCT used data from the health system's electronic health record (EHR), collected during the course of clinical care,

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to examine provider-level outcomes (screening, assessment, brief intervention and referral rates), patient outcomes (alcohol and drug use and related problems), and cost-effectiveness.

The Parent RCT collected qualitative data, through Key Informant interviews with KPNC pediatricians, nurses, medical assistants, receptionists, behavioral health (Child & Family Psychiatry and Chemical Dependency treatment) clinicians, and Pediatrics and Behavioral Health leadership. It also included non-KPNC clinical leaders and policy-makers from public, private and governmental pediatric health care delivery systems, in order provide some context for the within-KPNC analysis, in terms of understanding which barriers and facilitators might be unique to this closed, integrated system, and which are more universal, and therefore generalizable, to other healthcare systems. This dissertation involves an analysis of these Key Informant interview data in the context of the current evidence base, informed by implementation findings from the parent RCT, and guided by an implementation research conceptual framework, concentrating on the barriers to and facilitators of implementing SBIRT for adolescents, and the implications for clinical practice and policy.

Specific Aims

Aim 1: Qualitative Analysis of Implementation Process, Feasibility. Examine the process of SBIRT implementation, barriers and facilitators, and intervention fidelity within KPNC, through semi-structured qualitative interviews with providers and staff (PCPs, BHCs, Nurses, Medical Assistants, Child and Family Psychiatry and Chemical Dependency treatment program clinicians, Receptionists, and pediatrics and Behavioral Health leaders) in the study.

Aim 2: Examine differences and similarities in barriers and facilitators to the implementation of standardized SBIRT for adolescents across health care delivery systems – public and private – outside of KPNC.

Aim 3: Development of a Plan for Change, informed by study findings, to guide implementation of adolescent SBIRT within KPNC.

CHAPTER 2: CONCEPTUAL MODEL

Consolidated Framework for Implementation Research

The conceptual model I use for this analysis is informed most strongly by the

Consolidated Framework for Implementation Research (CFIR), developed by Laura

Damschroder and colleagues.[82,83] The process of developing the CFIR involved a careful

review of the extant implementation science literature, analysis of the key components of

each of the models identified for conceptual and empirical strength, and a synthesis of the

most promising constructs from each into a single flexible, overarching framework for

organizing and guiding the implementation of health services research findings into practice

and policy. The CFIR organizes key factors influencing implementation of an intervention

into five major domains: the ***characteristics of the intervention***, the ***outer setting***, the ***inner***

setting, the ***characteristics of the individuals involved*** and the ***process of implementation***.

Within each of the five broad domains, Damschroder identifies more specific significant

constructs which may contribute to implementation effectiveness. A complete list with brief

descriptions of all the CFIR constructs is included as Appendix A. I use the CFIR model to

guide my examination of factors related to the effective implementation of SBIRT, analysis

of Key Informant interview data, and as pertinent and as applicable, to shape the Plan for

Change.

CFIR domains. *Characteristics of the Intervention*. As conceptualized by

Damschroder and colleagues, the characteristics of the intervention consist of both its

indispensable "core components" which cannot be changed without losing its essence, as

well as its "adaptable periphery," i.e., elements which can be adapted to the circumstances of different contexts. Examples of intervention characteristics include the source of the intervention, the evidence of its strength and quality, its relative advantage over alternative approaches, its adaptability, trialability, complexity, design quality and cost.

In the case of this analysis, these characteristics include factors such as the SBIRT modality, the effectiveness of SBIRT generally and the different modalities specifically, the individual elements (the screening, the brief intervention, the referral to treatment process), pediatricians and policymakers' perceptions of the strength of the evidence base on SBIRT, and the relative time required for the intervention. Mode of SBIRT delivery – whether pediatrician-delivered ("PCP") or behavioral health clinician-delivered ("BHC") – is a particularly salient characteristic in this study because evaluating the effectiveness of the two intervention modalities, against each other and compared to usual care was the focus of the Parent RCT. It is not known which type of provider is best suited to effectively deliver SBIRT to adolescents in pediatric primary care settings. B*oth PCP- and non-PCP-delivered SBIRT have been found* effective in adult studies.[61,62,75] Studies using non-PCPs to deliver screening and brief intervention for adolescents have shown promising results.[72,84-89] Although many adolescent SBIRT studies were conducted in schools and other non-medical community settings,[90-92] a recent Portuguese study found promising results for SBIRT by nurses for youth in PC.[93] Non-PCPs such as BHCs may be a cost-effective alternative to PCPs for providing SBIRT to adolescents in PC. Health care delivery workforce issues such as these are becoming increasingly important as policy-makers search for ways to decrease costs while increasing the quality and spread of preventive health care services such as

SBIRT, and as health systems adopt models of primary care such as the Patient Centered Medical Home which rely on a team-based approach to care delivery.[94]

Outer setting. The outer setting includes factors such as the larger legal, political, regulatory and social environments which will influence the process of the adoption of the intervention, which in this case includes things such as the effects of Affordable Care Act and Medicaid expansion, and other health care reform legislation; state and federal mental health and addiction parity legislation; behavioral health benefit "carve-out" policies; related changes in public perceptions about the impact of behavioral health on overall health; and changing laws and regulations regarding marijuana and prescription opiates. Other salient outer setting factors include Health Effectiveness Data Information Set (HEDIS) alcohol and drug problem identification and treatment initiation and engagement performance measures), and recommendations from scientific and medical organizations such as the USPSTF, the AAP, AMA and AAFP, and the NIH and the CDC. Factors such as reimbursement for SBIRT and its inclusion or exclusion as a covered benefit may also influence implementation, although this is less relevant in the particular context of Kaiser Permanente, which uses a capitated payment model, but could be an issue for non-Kaiser, fee-for-service organizations.

The CFIR also includes factors such patient needs and resources, cosmopolitanism, peer pressure, and other external incentives in the outer setting. In this dissertation, patient factors – needs, preferences and characteristics which may influence the likelihood of being screened, assessed and provided with interventions or referrals to specialty care, of initiating specialty behavioral health treatment, including demographic characteristics, substance use problem severity, and medical and psychiatric conditions – are of particular interest. For

example, boys and older adolescents may be more likely to come to the attention of providers and be screened, as may those with psychiatric conditions.[95-100] Adolescents with substance use problems often have more medical and psychiatric problems than other teens,[21,23] and it may be that having multiple competing clinical issues reduces the likelihood of addressing behavioral health problems. Conversely, comorbidities may give providers an entrée for initiating a conversation about substance use with patients. Interviews explore how patient characteristics may be associated with SBIRT implementation.

Inner setting. The CFIR "inner setting" consists of the proximal context(s) in which the intervention would be adopted, such as the clinics (general pediatrics, adolescent medicine, family practice), and health systems (integrated health care delivery system such as KPNC, Federally Qualified Health Center, private pediatrics practice). Inner setting includes factors such as organizational and clinic/practice structure, networks and communications, culture, and implementation climate; (e.g., specific things such as organizational hierarchy, time allotted for appointments, competing screening and other preventive care priorities, clinic resources and structure, staffing levels, workflow, HIT capacity and EHR tools and use, etc.),

Characteristics of individuals. The role of the characteristics of the individuals involved in the implementation process (in this case the pediatricians and other clinicians, staff and policymakers at Kaiser Permanente and the other organizations) involves factors such as their roles (different types of providers and staff); professional training, skills, expertise and orientation; attitudes toward both the intervention itself, the "problem" being addressed (adolescent alcohol and drug use and other risky health behaviors), and the process of implementation; and knowledge and feelings about the intervention and process, including

self-efficacy, confidence and motivation and individual stage of change. [101-106] Individuals'

identification with the organization, and other personal attributes can also potentially impact

the implementation process. Provider demographic characteristics such as gender, age and

years of experience may also play a role in how well providers identify substance use and

other behavioral health problems and risk factors, and how well they intervene, and so may

also impact implementation of SBIRT.[103,107,108]

      Implementation process. The last major domain in the CFIR is the process of

implementation itself, which, in order to be successful, must incorporate and respond and

adapt to the elements of the other four domains, and which involves planning, engagement,

execution, reflection and evaluation activities.

Additional Implementation Science Influences

      This dissertation is also influenced by other models from the implementation science

literature, such as the Dynamic Adaptation Process (DAP) of the Exploration, Preparation,

Implementation, Sustainment (EPIS) model of evidence-based practice implementation,

developed by Gregory Aarons. The DAP and EPIS include careful consideration of the

dynamic tension between the adaptation and fidelity of evidence-based innovations, as well

as explicitly examining the roles of type of organization (public vs. private) and leadership

involvement in the implementation process, factors which will be key to the development of

this Plan for Change.[109,110] This dissertation is also informed by Everett Rogers' (1995)

seminal model of diffusion, and by the Institute of Medicine's work on moving evidence-

based drug and alcohol treatments from research to practice.[111] It also integrates factors from

the literature on barriers and facilitators of SBIRT, and from a model colleagues and I

developed describing the provider, patient, and organizational characteristics that influence

adoption of evidenced-based substance abuse treatment,[112-114] as many of these same factors

will also influence adoption of SBIRT practices in pediatric primary care settings. The role

of the CFIR as it applies to each component of this dissertation is discussed further in

Chapter 9.
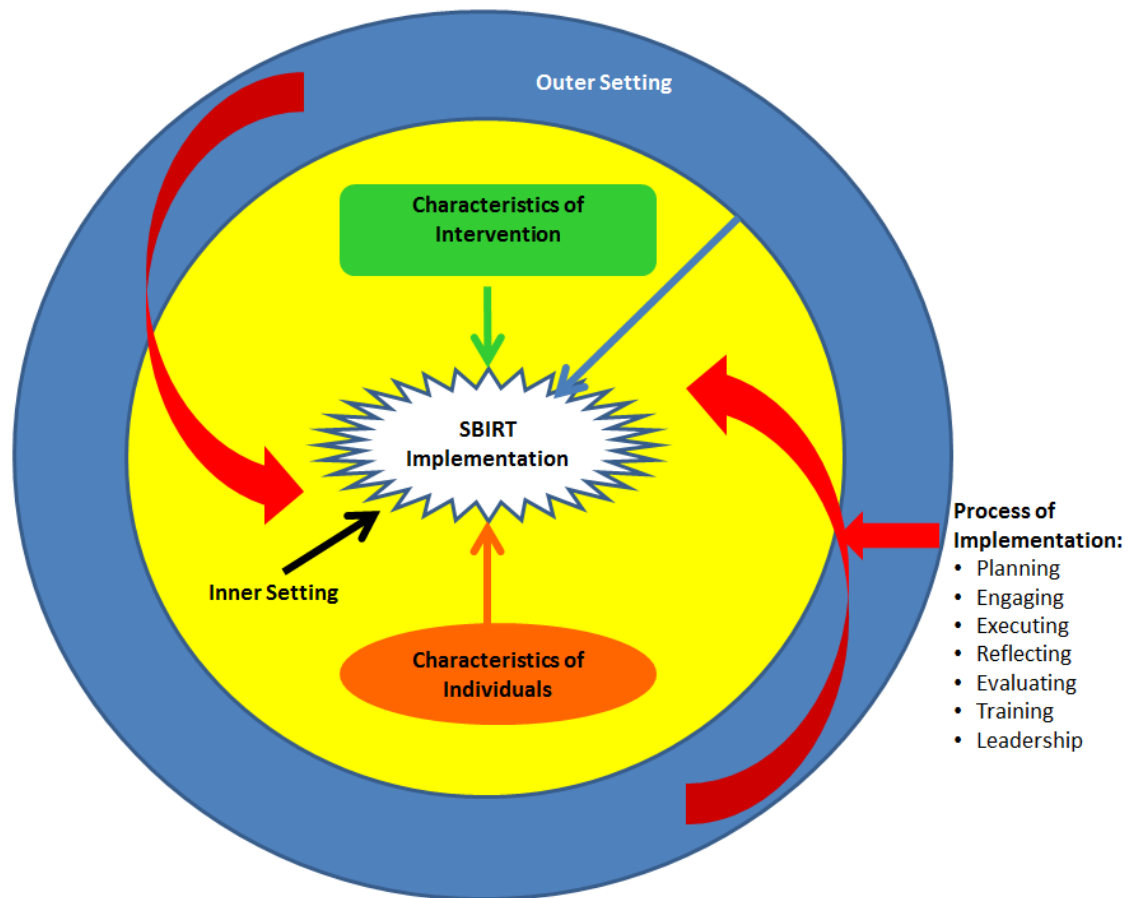
Figure 1. Adapted Consolidated Framework for Implementation Research (CFIR)

CHAPTER 3: SYSTEMATIC LITERATURE REVIEW

Behavioral risk factors, including risky substance use, significantly threaten adolescent health and well-being, and are a compelling public health problem.[9] The CDC has identified six categories of risk behaviors as contributing to the leading causes of mortality and morbidity among adolescents in the U.S., and alcohol and drug use is consistently ranked among the top of those six.[115] Their use puts teens at risk of death or injury from motor vehicle and other accidents, poisoning, and interpersonal violence,[20,116] as well as development of medical conditions linked to alcohol and drug use.[21,117,118] Moreover, adult substance disorders, which pose a significant public health burden,[119] frequently begin in adolescence,[120] and early alcohol and drug use initiation is associated with the development of such problems.[121,122] Finding interventions to identify and intervene early with teens at risk of developing substance use disorders is a critical public health goal.

This review examines the extant literature on the efficacy, effectiveness and implementation of screening, brief intervention and referral to treatment (SBIRT) for adolescents in pediatric primary care settings.

Literature Review Methods

Sources of materials. I considered materials from several sources, including: 1) the MEDLINE and other literature databases available via PubMed; 2) the CINAHL, PsychINFO and ERIC databases, via EBSCO; 3) United States' governmental reports and websites: National Institutes of Health, Substance Abuse and Mental Health Services Administration, Centers for Disease Prevention and Control, and Department of Health and Human Services;

4) national medical organization reports and websites: American Medical Association, National Medical Association, American Academy of Pediatrics, American Academy of Family Physicians, the Society for Adolescent Medicine, the Society for Adolescent Health and Medicine; U.S. Preventive Services Task Force; and 5) foundation and non-profit center reports and websites: Center for Adolescent Substance Abuse Research (CeASAR), the National Center on Addiction and Substance Abuse at Columbia University (CASAColumbia), the Robert Wood Johnson Foundation.

Inclusion/exclusion criteria: I focused on literature describing the efficacy, effectiveness and implementation of SBIRT and brief interventions in pediatric primary care settings for substance use problems among adolescents. Studies and reports were eligible for review if they examined patient outcomes (e.g., substance use (e.g., binge drinking, quantity and frequency of use, abstinence), substance use intentions/expectations, AOD-related consequences, problems and behaviors (e.g., intoxicated driving, legal problems, school performance, family conflict) or implementation outcomes (e.g., screening rates, brief intervention rates, referral to specialty treatment rates).

Samples. Studies and reports were eligible for review if they focused on adolescents or youth between the ages of 11 – 18. Studies or reports that included people 18+ were eligible only if they also included younger adolescents. Consistent with the focus of the parent trial, which studies an intervention delivered to adolescents to age 18, in a pediatric setting, studies which focused exclusively on college or university populations, to the exclusion of younger adolescents, were excluded.

Settings. Only those studies conducted in primary medical care settings – Pediatric, Family Practice and other primary care clinics serving adolescents – were included.

Language. English; non-English materials were included if English language translations were available via PubMed.

Publication date. Publication dates were not limited.

Types of studies and reports. Randomized trials, quasi-experimental studies (e.g., trials which involve asynchronous intervention, or self-control designs), observational studies, longitudinal follow-ups of trials, program evaluations and descriptions, systematic reviews, and meeting and conference abstracts from peer-reviewed journals (print or on-line) or governmental, foundation or other non-profit organization sources were eligible for review.

Search terms. The sources described above were searched using the search terms in Table 1.

Table 1. Systematic Literature Review Search Terms

Concept	Search Terms
Adolescents	Adolescent, adolescence, teen, teenage, youth
Screening, Brief Intervention and Referral to Treatment	SBIRT, SBI, screening, "brief intervention," assessment, "brief treatment," "brief advice," "brief counseling," "Motivational Interview(ing)," MI
Risky substance use	Alcohol, drug, substance, marijuana, "risk behavior," "behavioral risk," abuse, dependence, "hazardous use"
Pediatric health care setting	Health care, pediatrics, pediatric, "health clinic," medical, "health setting," "urgent care," "primary care."
Study descriptors	Efficacy, effectiveness, implementation, feasibility, review, analysis

In addition to searching the data sources described above, a snowball strategy was used, to include references (which met the established eligibility criteria) cited in the original articles, reports and websites. Articles designated as "similar to" or otherwise recommended by search engines (e.g., PubMED) based on searched articles, were also a source of materials.

Assessment for second-stage review. All materials found during the initial search were reviewed to determine if they merited further review. Abstracts of journal articles, and reports (those for which abstracts exist), were reviewed to determine if they met eligibility criteria. If materials did not include an abstract, they were scanned for suitability. Full versions of materials which appeared to meet inclusion criteria were obtained and assessed further for inclusion in the review.

Articles were organized using a MicroSoft Excel spreadsheet, which included the following categories: **citation**; **type of study** (e.g., randomized clinical trial, observational, program evaluation, etc.); **intervention or program** description; **sample/study N/comparison group** (if any); **type of provider or interventionist** delivering intervention; **outcomes** measured and **data sources**; **evidence of efficacy; effectiveness or feasibility** (e.g., strength of association, predictive ability if multi-variate or multi-variable models were used, effect size, statistical significance, etc.); **overall quality of study** (e.g., studies were assessed for types of bias, e.g., selection, attrition bias, recall bias, randomization results; for strength of study design, e.g., experimental vs. quasi-experimental vs. case control vs. observational; for validity, reliability and salience of outcomes measures; and for adequacy of controls, if any) ; and any other important **limitations**.

Literature Review Results

One hundred and sixty-six papers were identified through searches as potentially eligible for inclusion in the review. Following abstract review, 107 merited further review, and full versions of those articles and reports were assessed for inclusion in final review. Fourteen studies were found: five trials,[68,123-126] a randomized pilot,[69] a quasi-experimental, asynchronous, self-controlled trial conducted in two countries,[67], a secondary analysis of data from that trial,[127] an observational study,[128] and two systematic reviews, [75,76] and three non-trial implementation studies.[105,129] The venues for the studies in the review included primary care clinics, either Pediatric or Family Medicine. See **Table 1** for detailed information on studies in pediatric primary care settings.

Evidence of the effectiveness of SBIRT and SBI for adolescents in primary care settings. Unlike the extensive literature on SBIRT in adult primary care, there have been relatively few studies of SBI or SBIRT in pediatric primary care in the U.S., and recent systematic reviews of behavioral interventions in primary care for alcohol misuse and for illicit drug use and non-medical prescription drug use, conducted for the U.S. Preventive Services Taskforce, both found insufficient evidence to recommend their use for adolescents.[75,76] An early randomized trial of SBI in pediatric primary care by Boekeloo found significantly *higher* rates of alcohol use and related outcomes in the intervention arm compared to usual care, which the authors attributed to intervention participants' increased willingness to disclose risk behaviors as the result of receiving the intervention.[123] Findings from a randomized pilot of SBI in a pediatrics clinic by D'Amico which compared usual care to a 15-20 minute MI delivered in a primary care clinic, and also examined the effect of a booster phone call. They measures peer influence (including perception of % of students in school who drank or used marijuana, how often they spent time around people who drank or

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used marijuana, friends' consumption of AOD), intentions to use alcohol or marijuana in next 6 months, quantity and frequency of alcohol and marijuana consumption (days per month, number of times used per day, quantity of drinks per day, and number of binge drinking days), use-related consequences, and social desirability. The authors found that those in the intervention group were less likely to report intention to use marijuana in the next 6 months, reported a lower perceived prevalence of marijuana use at school, reported fewer friends who used marijuana, and reported using marijuana fewer times on the days they used, compared to the usual care group (all p<.05). However, this pilot was limited by a very small sample size.[69] Elizabeth Ozer and colleagues examined the effects of primary care-based screening and brief intervention in a large, integrated health care delivery system. The two-part intervention included screening, brief advice and referral on a variety of risk behaviors by pediatrician, followed by a same-day reinforcement session by a health educator on the same topics, aimed at increasing the teen's self-efficacy about reducing behavioral risk.

Fourteen year-old primary care patients who were due for or had scheduled a well-visit in one of the three clinics were contacted for recruitment. A comparison group consisted of California Health Interview Study (CHIS) adolescent participants, (711-14 year olds and 699-15 year olds). Substance use measures included "ever used alcohol" and "ever used drugs." The authors found no evidence of an effect of the intervention on self-reported alcohol or drug use, compared to the comparison group, but the questionable comparability of the control group makes it difficult to draw conclusions about their findings.[128]

More recent studies, with stronger methodologies, have shown promising results. In 2012, Harris et al. conducted a study in 19 primary care clinics in the U.S. and the Czech

Republic, using a quasi-experimental design, in which sites served as their own historical controls (UC), to examine the effects of computer-facilitated substance use screening, pediatrician-delivered brief advice. The intervention involved patients (12 – 18 years old) completing a substance abuse screening instrument prior to their appointment, which assessed level of use and related consequences; receiving their substance use screening score; and reviewing information on the computer about the health risks of substance use. Pediatricians were given a report with the patient's screening results, risk score and a guide to talking points for their conversation with the patient.[67] They examined past 90 day quantity and frequency of alcohol, cannabis, hard drug consumption, perceived alcohol and drug use by peers, siblings and parents, rates of substance use, substance use initiation among those reporting no use in the past year, and cessation in those reporting use in past year.

In the U.S., intervention condition participants reported lower rates of any substance use at both 3- and 12-month follow-up (p<.05). At 3 months, intervention participants reported lower past 90 day alcohol use, and higher alcohol cessation rates at 3-month follow-up, compared to TAU. At 12 months, intervention teens reported lower past-12-month drinking rates and alcohol initiation rates (p<.05).

In the Czech Republic, there were no main effects. At the 3-month follow-up, intervention teens reported lower cannabis initiation rates than those in the TAU condition (p<.05). At 12-month follow-up, intervention teens reported lower past 12 month cannabis use rates, as well as lower cannabis initiation and higher cannabis cessation rates, compared to TAU (all p<.05).

Significantly, in contrast to other studies, in both ED and primary care settings, which suggest that BIs may be more effective for those who have already initiated substance use,

Harris et al. found that the intervention was effective at both increasing cessation in those already using, *and* at decreasing initiation among those who had not yet begun to use, a particularly important role in the pediatric primary care setting.

An RCT of therapist versus computer-delivered BIs, conducted with cannabis-naïve adolescents recruited from several Federally Qualified Health Centers (FQHC), focused on cannabis use prevention rather than reductions in use, examining cannabis use along with self-efficacy in refusing cannabis use, intention to use, and perceived risk of use, as well as alcohol and other drug use and delinquent behaviors. Controlling for demographics, among those who received the computer-delivered BI there was a significantly lower cumulative prevalence of any cannabis use over 12 months, (RR = 0.70, p<.05), and significantly less cannabis use at 3 and 6 months (IRR=0.53 and 0.61, respectively, p<.05), and less other drug use at 3 months (IRR=0.52, p<0.01), and those receiving the therapist-delivered BI had lower delinquent behavior at 3 months (IRR 0.53, p<0.01), and lower alcohol use severity at 6 months (IRR 0.57, p<0.05), compared to controls.[124] A similar RCT, focused on reducing cannabis use and related problems among adolescent FQHC patients already using cannabis, found no differences between groups in cannabis or alcohol use over time, but found significantly less other drug use at 3 months (p<0.05) and 6 months (p<0.01) among those receiving the computer-delivered BI. They also found significantly lower rates of cannabis-related consequences at 3 months among those who received the computer BI (p<0.05), and significantly lower frequency of cannabis-related driving under the influence at 3 months, among those who received the therapist-delivered BI (p<0.01): critical outcomes for youth and linked to the significant mortality and morbidity associated with teen substance use.[125] Although these findings are promising, there is clearly still much research needed on

SBI/SBIRT in primary care, to broaden the evidence base on its efficacy and effectiveness among adolescents. Moreover, because many pediatric medical organizations are recommending implementation of SBIRT or at least regular screening for and counseling about substance use for adolescents, and many initiatives are planned or are underway to implement SBIRT, it is critically important to examine how implementation can be successfully and effectively accomplished.

Adolescent SBI/SBIRT implementation. There are only a few rigorous SBIRT implementation trials, even in the adult literature, and none to my knowledge, other than the parent RCT of this dissertation, which have been set in pediatric primary care settings. A recent cluster randomized implementation trial comparing models of SBIRT implementation in adult primary care found that training primary care providers to deliver SBIRT resulted in significantly higher rates of screening and of brief intervention/referral than in usual care (44.4% vs. 2.6%, p<0.01), but significantly lower rates of screening than a model using non-physicians to perform SBIRT (9.23% vs. 50.9%, p<0.01).[130] A Dutch study of a tailored, multi-faceted improvement program directed at reducing hazardous alcohol use in adult primary care found no significant change in screening and intervention behavior among providers.[131]

Few studies have simultaneously examined the factors at patient, provider, intervention and system levels that impact implementation. To date, there have been very few studies of any kind in the U.S. on factors contributing to the implementation of SBIRT in pediatric health care settings, including provider type.[16,17] A recent Swiss pilot study which trained PCPs to deliver brief interventions (BI) for substance use to youth, and compared them to PCPs not trained in BI, found no effects on patient outcomes.[126] Lustig et al. found

that training pediatric PCPs on the delivery of clinical preventive services, including alcohol use screening and counseling, increased the alcohol screening rate from 59% to 76% (p<0.01) and the tobacco screening rate from 64% to 76%, p<0.05), but had no significant effect on the rates of alcohol or tobacco *counseling* delivered by the providers in the study.[129] Based on the same sample, Ozer et al. examined the impact of providing training and resources on increasing the delivery of preventive services, through patient reports of screening, pre-(T1), during (T2) and post-implementation (T3) and found significant increases in the teens' reports that they had been screened: from T1 to T2, patient-reported screening increased for and alcohol use (59% to 96%) and tobacco (61% to 95%), (both p<.000). From T1 to T3 alcohol screening increased from 59% to 90%, and tobacco screening from 61% to 90% (both p<0.001). Counseling rates increased significantly from T1 to T2 (alcohol, 46% to 91%; tobacco, 55% to 96%), and from T1 to T3 (alcohol 46% to 91%; tobacco, 55% to 96%) (all, p<0.001). However the study did not examine the provider, patient, and system factors associated with successful implementation.[105] A recent study of school-based health center providers found that self-efficacy, confidence and attitudes toward role responsibility for the delivery of SBIRT were associated with SBIRT practices.[132] A 2012 survey of KPNC's pediatric PCPs' alcohol and drug screening practices found that many providers cited time constraints, lack of training and information about alcohol and drug screening techniques, treatment resources and effectiveness, and discomfort discussing alcohol and drug use as barriers to screening and intervention with their adolescent patients, and the majority suggested that having another clinician on the team to conduct screening would make it more likely to happen.[133]

Non-physicians could be a cost-effective alternative to physicians and other PCPs, but while b*oth physician and non-physician-delivered SBIRT have been found to be* effective in adult primary care,[61,62] it is not known which is best for adolescents. A few studies using non-physicians to deliver screening and brief intervention for adolescents have shown promising results.[72,84-89] Although most were conducted in schools and other community settings, a non-experimental, pre-post Portuguese study found reductions in alcohol use at 6 months following delivery of SBIRT by clinical nurse specialists to youth in primary care.[93]

Two studies of ED-based adolescent SBIRT implementation were primarily descriptive, discussing the process of implementation,[134,135] but they did not systematically examine factors which affected implementation, and such factors may at any rate differ in the ED compared to primary care settings.

A recent review of the current evidence for alcohol screening and brief intervention for adolescents noted the dearth of studies of adolescent BIs in pediatric primary care settings, and that few studies included younger adolescents, and the authors concluded that more research was needed into the kind of contextual factors such as setting and screening tools, as are studies which include younger adolescent and consider their particular developmental needs.[136] Recent commentaries by national scientific leaders in the field of substance use have highlighted the need for research on SBIRT implementation,[9] particularly in the context of electronic health records.[137]

Other Literature

Adolescent SBI/SBIRT in other settings. Because of the paucity of studies on SBI/SBIRT in pediatric primary care, research from other settings can help inform this dissertation and consideration of SBI/SBIRT for implementation, and is important to mention. Evidence of the effectiveness of SBIRT for adolescents in other settings can also

inform the discourse around SBIRT for adolescents and increase the likelihood of its

adoption in pediatric primary care settings, especially as primary care practices increasingly

incorporate non-physicians such as behavioral health clinicians into patient care roles.

Health systems may look to the evidence base on adolescent SBIRT effectiveness and

feasibility delivered by non-PCPs, much of which comes from studies conducted outside of

primary care. Health system policy-makers and clinical leaders will also inevitably draw on

the adult and college primary care and adolescent emergency department SBIRT literatures

to inform decisions about the implementation of SBIRT for adolescent primary care, and in

fact, have already begun to do so, for example, the Center for Health Care Strategies

(CHCS), in partnership with the Association of Community Affiliated Plans (ACAP) The

Center for Health Care Strategies (CHCS), in partnership with the Association of Community

Affiliated Plans (ACAP), is developing strategies for the dissemination of SBIRT for

adolescents and training of pediatric primary care providers in safety net health plans in the

Mid-Atlantic region, as part of the Conrad N. Hilton Foundation's aforementioned adolescent

substance use prevention and early intervention efforts.

Adolescent SBI/SBIRT in emergency departments. While the literature on SBI and

SBIRT for adolescents in pediatric primary care is limited, there have been considerably

more studies conducted in other settings where adolescents frequently receive care and

services, including emergency departments (ED), schools and other community settings. In

fact, the majority of adolescent SBI and SBIRT studies conducted in medical settings have

taken place in the ED (n=14).[73,138-150] There is evidence to suggest that BIs in the ED to

reduce alcohol and drug use may affect not only substance use, but other important outcomes

as well. In several cases, while alcohol or drug consumption itself was not reduced as a

result of the intervention, other related risk behaviors were, or else participants reported approaching substance use in a more careful, risk-averse manner. Cunningham and Walton et al. found that alcohol or drug use did not decline, but that teens who received the interventions reported less violent behavior, a critically important alcohol and drug use-related outcome that is more directly related to adolescent morbidity and mortality than substance use itself.[20] Studies also found reductions in drinking and driving[138] and dangerous binge drinking behavior,[145] two major causes of adolescent injury and death. While Tait found no reductions in drinking, participants were more likely to initiate substance abuse treatment, and those who did, experienced better substance use and emotional outcomes than those who did not.[141] Other studies found that participants who received interventions were more likely to reporting efforts to quit or limit their use.[150] Most of the interventions focused on alcohol use, but Bernstein et al. found significantly lower marijuana use in those who received a BI, a year after the intervention.[149] The findings from that study are important in terms of both the apparent sustainability of the intervention effects and the fact that it focused on marijuana, a substance of particular interest because its use among teens continues to increase, recent surveys find that they perceive the risks involved in its use to be low,[151] and we are seeing a changing landscape with regard to marijuana legislation and policy.

Several of the studies suggest that those with pre-existing or higher severity problems benefitted more from interventions than those without, or with lower severity problems. For example, in a trial of brief MI, Spirito et al. found no main effects among the sample as a whole, but that those with higher alcohol problem severity at baseline, who received a BI, reported lower frequency of drinking and binge drinking at follow-up, compared to standard care.[73] Maio et al. also found no main effects in an RCT of a computerized BI compared to

usual care, but found significant reductions in binge drinking and alcohol related

consequences among those who received and Bi and who had reported binge drinking and

drinking and driving at baseline.[145] Similarly, Becker et al. found that those with depressed

mood showed a better response to the intervention,[144] which could have important

implications in the primary care setting, where depressed mood and substance use are

common and frequently comorbid.[152] Comprehensive or "broad brush" adolescent risk

reduction interventions which took a primary rather than secondary risk prevention approach,

seemed to be less effective, at least in addressing alcohol and drug use; the study which

examined a broad brush BI found no effects on alcohol or drug use or problems.[140] The one

study which examined the cost-effectiveness of ED-delivered SBI found that it was more

cost efficient than usual care, and produced a more favorable cost-effectiveness ratio than

counseling on the use of seat belts.[139]

Adolescent SBI/SBIRT in non-medical settings. There is a more robust literature on

its effectiveness in other settings; the majority of the extant adolescent SBI/SBIRT research

has been conducted in non-medical settings. Although the evidence on its effectiveness is

mixed,[153] several studies in non-medical community settings such as schools have shown

promising results.[53,84-86,153,154] A trial by Winters et al. comparing adolescents with substance

use problems assigned to receive one of two therapist-delivered brief interventions or a

control condition, found that the adolescents receiving an intervention had better 6-month

outcomes (fewer days of alcohol use, binge drinking, and illicit drug use, and fewer negative

consequences) than the controls.[72] A 2012 study by Mitchell et al. also found significant

reductions in drug use and frequency of drinking to intoxication at 6 months among

adolescents who received SBIRT compared to those who did not.[90] McCambridge et al.

found that brief motivational interviewing delivered by non-physicians reduced alcohol, marijuana, and tobacco use at 3 months among 16- to 20-year olds,[89] although results were not sustained at 12 months.[155] A small Thai study which examined BI for high-school students with methamphetamine disorders found short-term decreases in quantity and frequency of use in the BI group compared to the control condition.[88] A study of homeless teens found that counselor-delivered BI produced short-term reductions in drug use among the intervention group compared to controls.[156]

Broad-brush versus targeted SBI. While it is tempting to assume that comprehensive or combined SBI (i.e., a screening that includes a variety of health risks and behaviors, including substance use, but also sexual behavior, nutrition, exercise, sleep hygiene, seatbelt use, etc.) will be as effective as (and more efficient than) single-focus BIs, the findings from this review and other studies[157] suggest that this may not necessarily be the case. It may be that screening combined with *preventive* broad brush BI is not effective, whereas combined BIs which target existing co-occurring disorders are, which would be consistent with the findings from this review on the relative effectiveness of alcohol and drug use BIs for those teens with depression,[144] as well as findings showing improvement in emotional well-being from alcohol and drug use-focused interventions.[141] Combining *preventive* BIs for multiple risk behaviors may dilute the effects on some or all of the risk behaviors, or some risks may be more or less salient to some teens, depending on a variety of factors, including presence of problems and developmental level, whereas BIs focused on a small number of risk behaviors, delivered to teens who have endorsed those behaviors, may be more compelling to them, and ultimately more effective. Given the high prevalence of co-occurring substance use and mood and anxiety disorders among adolescents, there is a

tension between effectively meeting the treatment needs of these teens with the realities of today's clinical environment and limited time and resources. Who should get SBI, and how, are questions deserving considerably more study.

Provider characteristics. Another important question not well-examined, especially in the adolescent literature, is that of who will deliver SBIRT if it is determined to be effective. In most of the studies, the interventions were delivered by people trained and supplied by the research study. In none of the ED studies did indigenous clinicians or staff members deliver the interventions. In three of the primary care-based studies, physicians provided the interventions, and in two of those, the intervention showed either no effects or increased substance use in the intervention arms. In only one of the studies in either setting (Harris et al.) in which indigenous medical personnel provided the intervention did the authors find a reduction in either alcohol or drug use or related risk behaviors. The competing priorities and diminishing visit times faced by primary care providers, including pediatricians, are well-documented in the literature,[48,158] and time pressures are frequently the number one barrier to alcohol and drug SBI cited by primary care providers.[159,160] Further research is needed into how SBI/SBIRT can fit into current clinical workflows, and whether and how existing medical clinicians (physicians, nurses) can be trained to effectively and efficiently deliver SBI/SBIRT, or whether this intervention is better provided by others, who will need to be hired (and paid for) by health systems.

Studies are needed which examine these sort of factors, including workforce issues and how SBI/SBIRT can be integrated with the use of electronic health records, as well as considering not only the effectiveness of different and innovative ways of delivering SBI – through computer or video applications, by physicians versus non-physicians, etc. – but also

how those differences impact the likelihood that such innovations will be adopted. There are many interventions whose efficacy and effectiveness have been demonstrated many times over but which have never been adopted. Until recently, this has been the case with adult alcohol SBIRT; in spite of decades of evidence on its efficacy and cost-effectiveness, systematic implementation remained elusive. Even now, it has only been successfully implemented in highly-developed, integrated health care systems like Kaiser Permanente and the Veteran's Administration, and only through considerable effort.[161,162]

The literature on adolescent SBI/SBIRT[163] suggests that while the evidence of its effectiveness has not been unequivocally established, it may hold promise as an intervention for addressing adolescent substance use and related problems, which are major public health concerns. Few studies have been published about SBI/SBIRT in pediatric primary care, and most of those have had small sample sizes and/or problematic methodologies. The evidence base is more fully developed for SBI for adolescents in the ED: clinician, peer-counselor and computer-facilitated BIs have all been found to effectively reduce substance use, or related problems and risk behaviors, or both. While more studies are clearly needed to fully establish its effectiveness, the best-designed primary care study, several pilots, and studies of SBIRT in primary care for other age groups, and of SBI/SBIRT for teens in other settings, all suggest that it may work well in primary care for adolescents too, and many national policy-makers recommend regular screening for adolescents.[4,5,71,81,164] More research is needed into the comparative effectiveness, and cost-effectiveness of various modalities of SBIRT, including the appropriate clinicians and the most feasible formats, and many questions also remain with regard to the challenges of implementation and the barriers to and facilitators of adoption.

CHAPTER 4: ENVIRONMENTAL CONTEXT

A wide range of external factors could influence the reception that SBIRT will face in a health care system like Kaiser Permanente, and the likelihood of its ultimate implementation. These factors include political, policy, and social trends, and technological developments in the general environment, as well as some which are unique to the health care milieu, and many of which are germane to both. These factors may have a direct bearing on the potential for SBIRT implementation in KPNC and other settings, or may have a more indirect impact by contributing to changing societal perceptions of substance abuse and its identification and treatment. The following section examines some of the environmental factors relevant to pediatric SBIRT implementation. An assessment of the environment is a critical part of the foundation for a leadership plan. The following assessment is not derived from the Key Informant interviews, but is based on observation and experience in the KPNC system and the larger field of adolescent behavioral health, and provides the needed context for a plan for change. This assessment provides context for interpreting the results of the interviews and using those results to inform the Plan for Change.

General Environmental

Political/policy. Several significant pieces of health care reform and mental health/addictions parity legislation, and associated regulatory changes and funding initiatives, pave the way for integration of behavioral into primary care settings.

The Mental Health Parity and Addiction Equity Act of 2008 was a groundbreaking piece of federal legislation that, for the first time, stipulated that insurers and health plans serving employers with more than 50 employees cannot impose treatment restrictions such as limitations on the number of visits, or financial requirements such as co-insurance, co-pays or deductibles on mental health or substance abuse treatment that are different than those for medical or surgical services.[165-169] Many states, California included, also independently enacted parity legislation, and in fact, California's parity law preceded the federal legislation.[170] California's parity legislation was more limited than the ultimate federal law, and applied only to care for a limited number of the most serious mental health and substance use problems, so called "parity diagnoses." Beyond increasing access to behavioral health care services by removing practical and financial barriers, these laws sent a powerful message to insurers, providers and patients alike: that behavioral health problems and their treatment are as "legitimate" and deserving of care as other kinds of health concerns. A limitation of both federal and state legislation was that it only applied to health insurance plans that offered behavioral health services: in other words, it did not require that health plans cover such services, but if they did, they had to be provided at parity with medical and surgical services. Nevertheless, it can be argued that these laws represented a critical step in changing coverage for behavioral health problems, and both reflect, and have helped to shape, the general public's and the health care system's slowly changing attitudes toward substance abuse and mental health problems and treatment.

Building on the progress made by federal and state parity legislation, the Patient Protection and Affordable Care Act, commonly called the Affordable Care Act or ACA, has had an even more profound effect on the coverage and delivery of mental health and

substance abuse treatment services in the U.S. by requiring many insurers and health plans to

cover behavioral health services. Under the ACA, beginning in 2014, mental health and

substance abuse treatment became part of the package of services which must be covered

under individual and small group health plans, including all plans offered through the federal

insurance marketplace.[171] Especially relevant to this dissertation, the required services also

include preventive services, including alcohol and drug use assessment for adolescents, at no

added cost to beneficiaries.[172] For the many people without any previous coverage for

behavioral health services, its full implementation in 2014 represented the first time they had

access to mental health and substance abuse treatment. Many health systems, including

Kaiser, continue to grapple with understanding and meeting the behavioral health needs of

the influx of new members coming in through health insurance exchanges and Medicaid

expansion. Kaiser Permanente Northern California's share of the Medicaid population in the

region has grown from 7.6% to 10.4% in the past 3 years, and from 28.8% to 32.1% of the

total population in the region, much of that through the health insurance exchanges.[173]

There are other critical changes resulting from health care reform efforts which may

have bearing on the potential for SBIRT implementation. Several initiatives in the ACA

incentivize the integration of behavioral health care into primary health care setting in the

U.S., in both public and private settings. Funding to Federally Qualified Health Centers

(FQHCs) has stimulated this integration,[174] and new federal grant programs support

integration of primary and behavioral care services. Behavioral health workers are a high

priority in the ACA's National Workforce Strategy section and behavioral health providers

are eligible for community health-team grants.[175,176] Moreover, several new federal education

and training grants and loan repayment programs are targeted to substance use treatment

providers (particularly child/adolescent specialists) and to the development of educational programs for primary care providers and behavioral health providers focused on the integration of mental and physical health.[171,176]

Another model which continues gain traction in current health care delivery system redesign efforts, and which supports the inclusion of behavioral health services in medical settings, is the "patient centered medical home." Consistent with other current health care reform efforts that stress less fragmentation in service delivery, [177] advocates of patient-centered medical homes, which originated in pediatric settings for caring with children with multiple chronic conditions, have called for including behavioral health services in a fully integrated model for delivering primary care, substance abuse and mental health services.[178] A broad coalition of health care stakeholders, including many specialty societies (e.g., the American College of Physicians, the American Academy of Pediatrics, the American Academy of Family Physicians, etc.), have endorsed the model, and it is being extensively evaluated in a number of public and private health plans.[177,179,180]

Insurance. Health care benefit design changes may effect SBIRT implementation by limiting covered behavioral health services for vulnerable children and adolescents.

Payment mechanisms and insurance status could also effect the implementation of SBIRT for adolescents. While Kaiser Permanente is a capitated system, receiving a per-member-per-month payments for each member, and in which behavioral health benefits are "carved-in" or provided within the health plan as a covered benefit for the large majority of members, for one group of members, Medi-Cal (as Medicaid is called in California) beneficiaries, specialty mental health and substance use services are "carved-out" of their managed care health plan, to be provided by county mental health and alcohol and drug

treatment programs, as a result of successful lobbying by county mental health and alcohol and drug treatment systems to retain the "right of first refusal" for providing these services. Although originally all mental health services were carved out to the counties, with full implementation of the ACA in January 2014, and consistent with the behavioral health integration goals of the ACA, some mental health services, for mild-to-moderate mental health problems, were transferred back to Medicaid MCOs to cover for their members who are Medi-Cal beneficiaries. Specialty substance use services remain carved out for Medi-Cal managed care beneficiaries. The Medi-Cal population is one which is particularly vulnerable to a variety of social stressors, and may need screening and early intervention services even more than other populations. The behavioral health carve out could act as a barrier to SBIRT implementation, if providers feel that screening for substance use is pointless without adequate intervention services. Conversely, providers might view screening and brief intervention as a way to provide early intervention services "in house," in the absence of available services for small but significant populations of patients, thus providing an impetus for SBIRT implementation.

Marijuana use legislation and public acceptance. Changing social mores and attitudes toward marijuana use and changing marijuana use laws may affect teens', parents' and clinicians' attitudes towards its use by adolescents and interventions aimed at curtailing use.

This is a period of rapid change in cultural attitudes and official policies regarding the use of marijuana. California has long been tolerant toward marijuana use, and was the first state to legalize its use for medical purposes. Since 1996, medical marijuana has been legal in the state, and since 2011, the penalty for possession of less than one ounce of marijuana

has been an infraction, or comparable to a minor traffic violation.[181] Full legalization of

recreational marijuana is very likely to be on the statewide ballot in 2016, and is widely

expected to pass, based on current public opinion polls. Several nearby states (Washington,

Oregon, Colorado) have fully legalized marijuana for recreational use, contributing to

regionally lenient attitudes. The city of Oakland, the setting for this study, is also considered

a center of "cannabis culture" in the Bay Area, and is home to a number of medical

marijuana dispensaries. For many Californians, particularly in the socially and politically

liberal Bay Area, casual and even regular marijuana use has become normalized, and is

widely tolerated and viewed as relatively harmless, akin to moderate alcohol use, and

qualitatively different from the use of other illicit drugs. Marijuana is also the illicit

substance most commonly used by adolescents. Cultural attitudes and governmental policies

regarding marijuana use may influence how patients, parents and providers alike weigh the

potential risks of use and may affect providers' likelihood of adopting drug screening and

intervention practices like SBIRT.[182,183]

   Cultural attitudes toward substance abuse and mental health problems. Stigma

about substance abuse and mental health conditions remains a powerful barrier to treatment-

seeking, although attitudes are gradually evolving, and frank discussion of these problems is

becoming more normalized.

   Cultural attitudes towards behavioral health conditions generally, and alcohol and

drug problems specifically, may also play a key role in determining the implementability of

SBIRT for adolescents. Historically, both mental health and substance abuse have been

deeply stigmatized health conditions.[184-187] Substance abuse in particular has often suffered

from being seen, and treated, as a moral failure rather than a legitimate health condition, and

many people struggling with alcohol and drug use problems speak of the shame involved. This stigmatization has had a number of effects, and has been cited extensively in the literature as a barrier to treatment seeking and engagement.[188] It may also contribute to the reinforcement of existing disciplinary hierarchies in health care, in which psychiatry is sometimes perceived as less prestigious than physical medicine but more than chemical dependency treatment.

While it continues to exerts a powerful influence, particularly among certain populations for whom discussing behavioral health problems is still taboo,[45,46,189-192] the past two decades has also seen a slight lessening in the stigma surrounding behavioral health, particularly for certain conditions, such as depression and anxiety, and a very gradual normalization of mental health treatment. So too has there been slight normalization in American culture of substance use problems and help-seeking, mostly due to a number of highly publicized stints of addiction treatment for celebrities. These cultural attitudes – both the lingering stigma and the simultaneous softening towards behavioral health – may influence providers', patients' and families' feelings about alcohol and drug screening and intervention practices.

Confidentiality. Confidential Adolescent Services. Confidentiality is an essential cornerstone of Adolescent Medicine which can nonetheless act as a barrier to integrating behavioral health into primary care.

Confidentiality is a critical component of all patient-provider health care interactions, but never more so than those between adolescents and their doctors. The assurance of confidentialty has been determined to be a key element of quality adolescent health care,[193] and all the major medical organizations which focus on adolescent care strongly endorse its

provision. A guarantee of confidentiality combined with a strong clinician-patient rapport is widely believed to be essential to eliciting frank discussions of sensitive (and potentially risky) health behaviors such as sexuality and alcohol and drug use, and pediatricians are typically very conscientious about carefully guarding patient information from disclosure, including to parents. Because of this, they may struggle with how to guide patients who endorse risky substance use toward open discussions with their parents about their use and potential interventions. While parent participation is not technically required for mental health or substance abuse treatment in California (all adolescents 12 and over can consent to chemical dependency or mental health treatment without parental permission), in reality, few teens are likely to seek and engage in treatment, especially for substance use, without the encouragement and participation of their families. So the necessary restrictions placed on pediatrician sharing of pateint information could inadvertently pose a barrier to coordination of care and integrated processes such as SBIRT.

Confidentiality and Substance Abuse Treatment. Stringent confidentiality laws protecting substance abuse treatment records may inhibit optimal communication between providers across departments and disciplines.

Related to the issue of stigma discussed above, there are particularly strong safeguards around patient information related to substance abuse treatment. Under Federal law (42 CFR), the sharing of substance abuse treatment data is strictly prohibited, in many cases, even among different departments, e.g., Pediatrics, Psychiatry and Chemical Dependency, within a health system such as Kaiser. So when providers refer patients to specialty treatment for substance abuse, they may never find out the outcome of the referral, unless the patient or family report back to them or the treatment program goes through the

steps of obtaining permission to disclose treatment information and contacts the primary care provider to report on the disposition of the referral. This kind of logistical complexity, resulting from well-intentioned policies designed to protect confidential health care of particularly vulnerable populations – adolescents and people with stigmatizing conditions - could impact how or whether SBIRT is implemented.

Performance measurement. Quality and performance measures, particularly those mandated by accrediting organizations, provide powerful incentives for the adoption of new health care practices such as substance abuse screening.

Performance measures can be a powerful driver of organizational and provider behavior, particularly when tied, directly or indirectly, to financial incentives or penalties. The increasing use of performance measurement in the behavioral health sphere is increasingly being used to spur interest in and movement toward the implementation of a variety of behavioral health care services. Quality performance measures used by accreditation organizations such as the National Committee for Quality Assurance (NCQA) and their Health care Effectiveness Data and Information Set (HEDIS), are now used to determine whether health systems meet their Medicare STARS quality goals, and there are significant financial implications involved in gaining (or losing) a Medicare STAR. Potential financial penalties will be what pushes leadership to actively embrace performance measurement and implementation of best practices in this area of care delivery. The adoption of the drug and alcohol problem identification and treatment initiation measures for HEDIS, the development of Current Procedural Technology (CPT) codes which allow for Medi-Care reimbursement for brief treatments in medical settings, the issuance of the National Institute on Alcohol Abuse and Alcoholism' Clinicians Guide for adult patients with alcohol problems

and the evidence-based screening questions which accompany it, all contribute to raising

awareness of the need to deliver quality health care services for behavioral health problems

and create an atmosphere where providers and health systems are now aware that quality and

performance is as likely to be measured for behavioral health as for other medical conditions.

While there are not, as yet, any national performance measures for adolescent substance use

screening, there are for adolescent depression screening, suggesting that accreditors and

regulators may in the future consider adolescent substance use screening performance

measures.

Health information technology/electronic health records. Electronic Health

Records have the potential to facilitate the use of evidence-based health assessment

instruments and clinical decision-support tools, such as intervention and referral algorithms

and patient scripts, but their dissemination and adoption are complex and multi-factorial.

Health information technology (HIT), in its many manifestations, has become a key

factor shaping health care delivery. Expansion of the use of HIT in many forms, but EHRs in

particular, is a cornerstone of the ACA,[194] and its use makes possible many things that were

heretofore simply not feasible. The widespread adoption of EHRs has been touted as a

critical ingredient in efforts to increase health care quality while "bending the cost curve" in

health care, i.e., slowing the growth of health care spending. Through its "Meaningful Use"

provisions, the ACA has involved a combination of carrots and sticks – incentives and

penalties – to encourage the adoption and implementation of EHRs by providers and health

systems.[195] Kaiser was an early implementer of EHRs, and as such, now has a mature and

robust EHR which providers and staff use constantly. It is not only private health systems

like Kaiser that are implementing EHRs however; recent federal funding provided over $2

Billion, or $60,000 per eligible FQHC provider, for EHR implementation. Nevertheless, even in a system like Kaiser, the potential of the EHR to simplify and streamline clinical workflows while improving the quality of care, is only just beginning to be realized.

The impact of EHRs in driving care delivery is obviously more complicated than simply installing the system, of course, and involves numerous factors, including provider and staff willingness to use EHR-embedded screening and assessment instruments and clinical decision-support tools. [196] Data, people and procedures, and data functions (input, control, processing, storage and output) determine how EHR systems and data are used for health care quality measurement and improvement.[197]. Context is important to consider, in terms of providers' and systems' capacities and populations, but also the areas of medicine and health care involved, and there are disparities in the use of EHRs across health conditions. Not surprisingly, the advances in quality and performance measurement resulting from EHR adoption have become almost commonplace in many systems in the delivery of care for common chronic medical conditions such as hypertension and diabetes. In other areas of health care such as behavioral health, historically perceived by the medical establishment as more…peripheral… optimal use of the EHR and other HIT tools is only beginning to gain traction. Nevertheless, EHRs are being touted by NIH as key elements which will help to make systematic substance use screening, assessment and treatment a reality across health systems.[137,198]

Organizational Environment

In addition to the broader environmental factors outlined above which could influence the effectiveness and feasibility of SBIRT implementation, there are a number of organizational-level factors which may also be salient.

Resources. Resources – time, space, staff, materials – are critical factors shaping the ability and willingness of health care organizations to implement new interventions.

The issue of resources, however measured, is a perennial concern when considering the implementation of any new health care process, and there are myriad ways in which resources, or lack thereof, can impact the implementation of new services. The competition in health care delivery is fierce, and revenue margins increasingly tight. Most health care organizations, Kaiser included, currently operate in an atmosphere where maximizing efficiency is a top priority, and cost-cutting measures may make the implementation of new services considered "non-essential" challenging, if not impossible. In many instances, new innovations have to have been proven cost-effective in order to be considered for adoption, unless they are otherwise mandated by quality performance standards. Efforts to save health care dollars are manifested in many ways. Physician appointment times are shorter than ever, and physician schedules tightly packed. Physicians are faced with numerous competing priorities, and primary care physicians in particular are faced with a seemingly infinite list of preventive activities they are expected to accomplish during the course of patient visits.[199] Non-physician staffing also clearly impacts the capacity of health care teams to implement new practices, particularly if they involve the use of multiple staff, in a team approach to care. Other workforce factors, such as training costs (both the direct costs of the training and the costs of staff time to participate), may also influence the willingness of an organization to implement an intervention. Exam rooms and office space are also scare resources for many health care organizations and their availability can impact services.

Organizational priorities also determine the openness of organizations to the adoption of new services and tend to direct the flow of resources. Health care systems tend to focus on

initiation of only a limited number of new initiatives at any given time: diabetes prevention, for example, or hypertension reduction, or increasing breastfeeding or Latino health. This organizational attention and will, and investment of resources, can be driven by any number of factors, some of which have been described above, such as quality measurement, new evidence on effectiveness or cost, etc. Leadership support is crucial for the successful implementation of new initiatives in any new organization. However, in very large organizations like Kaiser Permanente, the implementation of significant new initiatives almost always require "executive sponsorship," i.e., the tacit (and hopefully enthusiastic) support of top leaders for the initiative. Without it, successful large-scale implementation is unlikely to occur.

Behavioral health in Kaiser Permanente. Fraught labor-management relationships among KPNC's behavioral health departments may impede SBIRT implementation.

Kaiser Permanente Northern California is currently experiencing significant turmoil across their behavioral health programs. Two issues are causing considerable disruption across the regions, and could impact SBIRT implementation, either directly, or indirectly through their effect on the clinical atmosphere. While two separate issues, both relate to access to care. The first issue is that the organization is just emerging from a protracted and bitter labor dispute between the union representing the non-psychiatrist behavioral health workers – the clinical psychologists, licensed clinical social workers, marriage and family therapists – that make up the bulk of its behavioral health workforce, and regional management. The union position has been that low staffing levels have stressed therapists and compromised patient care. Discussions between the union and management were highly contentious, and accusations and counter-accusations spilled over into the media and

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advertising. While the immediate conflict has been settled for the time being, the issues

underlying the dispute continue to simmer, and bruised feelings between the parties persist.

The second and related issue is a large fine levied in 2014 against Kaiser by the State

Department of Managed Health Care as a result of violations related to patient access to

mental health appointments, especially overly long wait times for appointments and favoring

group over individual therapy appointments. In the time since the report and fine and

resulting negative publicity, Kaiser has scrambled to remediate the situation through a variety

of means. It has increased the therapist workforce by something like 40%, has contracted out

to behavioral health care providers to deal with patient overflow, and has reorganized many

aspects of its delivery model. Nevertheless, the organization continues to struggle to meet

the demand for services with its current capacity.

Both of these issues, the tense atmosphere which has resulted from them and the

general sensitivity about behavioral health care access, could impact the organization's

interest in an integrated behavioral health intervention like SBIRT, either by further

weakening linkages between departments, or by creating interest in behavioral health

alternatives which improve access while circumventing specialty care entirely by taking

place under the auspices of pediatric primary care.

Departmental/disciplinary tensions. Historic divisions across discliplines –

medical, mental health and substance abuse treatment – are present across KPNC's

Pediatrics, Child & Family Psychiatry and Chemical Dependency Treatment departments,

and make weaken linkages and communication, and create barriers to SBIRT

implementation.

A factor which has been cited in the literature as contributing to the lack of integration of behavioral health has been the historical separation between Medicine, Psychiatry and substance abuse treatment providers. The reasons for this historical separation are many: differences in disciplinary philosophies, training and perceptions of problems (e.g., how Pediatrics perceives substance abuse and its impact on health and wellbeing compared to Psychiatry compared to Chemical Dependency treatment).

These lingering divisions between the clinicians and systems treating medical, mental health and substance abuse problems which can pose barriers to coordination of care have their roots in the organization of these systems of care which occurred in the 20th century. Although today it occurs mainly in separate systems, historically substance abuse treatment was located within the larger mental health treatment system. Until well into the 20th century, patients with substance use problems, when provided treatment at all, received care from institutions and organizations charged with mental health care, such as asylums and sanitoria. (More often problems were addressed within the criminal justice and, to a lesser extent, the social welfare systems). The latter part of the twentieth century saw the alcohol and drug treatment field begin to separate from the mental health system in a variety of ways: programs were designed to specifically treat substance use disorders, "disease model" of addictions and the attendant proliferation of the 12-step and self-help movements became more prominent, and research institutions dedicated to the formal study of substance misuse were established. The two separate public systems of care became largely funded by the federal government via separate block grants, which also reinforced the separation of services. The medical system was funded through yet other payment mechanisms. Unfortunately, the separation also created an environment in which most programs and

providers often do not have the resources, training or inclination to collaborate on patient care, and reinforced differences in provider attitudes toward specific types of disorders and in overall treatment philosophy. Differences between the medical, mental health and substance abuse treatment fields in clinician beliefs, training, behavior, and ideology exacerbate loose linkages between organizations, and even departments within the same health system, such as Kaiser, posing significant barriers to the effective identification and treatment of substance use problems. For example, on the mental health side it is often argued that substance use problems are simply symptoms of deeper psychological distress, and that when those other disorders are properly treated, the substance use will lessen or subside. This perspective reinforces the disciplinary hierarchy discussed above in which substance use problems and their treatment are seen as less legitimate and therefore less deserving of attention and resources. At the same time, the alcohol and drug treatment field has been particularly ideologically driven, and its disagreements with the mental health field on appropriate diagnosis and treatment have often been contentious. Substance abuse treatment and general medical services have been even less integrated than substance abuse treatment and psychiatry. Medical (including Pediatrics), mental health and substance use services continue to operate separately, in spite of the growing evidence in both the adult and pediatric literature suggesting that integration would contribute to better outcomes.[200-204]

The fields of alcohol and drug treatment, mental health, and medicine also have widely different provider education and training. Providers in medicine are generally physicians or advanced practice nurses, and mental health clinicians typically hold doctoral or master's level degrees; education and training among addiction treatment providers is more varied, and may include individuals with training ranging from medical or doctoral

degrees to non-degreed peer counselors. Physicians and other medical clinicians typically receive very little training on the identification and treatment of substance use problems,[205-207] in spite of their high prevalence across patient populations.

Because of these complex organizational factors, patients are forced to navigate separate systems of care, often both public and private, contacting different agencies, or departments within large organizations (e.g., a health system like Kaiser), and seeing multiple providers. Too often patients or their families are made responsible for coordinating their own care because appropriate linkages between providers, department and organizations are lacking. Many patients "fall through the cracks" in these fragmented systems of care, contributing to the notoriously low treatment initiation, engagement and retention rates among patients with substance use problems.[208]

CHAPTER 5: STAKEHOLDERS

This section examines stakeholder circumstances and perspectives which may impact the implementation of SBIRT for adolescents in KPNC pediatric primary care. The stakeholders discussed here represent an attempt to include all groups directly relevant to adolescent SBIRT implementation within KPNC. Other stakeholders will almost certainly have indirect impacts on, or be impacted by, SBIRT implementation within KPNC. Moreover, in other settings, other stakeholders will be relevant to implementation (e.g., payers in fee-for-service delivery settings). Examination of these stakeholders merits further examination, but is beyond the scope of this dissertation.

Table 2. Stakeholders

Stakeholders	Issues/Concerns	Potential Impact on Teen SBIRT Implementation Facilitator (+) Barrier (-) Unclear (~)
Patients	• Many youth are in distress, have co-occurring mental health, substance and/or medical problems, are under pressure, and may face multiple stressors (family, school, social, cultural, sometimes legal).	+
	• Teens often do not want to reveal substance use or other risk behaviors to parents and are ambivalent about both substance use and the need for intervention, and may prefer that screening and assessment not occur at all.	-
	• Many teens are fearful or uncertain about specialty behavioral health care, especially chemical dependency treatment, and may feel more comfortable having these issues addressed in the relatively familiar and non-stigmatized milieu of Pediatric primary care.	+
	• Adolescent-pediatrician rapport and trust about confidentiality of patient-provider conversations is a (some would say _the_) key element of effective adolescent health care,[80,193,209,210] and implementation efforts must take special care to preserve confidentiality and _faith in confidentiality_ on the part of teen patients. Concerns about confidentiality could facilitate implementation by supporting need for additional resources for substance abuse for PCPs in Pediatrics, and/or could act as a barrier, as pediatricians prefer not to identify/address problems at all.	~

Parents/ Families	• Parents are deeply concerned about their children and worried about their emotional distress, stress and risky behaviors and the impact of all of these on their children's health.	+
	• Some parents are in denial of children's use or ambivalent about knowing about kids' problems and may not welcome increased attention to behavioral health problems.	-
	• Similarly, many may use substances themselves, either socially or problematically (especially alcohol and marijuana), and may have ambivalence (and potentially, guilt) about their children's use and need for intervention.	-
	• Parents may also be wary of specialty treatment, especially chemical dependency treatment, which they may see as the place where "bad" or delinquent kids go.	-
	• Taboos about revealing personal/family information about mental health/substance abuse problems and/or mistrust of behavioral health treatment systems may be especially strong among certain ethnic groups, including African-Americans and Latinos.[190,192,211]	-
	• Conversely, parents from groups wary of specialty mental health or chemical dependency treatment may welcome resources for behavioral health _within_ Pediatrics, and associated with a trusted medical professional.[212-215]	+

		• For some subsets of Kaiser parents, opportunities for behavioral health treatment integrated into pediatric primary care may be welcome because such a delivery mechanism could effectively circumvent specific systemic barriers. These include parents whose insurance coverage imposes cost sharing mechanisms (co-pays, co-insurance, deductibles) which may function as barriers to specialty treatment, and parents of children who are Medicaid Managed Care beneficiaries and for whom specialty mental health and substance abuse treatment services must be obtained outside of the health system, through county systems.[216]	+
		• Many parents of adolescents are also concerned about the confidentiality protections afforded adolescent patients and many would prefer to be more involved in all health care discussions involving their adolescent children; some of these parents may object to confidential behavioral health screening, assessment and intervention.[217-221]	-
	Pediatric Primary Care Providers (PCPs)	• Pediatric primary care providers are extremely stressed in the current health care environment, both within and outside of integrated systems like Kaiser. They want to provide best care to adolescent patients, while coping with time pressures[199] (across the organization, with a few exceptions, pediatric PCPs generally have 15 minutes for Adolescent Well Visits), competing priorities (multiple, simultaneous initiatives occurring simultaneously, e.g., childhood obesity, asthma control, HPV vaccination, teen dating violence, ADHD treatment, etc.) and multiple, simultaneous leadership directives. This could inhibit implementation of physician-delivered SBIRT because of lack of time.	-
		• Conversely, such pressure could make PCPs more amenable to an embedded behavioral health clinician model which could free up their time for other preventive activities.	+

	• Many generalist pediatricians report discomfort with alcohol and drug use and mental health issues, have had little training in behavioral health assessment and intervention,[133] and low self-efficacy about handling behavioral health problems (e.g., screening, identification, assessment and intervention).	-
	• Relationships with, and knowledge of the services provided by, specialty behavioral health providers are less than optimal.[222,223]	~
Adolescent Medicine Specialists	• Adolescent Medicine Specialists are advocates for optimal adolescent health policies and practices. They are typically more sensitized to and knowledgeable about the main adolescent health threats and their management, including substance abuse, than are their generalist pediatrician colleagues. They often have more time allotted for teen well visits than generalists. Very sensitive to confidentiality concerns of adolescents, particularly with regard to sexual health and contraception, but in terms of behavioral health as well. Typically very adept at structuring workflows in a way that preserves confidentiality. They help to shape teen preventive services policy, but have may encounter difficulty getting generalist pediatrician colleagues to change practices. They are likely to be advocates of more integrated models of adolescent behavioral health care.	+
Other Pediatrics Department Staff: Medical Assistants,	• If pediatricians cannot deliver behavioral health services for logistical reasons, non-physician clinicians or staff may be tapped to deliver components of SBIRT. This could open up opportunities for non-physician staff to work "at the top of their job scope."	+
	• Conversely, non-physician staff may feel put-upon by new demands, may be stressed by additional duties.	-

Nurses, Clinical Health Educators	• In a few locations within the KPNC system, there are already embedded behavioral health clinicians, although their hours are usually limited and they deal with behavioral problems across the age spectrum. These "pioneers" could help to lay the groundwork for regional SBIRT implementation.	+
Child & Family Psychiatry (Psych) clinicians and Adolescent Chemical Dependency (CD) clinicians	• Committed to adolescent behavioral health. Significant expertise in adolescent behavioral health care.	+
	• Concerns about out-stationing into Pediatrics, losing ground with current models of siloed specialty care, losing "specialist" roles, losing resources. May be threatened by models of care which move focus to non-specialty care settings (e.g., Pediatrics). May be wary of pediatric health staff involvement in behavioral health care provision.	-
	• Behavioral Health clinicians currently have a relatively tense, contentious relationship with management, regional leadership.	-
Regional Pediatrics Leaders	• Have established priorities, pressure from health system leadership to meet performance measures (e.g. % asthma control, adolescent depression screening), increase efficiencies.	~
	• Committed to improving quality of care.	+
	• New leadership may be interested in more integrated models of care, in response to environmental changes.	+
Regional Mental Health Leaders	• Concerned about adolescent behavioral health care quality.	+
	• Under pressure for access, quality of adult care, teens may be a lower priority.	-
	• Organizing to meet HEDIS adolescent depression screening performance measures. This effort could lead to focus on inclusion of substance abuse screening measures.	+

	• Conversely, the focus on response to HEDIS adolescent depression screening performance measures and development of workflows which focus solely on depression screening while ignoring significant co-occurrence of depression and substance use, may inhibit SBIRT implementation.	-
	• Regional leaders' commitment to home-grown, un-validated instruments and protocols, outcomes monitoring agendas, may impede evidence-based SBIRT implementation.	-

CHAPTER 6: METHODS

This dissertation examines the feasibility and factors which may facilitate or impede implementation of SBIRT for adolescents in pediatric primary care. I conducted qualitative Key Informant interviews with KPNC Pediatrics providers, staff and administrators, Child & Family Psychiatry and Chemical Dependency program clinicians, and with clinical leaders and policy-makers from outside of Kaiser Permanente to understand SBIRT feasibility and the barriers and facilitators to its implementation.

Setting

Kaiser Permanente Northern California is a large, non-profit, integrated healthcare delivery system in Northern California. It provides insurance coverage and comprehensive healthcare services for about 3.8 million members in 13 Northern California counties, including approximately 500,000 members aged 11-18 years old. The KPNC Oakland Medical Center Pediatrics Department where the study took place has a racially and socio-economically diverse patient population representative of its catchment area; half of families earn less than $50,000 annually.[224] Pediatric primary care in Oakland is delivered by physicians and resident physicians certified in Pediatrics or Family Medicine. Fifty-nine percent of the PCPs are female; 49% are non-white and many use languages other than English (e.g., Spanish, Mandarin, Cantonese and Vietnamese).

Adolescents are seen for well-teen visits without their parents present in the exam room for at least part of the appointment, in order to encourage frank discussions of sensitive topics and disclosure of risky health behaviors.[193] Under California law, patients aged 12 and

older can receive confidential services related to substance use problem assessment and treatment without parental permission or notification.

Table 3. Parent RCT Procedures and Implementation Outcomes

PARENT RCT PROCEDURES

The RCT study compared SBIRT implementation in pediatric primary care provided by pediatricians trained in SBIRT (PCP), by pediatricians working in coordination with embedded behavioral clinicians (BC), and usual care (UC). The study was a non-blinded, cluster randomized, hybrid implementation and effectiveness trial examining SBIRT implementation outcomes across 2 intervention and UC implemented over a two year period (November 1, 2011, through October 31, 2013).

The parent RCT randomly assigned the 52 pediatric PCPs in the Oakland, CA Medical Center to one of the three study arms. Preliminary analyses showed no differences in screening rates by PCP provider type (e.g., Physicians vs. Residents). Therefore we did not need to stratify by provider type prior to matching. Providers were not matched on other characteristics (e.g., gender, years of experience) because we were able to adjust for these statistically in analyses, and matching on these characteristics would have prevented us from examining their effects (as proposed in the conceptual model). During the study period, 9,032 adolescents had "well-teen" visits.

Population-based approach. The parent RCT used a population-based approach to examine data collected during outpatient clinical visits. All patients at the clinic for a well-teen visit are asked to complete a Teen Well Check Questionnaire, which becomes part of their EHR. We worked with Pediatrics leaders to incorporate evidence-based substance use screening questions, including the CRAFFT, a well-validated 6-item substance use

screening instrument for adolescents,[225,226] into the Teen Well Check Questionnaire in the

EHR, along with 30-day and 6-month AOD quantity and frequency questions, and AOD-

related problem questions, as a clinical assessment tool, and for baseline and 12-month

outcomes measurement for this study. No direct research contact (recruitment, consent)

with KP patients was made. This approach has several advantages. In addition to large cost

savings, many more patients can be studied using this type of approach; it includes the

population base of patients. Recruiting patients would have biased the representativeness

and naturalistic character of the study and decreased the ability to implement the study and

its generalizability; there would be interference with the care flow. Both the EHR and

KPNC policy enable this approach; HIPAA privacy policies, as communicated to all

members at enrollment and available on the KPNC website, explicitly acknowledge that

clinical data may be used for research under Institutional Review Board (IRB) oversight.

The University of North Carolina, Chapel Hill, the KPNC and the University of California

San Francisco (UCSF) IRBs approved this study methodology.

   Training. Trainings were conducted by Dr. Derek Satre, a Clinical Psychologist at

UCSF and an expert in Motivational Interviewing (MI), following strategies used

successfully to train and implement SBIRT.[227,228] Along with core MI principles,[229-231] the

trainings included information on the prevalence of substance use and other behavioral

health problems, norm setting and providing educational resources and advice about AOD

use, and processes for referral to specialty behavioral health treatment. Physicians in the

PCP arm received 3 - 60-minute, on-site, lunchtime training, those in the BHC arm

received 2 - 60-minute trainings, for which they received lunch and Continuing Medical

Education units. This is consistent with how other new practice guidelines are implemented

in KPNC.[232,233] Providers in all three arms were reminded via email from their Site Chief about the substance use screening and assessment tools in the EHR and the regional requirement of documenting any activities performed during the course of a patient encounter. This was equal across arms and consistent with ongoing regional quality improvement efforts to reinforce the importance of documentation in the EHR, and reinforced by HEDIS performance measures.

Follow-up patient data at 12 and 24 months. In the two intervention arms, we asked PCPs to schedule all patients determined to be at possible risk for AOD or mental health problems ("yes" to AOD use or Mood symptoms in past 12 months and "yes" to ≥ 2 CRAFFT questions) for a follow-up visit at 12 months (by the PCP or BHC). Because not all patients will return for follow-up visits during the first 12 months, we will continue to examine patient outcome data through 24 months post-intervention. The 24-month patient outcomes will not be available until after this dissertation is complete, thus will not inform its analysis or discussion.

SBIRT Intervention Protocol

Step 1: AOD Screening	Teen Well Check Questionnaire "trigger" questions:
	During the past 12 months, did you:
	1. Drink any alcohol (more than a few sips)? 2. Smoke any marijuana or hashish? 3. Use anything else to get high? *("Anything else" includes illegal drugs, over the counter and prescription drugs, and things that you sniff or "huff".)*
	OR
	4. During the past few weeks, have you OFTEN felt sad, down or hopeless? 5. Have you seriously thought about killing yourself, made a plan, or tried to kill yourself?
	OR
	In PCP's clinical judgment, teen has risk for AOD or other behavioral health problems.

	PCP reviews patient's answers and enters them into EHR. Endorsement or presence of any of the above items "triggers" further assessment.		
	PCP ARM	**BHC ARM**	**USUAL CARE**
Step 2: **CRAFFT** **and AOD** **Frequency** **Questions**	**Evidence of Behavioral Health Risk?** NO: No further action. / YES: PCP further assesses AOD problems using **CRAFFT and AOD frequency questions.**	**Evidence of Behavioral Health Risk?** NO: No further action. / YES: **PCP refers patient to BHC for further assessment.** BHC further assesses AOD problems using **CRAFFT and AOD frequency questions.**	PCPs may decide to further assess or intervene. They have the same access to the CRAFFT and BH referral resources as the intervention arms. Usual Care is that PCPs may counsel patients with Behavioral Health risks. When they do, clinical policy requires them to record these activities in the EHR. However, PCPs in this arm do not receive the SBIRT training or have access to a BHC.
Step 3: **Brief** **Intervention** **or** **Referral**	CRAFFT score <2 and no severe AOD problems: **PCP conducts Brief Intervention** / CRAFFT score ≥ 2: <u>**Referral to specialty treatment**</u> **by PCP** for additional assessment and treatment.	CRAFFT score <2 and no severe AOD problems: **BHC conducts Brief Intervention** / **CRAFFT score ≥ 2:** <u>**Referral to specialty treatment**</u> **by BHC** for additional assessment and treatment.	

As discussed above, findings from the parent study serve as critical preliminary work informing this dissertation's core data collection, analysis, discussion and Plan for Change. Data on the implementation outcomes have been published and are summarized below. Both the implementation and (preliminary) patient outcome results laid the groundwork for the analysis and interpretation of the qualitative data, and have influenced the development of the Plan for Change, which considers the effectiveness, feasibility and inherent challenges of each model and make recommendations about their adoption and integration based on those characteristics.

IMPLEMENTATION OUTCOMES FROM PARENT RCT

Implementation outcomes findings from the parent RCT have added to the extant adolescent SBI/SBIRT implementation literature and were published in a November 2015 paper in JAMA Pediatrics.[152] Fifty-two pediatricians were randomized to 1 of 3 SBIRT implementation arms; patients aged 12 to 18 years were eligible. Implementation of SBIRT included screening, assessments, brief interventions, and referrals to specialty substance use and mental health treatment. The final sample included 1871 eligible patients among 47 pediatricians; health care professional characteristics did not differ across study arms. Patients in the PCP (adjusted odds ratio [AOR], 10.37; 95%CI, 5.45-19.74; $P < .001$) and the embedded BHC (AOR, 18.09; 95%CI, 9.69-33.77; $P < .001$) arms had higher odds of receiving brief interventions compared with patients in the UC arm. Patients in the embedded-BHC arm were more likely to receive brief interventions compared with those in the PCP arm (AOR, 1.74; 95%CI, 1.31-2.31; $P < .001$). The embedded-BHC arm patients had lower odds of receiving a referral compared with the pediatrician-only (AOR, 0.58; 95%CI, 0.43-0.78; $P < .001$) and UC (AOR, 0.65; 95%CI, 0.48-0.89; $P = .006$) arms; odds of referrals did not differ between the pediatrician-only and UC arms.

Both intervention arms had better screening, assessment and BI rates than those in usual care. Although referral rates to specialty treatment were low across all three arms, patients in the PCP and UC arms were more likely to be referred to specialty treatment than those in the embedded-BHC arm. More of the PCP assessments were in response to endorsement of AOD use alone, and more of the BC assessments responded to MH symptoms alone. The content delivered in the BIs, documented by the PCPs and clinicians, differed in similar ways: more of the BIs in the PCP arm contained only AOD-related

content, and more of the BIs in the embedded-BHC arm contained only MH-related content, or any MH content at all.

Dissertation Data Sources and Measures

I conducted semi-structured, in-person (n=18) or telephone (n=2) Key Informant interviews with KPNC Oakland (the site for the parent RCT) PCPs, a clinic receptionist, the BHC, as well as the Chief of Pediatrics, Child & Family Psychiatry and Chemical Dependency treatment program clinicians, and Behavioral Health leaders in the KPNC health system (N~15). The sample size (n=20) was determined because it included representation of different disciplines and functional roles, and different organizations, and within KPNC, pediatricians from the different RCT arms and levels of performance. KPNC pediatricians from the two intervention arms were divided into "high" and "low" performers based on the number of assessments and brief interventions delivered, in the case of those in the pediatrician-only arm, and the number of referrals to the BHC in the BHC arm. Two pediatricians from each tier – high and low – in each intervention arm, were assigned to be invited to be interviewed. I was unable to schedule two of the low performers, one from each intervention arm, even following multiple phone, email and in-person attempts to make contact. I also included three pediatricians from the usual care arm, and one of the clinic's receptionists. I interviewed the single Adolescent Chemical Dependency program clinician in Oakland, and three Child & Family Psychiatry clinicians who were willing to be interviewed. The KPNC policymakers were chosen because they were high-level leaders in behavioral health within the organization and I felt they could provide both a "big-picture" perspective of KPNC organizational change processes within the context of the changing behavioral healthcare environment. Participants outside of KPNC were recommended to me as being

familiar with either the processes involved in SBIRT implementation, or the adolescent

behavioral healthcare landscape, or both. The 20-50 minute interviews explored perceived

barriers to and facilitators of SBIRT implementation, and the feasibility of integrating

adolescent behavioral health services into pediatric primary care, with special consideration

given to the provider, patient, intervention and organizational characteristics contained in the

various domains of the conceptual model. In order to gain a balanced perspective, I spoke

with pediatricians from all three arms of the parent RCT.

To gain a sense of the similarities and differences in barriers and facilitators of

integrated adolescent behavioral health in other types of health systems, I also conducted a

number of Key Informant interviews (n=6) with clinical leaders and policy-makers from a

variety of public and private, not-for-profit health care delivery settings.

Measures. The interview guides (see Appendix B) covered a comprehensive series

of topics related to the domains of the overarching conceptual model (informed by the CFIR)

while remaining flexible and open-ended so participants could share their experiences freely,

as if participating in a conversation rather than a formal interview. The interviews were

intended to elicit the perspectives on the different modalities of SBIRT for adolescents in

particular, and on integrated adolescent behavioral health care more generally, and to

understand and convey the context for their decisions and practices. Interviews discussed

current practices, the role of patient confidentiality policies and laws in clinical practice, the

importance of evidence in clinical decision-making, how new practices are disseminated and

adopted within organizations, communications and relationships between different

departments and professional disciplines, the impact of external environmental factors such

as healthcare reform and drug policy, and patient, family and cultural factors, such as stigma,

comorbidity, and financial constraints. Active listening, interpretive questioning, and reflexive objectivity principles informed the interview depth and direction.[234]

Analytic Methods

      Qualitative analysis. While content was shaped by the guiding conceptual model and interview guide, the analysis used an inductive approach to build an understanding of the complexities involved in implementation of SBIRT in pediatric primary care. Audiotapes of the provider interviews were transcribed by a professional transcriptionist. Analysis was conducted using NVivo, a software application designed to facilitate the organization and analysis of unstructured data.[235] Each transcript was read thoroughly at least once prior to coding, to provide a general overview and impression. Transcripts in MS Word document format were imported into NVivo to be organized. Interviews were independently coded by me and Dr. Ashley Jones, a Clinical Psychologist with experience in SBIRT and trained in qualitative text coding, and the each coder was blind to the other's codes during the initial coding. Dr. Andrea Altschuler, a researcher at the Division of Research with extensive experience in qualitative interviewing and coding techniques, consulted on the analytical approach. Using NVivo, "nodes" (thematic categories) were created based on the broad domains of the CFIR model: outer setting, inner setting, characteristics of the intervention, characteristics of the individuals involved, and process of implementation. Within those overarching nodes, thematic sub-categories ("sub-nodes") reflecting greater nuance within themes were developed by the coders, based on participant responses and informed by the extant literature, including some (but not all) of the more detailed constructs described in the CFIR. Coders met to discuss their understanding of nodes, and differences were reconciled by consensus. Unused nodes were discarded after discussion between coders, and some sub-nodes deemed to be virtually identical were collapsed into larger nodes. Inter-rater reliability

was calculated, and both percentage coder agreement and a Kappa Coefficient calculated to measure inter-rater agreement by interview, node, and across the sample. The coding and analytical group discussed interpretations as nodes were developed and applied, and to reconcile discrepancies, and team discussed issues which came to light which may have been salient but were not necessarily included as a domain within the coding system. Node, sub-node and source frequency analyses were also conducted. Inherent in qualitative methods such as key informant interviews is bias – both participant recall bias and researcher bias, in the development of interview guides and coding and analysis of interview data. I attempted to minimize the latter through independent, dual coding of the interview transcripts, and frequent consultation and discussion of participants' intent.

CHAPTER 7: RESULTS

The tables immediately below summarize the sample participants by their functional

roles, provide a descriptive overview of the themes and sub-themes discussed by participants,

and present the results of the inter-rater reliability analyses. Consistent with inductive

qualitative analytical methodology, I have not conducted hypothesis testing across categories

of personnel or organizations. The narrative findings which follow the tables illustrate some

of the most compelling responses from key informants, across many of the themes.

Table 4. Sample Participants, by Functional Role

	(n-20)
Kaiser Primary Care Pediatrician	7
FQHC Primary Care Pediatrician	1
FQHC Medical Director	1
Kaiser Specialty Child & Family Psychiatry Clinician	3
FQHC Behavioral Health Clinician	1
FQHC Psychiatrist	1
Kaiser Adolescent Chemical Dependency Treatment Clinician	1
Director of County Adolescent Substance Abuse Treatment Programs	1
Kaiser Behavioral Health Kaiser Behavioral Health Policymaker	2
Administrator, FQHC Collaborative	1
Kaiser Receptionist	1

Table 8 summarizes the themes and sub-themes identified in the analysis of interview

data. Using NVivo, a priori, over-arching "nodes" (thematic categories) were created based

on the broad domains of the CFIR model: outer setting, inner setting, characteristics of the

intervention, characteristics of the individuals involved, and process of implementation.

Some (but not all) of the more detailed constructs described in the CFIR were also included

as a priori "sub-nodes" and are indicated in **bolded red** font. Additional emergent sub-

nodes, informed by the CFIR themes and sub-themes and the extant literature, and reflecting

the nuances of the interviews, were created by the coding team.

Table 5. Summary of Themes and Nodes

Nodes	# of sources citing	# of references
OUTER SETTING Total		**260**
External Policies and Incentives	2	5
Confidentiality	11	46
Cultural Attitudes and Mores about Substance Use	10	28
Growing Awareness of the Role of Behavioral Health	8	20
Stigma	7	17
Marijuana Policy & Legislation	7	17
Performance Measures	5	13
Insurance coverage, co-pays, co-insurance	5	12
Billing/Financing	2	5
Patient and Family Needs	3	4
Comorbidity	11	23
Parental Attitudes	8	23
Linguistic	7	17
Patient Behavior	9	16
Family Behavior	4	11
Clinical Acuity	4	8
Logistics/Distance	4	7
SES	1	3
Gender	1	2
Health Care Reform, ACA	1	1
INNER SETTING		**381**
Structural Characteristics	3	12
Time, Appointment Length	15	49
Screening, Assessment Instruments	15	40
Competing Priorities	13	31
HER	11	31
Workflow	8	23
Workforce	7	18
Protocols	6	18
Warm Handoff	4	12
Networks and Communications	5	9

Nodes	# of sources citing	# of references
Referral Process	15	35
Linkages between Departments	13	35
Information back to Pediatricians about resolution of referral	4	8
Consultation with Colleagues	5	5
Infrastructure	4	4
Community Resources	5	13
Implementation Climate	8	28
Leadership Engagement	4	10
CHARACTERISTICS OF THE INTERVENTION Total		**126**
Relative Advantage of BHC Model	15	69
Evidence Strength and Quality	10	29
Information Technology	3	11
Cost	3	7
Relative Advantage of PCP Model	5	6
Impact of Trial	2	4
CHARACTERTISTICS OF THE INDIVIDUALS INVOLVED Total		**90**
Provider Knowledge and Skills	13	44
Provider Attitudes Toward Substance Use	8	16
Provider Self-Efficacy	5	13
Provider Perception of Role vis a vis Behavioral Health	7	11
Medical Training	3	6
IMPLEMENTATION PROCESS Total		**93**
Planning	13	35
Executing	6	24
Training	9	22
Engaging	5	8
Reflecting	1	3
Evaluating	1	1

Table 6. Inter-rater Reliability

	Kappa Coefficient	**% Agreement between coders**
Overall	0.7837	98.85
Outer Setting	0.8309	99.21
Inner Setting	0.7833	98.31
Characteristics of Intervention	0.8514	99.18
Characteristics of Individuals Involved	0.7913	98.95
Implementation Process	0.7969	98.89

Outer Setting

Factors in the Outer Setting domain were identified quite often by participants during the course of the interviews as influencing the possible implementation of SBIRT for adolescents, and behavioral health integration in pediatric primary care. Outer Setting factors were second only to Inner Setting ones in the frequency at which they were discussed. It was clear from the interviews that even in the highly structured, somewhat insulated environment of the Kaiser health system, providers and policymakers there are not immune to external influences on their patients and clinical practices. National and state policies and legislation, shifting cultural attitudes about substance use and behavioral health problems, and patient characteristics were all noted as particularly salient to the issue of integrated behavioral health practices in pediatric primary care.

Comorbidity. Comorbidity – in particular, co-occurring substance use and mental health problems – was mentioned by several participants, across profession disciplines and settings, as a factor which was quite common among their patient populations.

Kaiser Primary Care Pediatrician:

> I think that they probably don't have one problem. I think they have drug and alcohol and behavioral issues…

Kaiser CD Clinician:

…there's a good percentage of teens that I see tend to have some anxiety or depression, and I think that's been clearer since we've done the outcomes study…. A lot of families will come in with more that the mental health disorder is creating the other problem, and the teen is self-medicating….

Kaiser Child & Family Psychiatry Clinician:

And, of course, we know that depression and anxiety is also a big factor for kids self-medicating. If you're anxious you drink, and when you drink you're less anxious when you go to parties.

Linguistic. Linguistic needs of patients and families, and the barriers they posed to accessing treatment and quality of care, were mentioned several times by participants, both within and outside of Kaiser. Participants noted the lack of linguistic capacity of programs and systems to provide linguistically appropriate services needed for increasingly diverse patient populations.

Child & Family Psychiatry Clinician:

The massive barrier in this system, even with the improvements Kaiser has made, is language. We do not have a Spanish-speaking receptionist. We need one. It really continues to be a huge barrier if you don't speak English. We get a huge patient population are Spanish-speaking.

FQHC Clinic Consortium Behavioral Health Integration Manager:

Resources in the County are sparse, and language ability (has) become an issue, because we have all kinds of immigrant populations here or other languages. Asian Health Services, for example, have no one to refer people to. So the client is still left stuck and may end up circling back to the primary care setting for the help that they need.

Marijuana policy & legislation. The significant and growing impact of liberalizing marijuana legislation was mentioned by several participants, particularly the pediatricians, as complicating their ability to influence patients' use of marijuana. Participants reported that changing marijuana policies served to support many patients' and parents' perception that

marijuana was less risky to adolescents than other substances, more "natural," and therefore less of a concern.

Kaiser Primary Care Pediatrician:

Of course, if it was other drugs or alcohol, then I'd probably be more pushed. But the feeling about marijuana is so… it's so hard to convince anybody that's it's a problem, but the kids I know – the ADHD kids and all those kids – are self-medicating and they feel better and – but I also know that if I try to get them help for their anxiety or depression, I wouldn't be able to get anywhere until they quit, I hate that it's getting so laissez-faire. It's just going to make our job harder.

Kaiser Primary Care Pediatrician:

I think there's a lot of confused message with the legalization of marijuana, and medical marijuana. Even billboards – there's a billboard about improving your mental health – I just saw it yesterday, for medical cannabis! I mean, these kids are driving down the freeway, seeing that, and they got depression and anxiety, and when they smoke they can sleep better and feel better, and they know Aunt Sally is high every day because she's got cerebral depression. I don't know how to deal with that. I think that there probably could easily be some mixed messages.

Child & Family Psychiatry Clinician:

I definitely see a lot more of a tolerance or minimizing the behavior if it is involving marijuana. I think that marijuana use is looked at differently than other, you know, drugs or alcohol.

Child & Family Psychiatry Clinician:

It shouldn't if we talk about it the way we should talk about it. Alcohol is legal for people are over 21, but not for people under 21. Marijuana could be legal for people over 21, but not under. It goes in the same place. So, the way I talk to the kids, I say, 'It's illegal,' you know? And I talk to the parents. 'It's illegal.'

Kaiser Policymaker:

I think legalization of marijuana is a really interesting one, especially when you think about adolescents in particular, because anytime I muddy a message, it becomes more difficult for the adolescents to understand it.

I was reading something recently about how parents who drink alcohol at home, their kids have a higher incidence of alcohol dependence. The idea behind that is that we've normalized a behavior that's perfectly legal. They're not drinking a lot, but we've removed a barrier that potentially the adolescent sees: Wait, my parents are

drinking. They're drinking an appropriate amount, but the adolescent doesn't know what an appropriate amount is. They just see their parents are drinking, so it normalizes the behavior. They're not going to get that. They're just going to see, Oh, my parents are using, so it's fine for me to do it as well.

Confidentiality. Patient confidentiality was among the most frequently mentioned topics by participants, reflecting the ambiguity of its role in the conversation about integrated behavioral health for teens. It is an (or perhaps _the_) essential element in adolescent healthcare, but poses challenges to integrating interventions like SBIRT, which address potentially sensitive or taboo behaviors, into the interaction between providers, patients and their families. Several pediatricians described struggling with how to deal with information about substance use while protecting adolescents' confidentiality, and how this can inhibit their ability to get teens the intervention they may need. They varied in their understanding of the extent of healthcare providers' ability to maneuver under the law: some interpreted the law more conservatively, understanding breaches of confidentiality as allowable only in case of threatened suicide or homicide, while others interpreted the law more liberally and felt that significant substance use could constitute sufficient risk to allow them to bring parents into the conversation. Pediatricians described methods they had developed for talking with teens about risky behaviors, and for facilitating discussions with patients and parents, about risks, behaviors, intervention and possible referral to specialty care.

Kaiser Primary Care Pediatrician:

> Well, the barrier is having this teen that says they use marijuana every day. They don't see the problem, and their mother doesn't know. So how am I supposed to do that without the mother knowing; and, if I call someone to come up and talk to them for 15 extra minutes, what's the parents sitting in the waiting room going to think? And, because we tell them we're keeping it confidential, but that can't stay confidential. I mean, at a certain point, it can't be confidential. So then, how do I decide that it should break confidence?

Kaiser Primary Care Pediatrician:

What I tell kids before – as soon as I throw the parents out of the room, I say to them, 'What we talk about now is confidential. If you think you're going to hurt yourself, hurt somebody else, somebody's hurting you.' So, if they, you know, disclose something that I think is dangerous, then I might say, you know, 'This is – this is a concern. This is dangerous, and I really need to talk with your parents and get you help for this.'

Q: So… you just kind of do the calculus in your head, like, I think this level –

A: If they said they're going to hurt themselves, you know.

Q: Well, but I mean, like, level of alcohol use; say if someone says, you know, 'I'm using such and such.' It's very different if some 17-year-old says, 'Oh, yeah, well, I drank a couple of beers or a beer at a party' – versus a 13-year-old who's, like, 'Oh, yeah, I'm drinking three times a week.'

A: Yes.

Q: So, do you ever, you know, give that information to parents if the – break confidentiality.

A: Yeah, yeah, yeah, yeah. If it's bad enough I will. It's got to be pretty bad, though.

Kaiser Primary Care Pediatrician:

Well, the law's very clear. I mean, unless they're homicidal or suicidal, then – and I don't – I don't – and I can't. I might still really try to convince the kid, like, 'Hey, this is – I think you need help and how you gonna hide this?' or whatever… But – and if they're high as a kite in the room, and the parent's still sitting there, I'm, like, 'Did you smoke something today?' You know, I'll call them on it in front (of their parents) because that's not breaking confidentiality.

Kaiser Primary Care Pediatrician:

But I will also offer the teen: 'Do you want to tell your parent? Do you want me to tell your parent? Do you want to tell your parent with me in the room? Do you want to wait until you go home? Do you feel safe at home?' Kind of giving them help in talking about it. I think the only time I have brought it to the parents, because of my legal issue, is if the parents brought it to me first and then talked about it. And I would send the parent out and I would get the kids permission to talk about it to the parents.

Stigma. The stigma surrounding behavioral health problems – mental health, and

substance abuse in particular – was mentioned by several participants as an important factor

shaping their interactions with patients and families. Clinicians from both Pediatrics and

Psychiatry cited stigma as a barrier to patients' and families' willingness to consider

engaging in specialty behavioral health treatment, or even to discuss behavioral health

problems. A Child Psychiatry clinician saw stigma as inhibiting pediatricians' willingness to

ask patients about behavioral health problems. However, an FQHC-based pediatrician

described parents' hesitation lessening after finally speaking to a behavioral health clinician,

suggesting that obstacles posed by stigma have the potential to be ameliorated through

communication with a trusted healthcare provider.

Kaiser Primary Care Pediatrician:

> Now, CD they're always scared about, but I explain to them, you know, the – you
> know, why I think it's important, and I say, 'Nobody ever wants to go, but the teens I
> know who have done it have found it extremely helpful.' The stigma of it, they don't
> think that the problem is that bad. It's just the stigma of rehab.

Child Psychiatry clinician:

> I think chemical dependency, it's kind of like how psychiatric conditions were a few
> years ago, you know , that it's still a huge stigma, that people are not recognizing it,
> people are not seeing it. I think they're reluctant to ask about it.

FQHC Primary Care Pediatrician:

> Occasionally, parents, because of the stigma around mental health are resistant at
> first, but usually it doesn't even take five minutes to convince the parent to not and
> most of the time they're really, really open to it and really thankful, especially once
> they meet the particular people.

Cultural attitudes and mores about substance use. Related to the stigma around

behavioral health problems, patient, family and provider attitudes about substance use were

mentioned as a factor which could affect discussions about use, risk and intervention.

Kaiser Policymaker:

Two things that occur to me, which is that there's a value judgment that is placed on this. Even though we would like for that not to be the case, we are still human beings, as physicians. If I'm seeing a colleague's child, I may just automatically assume, hey, wait, you know, they can't be using substances, because my colleague is the best and brightest physician that I know, and they can't possibly have kids that have any problems. It affects everyone. It really affects everyone at all SES levels, all types of education. All types of 'good people' have these issues, and good kids have these issues. And I think you have to normalize that for physicians, because otherwise you place value judgments on some of the responses. I think also you do have a fair number of physicians who have personal experience with substance use disorders, either in their family or themselves. And they're going to have particular thoughts about whether they should ask it and how aggressively to pursue it.

Growing awareness of the role of behavioral health. There were several mentions, particularly from community-based providers, of the growing recognition among medical professionals of the critical role behavioral health plays in the overall health and well-being of patients, and of the high prevalence of behavioral health concerns among their patient populations.

FQHC Clinic Consortium Behavioral Health Integration Manager:

We recognize that 50 percent of our population, if not more, has co-occurring behavioral health conditions, and that is holding people back from being able to address the chronic care issues that are happening to them…. I think the world in general is moving toward integration.

FQHC Primary Care Pediatrician:

I mean, the bulk of our physicals are really – are mainly psychosocial visits.

FQHC Medical Director:

I think a common conversation that people have these days is that they can't even imagine what it was like before we've had a lot of these resources, that it just feels so essential to treating our patient population and probably any patient population to just kind of have some of these resources here in clinic, that it makes such a big difference.

Insurance. One Kaiser clinician mentioned that, as Kaiser has increased its insurance product offerings beyond its traditional all-inclusive, minimal co-pay plans, to include higher deductible and higher co-pay and co-insurance products, financial concerns have become more of a barrier to specialty behavioral health services for patients. The issue of affordability and co-pays and co-insurance, while less relevant to most teens in the public and Medicaid systems, could certainly be salient to those with private insurance coverage where "skinny plans" and other high cost-sharing plans are more common. While most Kaiser members still have relatively small cost-sharing burdens, these types of plans have become more common, not only in for-profit plans, but in not-for-profit health systems such as Kaiser. Interventions provided under the auspices of the Pediatrics Department could offer a lower-cost alternative to specialty behavioral health services.

Child Psychiatry clinician:

> I've had parents tell me they can't afford to come here. And if you have more than one child and you're just picking between a medical doctor and psychiatry, and your child has a high fever, well, most parents are going to go in that direction. So, unfortunately, the financial thing is a big barrier.

Healthcare reform/ACA. While none of the Kaiser clinicians discussed the effects of the ACA or healthcare reform on SBIRT implementation specifically, or adolescent substance use screening more generally, a community-based mental health provider mentioned the ACA as a facilitator of SBIRT implementation.

FQHC Psychiatrist:

> Providers were for a long time just clamoring for more mental health integration into the primary care clinics. There's always been the county mental health clinics for the patients with more severe schizophrenia or bipolar that are kind of unstable or unstable depression where they're suicidal or something like that. But for all the other patients, it was very difficult to get people counseling. Recently with the ACA, the county and all the health clinics are mandated to provide mental health. Medi-Cal

SBIRT is mandated to provide mental health counseling resources and pay for them in the community.

Performance measures. Externally developed and disseminated performance measures, such as those in the HEDIS of the National Committee of Quality Assurance (NCQA), were discussed as an environmental factor that frequently drive internal guidelines and by turn, providers' individual clinical practices.

Kaiser Primary Care Pediatrician:

Yeah, if we're forced to do it, and there's a HEDIS thing, and we're measured on it, we're going to do it.

Child & Family Psychiatry Clinician:

Because the initiatives they have to do are the HEDIS. We do a lot of energy behind the measuring all these different guidelines, and that's the only one they have to do.

Inner Setting

Inner Setting factors were the most frequently discussed during the interviews, as either barriers or facilitators to SBIRT and behavioral health integration. Issues such as current clinical workflows, the structure and time allotted for adolescent well visits, the pressures experienced by providers faced with multiple competing priorities, and the relationships with other departments, organizations and colleagues from other clinical disciplines were all repeatedly mentioned as impacting providers' ability to deliver interventions such as SBIRT.

EHR. The potential value of, and the challenges of effectively using, electronic health records in SBIRT implementation were discussed by participants in both Kaiser, with its mature and robust EHR, and in community settings still adapting to EHRs. One pediatrician discussed her frustration with the time and effort involved in documenting care practices, including alcohol and drug screening, in the EHR, and her tendency to forgo using

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standardized, evidence-based screening questionnaires embedded in the EHR in lieu of

documenting use in clinical notes. Another acknowledged that if screening instruments are

embedded in the EHR, and patients' answers clearly visible as part of their record, that it

became harder for providers to ignore that information. Similarly, a mental health provider

pointed out that what is in the EHR gets asked, and that if alcohol and drug screening was in

the EHR the way that smoking is, that it would be more likely to be attended to. Someone

charged with overseeing the integration of behavioral health into the county's FQHCs

described the challenges involved in designing, building and implementing systems for

electronic documentation of behavioral healthcare services.

FQHC Clinic Consortium Behavioral Health Integration Manager:

> Some clinics are doing the paper version and scanning into the medical records, and then, others are actually using the screenings that are in the EHR.

> They have a specific person on their IT staff who's been helping to think through this process and then really to interface with the EHR system. They really want to be documenting everything directly into the EHR.

Kaiser Primary Care Pediatrician:

> …not everybody uses those questionnaires all the way. Because if you see how they work, they're so cumbersome and unwieldy. I usually do a note instead and then I disregard the questionnaire. I try to address whatever was positive but I don't necessarily go back in and change the answer. That will be probably six more clicks. It opens up a new window so it totally ruins your flow of thought – you know?

Kaiser Primary Care Pediatrician:

> Once the information's glaringly right there, if you're going to ask very specific questions about how many drinks and all that stuff, we're probably going to pick up a few more.

Child & Family Psychiatry Clinician:

> I mean, cigarette smoking is in our template. You have to mark it before you close it. But the other one, not really, you know? Nobody said, 'Did you counsel them about substance use,' right?

Screening & assessment instruments. The instruments and methods used to screen and assess adolescents were a major topic of the interviews. Several providers discussed the pros and cons of the instrument used during the trial – the CRAFFT – with many saying it was easy to use, although it was clear that they did not use it systematically. It was clear that there were no standard, uniform screening practices used across the providers, and that many did not use evidence-based substance use screening instruments on patients unless they suspected that a patient was at risk. A Kaiser pediatrician described following up on initial substance pre-screening by performing further assessment without using a standardized tool. Similarly, in the community-based FQHC adolescent clinic, the Behavioral Health Clinician described screening, but in an informal way, without the use of an evidence-based instrument. A Kaiser mental health clinical described a relatively minimal substance use assessment, not using a standardized, evidence-based instrument. Interestingly, both the Kaiser CD clinician and Policymaker endorsed the use of a broad-brush assessment tool, that embeds alcohol and drug use items into a comprehensive series of risk and health behavior questions, as a way of lessening potential stigma and increasing patients' frank disclosure of use.

Kaiser Primary Care Pediatrician:

> …having that CRAFFT was handy. So it made it easy to ask the questions so that if they were all normal, then I would feel more relieved, but it is totally a time thing.

Kaiser Primary Care Pediatrician:

> Doing CRAFFT questionnaire is pretty helpful. Because it takes more time, but you're going more specific then and I've tried to make sure they're not drinking and driving or being in the same car with somebody who's kind of under the influence. At least they're not doing dangerous behaviors like that.

Kaiser Primary Care Pediatrician:

Most of the teens I see don't ever use alcohol or rarely use alcohol or have tried marijuana but don't do it regularly. And I have done the CRAFFT. I don't think I've done it in a few months. I mean, having that CRAFFT was handy. It made it easy to ask the questions so that if they were all normal, then I would feel more relieved, but it is totally a time thing.

Kaiser Primary Care Pediatrician:

Certainly, I always ask about the drinking and driving and smoking and driving – 'Do you ever put yourself in a bad situation?' 'Have you ever drunk so much that, you know, you got sick or, you know, felt like you needed to drink because you were hung over?' I think they're kind of the CAGE questions.

Child & Family Psychiatry Clinician:

We don't use an instrument like CDRP (specialty substance abuse treatment program) does. The parents or the legal guardian, they fill out a form, and then for kids 12 and up, they're filling out forms. And in that form it's asking do they use and what do they use, and the frequency of use.

FQHC Primary Care Pediatrician:

Anybody coming in for a physical, we actually have a form that our medical and social workers give the patient before we even go in to see them, and they fill it out. We go over it with them. Within the HEADSS Assessment, we ask about, mental health – anxiety, depression, abuse, safety at home, drug use, all of those things.

FQHC BHC:

So my approach to alcohol and drugs is we do a screen. If I'm with someone I'll first try and see, 'How much risk behavior is this patient doing.' If I feel like there's risk, the first would be conflict with family. If there's any stress that comes out. If there's no stress, I normally won't ask about drugs or alcohol, if they report none. If they say 'I'm really stressed out, life is really stressful. I feel A, B, C, D,' then I will almost always ask about drugs and alcohol after a little bit of time. I'll say 'On a Saturday, how many drinks of alcohol will you drink?' From that answer I'll ask how much. Some will say 'Oh, my God. I never drink.' And someone else will say 'I don't know. We'll finish like three boxes – three handles between four friends.' And (from their answer) I'll do a different line of assessment.

Q: It sounds like you don't use a standardize screen or on paper?

A: No. This one has one question, and that's like my start, 'How often do you use alcohol or drugs to relax, feel better, or fit in?'

CD Clinician:

Q: So, do you think it's better to just focus on a single thing like substance abuse alone or do you think it's better to integrate that into a screener for sort of behavioral health more broadly.

A: I kind of like the idea of bigger and a part of a bigger piece. I mean, just to integrate it because I think – I think teens will be honest about their answers. Yeah. I think if it's just part of it, they're going to answer. If it's too specific, then it kinds of stands out a little more.

Kaiser Policymaker:

> I think, for teens in particular, incorporating as many of these screening questions into a single instrument is useful because it kind of destigmatizes, you know, how you answer it. For example, if you give a teen a PHQ-A, for example, that automatically says, okay, we're looking for depression, and there's a little bit of, perhaps, some stigma around that, or they want to hide that information from their parents, depending on how it's administered. Or there may just be a concern about what's going to happen with those results.

> You embed two or three questions into a full-on teen well-check questionnaire, and you're asking about seatbelt use while you're also asking about drug and alcohol use.

Time, appointment length. As in the adult SBIRT implementation literature, time (or the lack thereof) was the most frequently discussed factor impacting participants. Kaiser pediatricians spoke with great frustration about the time pressures they experience due to the short (15 minute) adolescent well visit appointments. They described the challenges of caring for their patients and how these time pressures their ability to adequately screen and address adolescents' substance use and/or mental health problems within the timeframe of a typical well check. One physician expressed skepticism about providers' ability to provide comprehensive, quality care to their adolescent patients under the system as it is currently structured. An FQHC psychiatrist also discussed the time constraints that primary care providers operate under in the clinics where she works.

Kaiser Primary Care Pediatrician:

> In Pediatrics, dealing with so many things, I wish I had time to spend more time on the conversation. Usually I think I probably don't spend that much time. Just because of the time constraints because if it's a baby or teen with multiple problems, it's still only 15 minutes. Usually, I'm running late and probably there for more than 15 minutes, then I'm late for the next patient. I wish I had talked more. I would talk about addiction and effects on their health and their achievement and if they're going to be playing sports or something, how it's going to affect maybe their taking part in sports. So, unfortunately, I don't have very long conversations.

Kaiser Primary Care Pediatrician:

> We have 15 minutes for every patient, and as you can imagine, with any teenager, you have to do the regular physical stuff, plus how's school, socializing, any bullying, any substance abuse, any sexual activity. You need to talk to them confidentially. Eating habits – there's just a million things.

> Fifteen minutes for a very healthy, self-motivated teen is easy enough to do, but most teens have other things. And trying to get their confidence in 15 minutes to have them – you know, you ask them to take off all their clothes, and, you know, they're already – a lot of teens are already feeling awkward and vulnerable. And then you have to talk about a million different things.

> So whenever I have a patient that has anything outside of being 100 percent normal, it's a little discomfiting, because I just don't feel like I'm going to have the appropriate amount of time to take care of them, or to be able to address or answer their questions in a timely fashion in a way that serves them and serves all of the patients after them, because I will stay with them as long as they need, but then it will put me behind with everyone else.

> I really have a hard time being able to speak for other doctors. I can tell you that we're all – the 15 minutes, most of us feel it's not appropriate – not that it's not appropriate; it's not sufficient. It's not sufficient. ….I just don't know that our system is set up to help our teens in 15-minutes visits.

> **Competing priorities.** Closely related to the time pressures described by participants

are the competing priorities faced by today's primary care providers. Pediatricians described

the multiple recommended preventive services and activities they are expected to perform

during the course of a typical adolescent well visit: physical examination components,

various screening activities (e.g., smoking, nutrition, exercise, school performance, sexually

transmitted infections, bullying, etc.), immunizations, school/sports forms, etc. Many reported feeling overwhelmed at the sheer volume of activities, and made clear that visits were clearly a zero-sum game; it was impossible to complete all the required preventive activities, as well as addressing concerns specific to the patient, and they were constantly forced to choose the services they felt were most important and appropriate for particular patients. They are forced to make judgements about patients highest priority conditions, which means that "invisible" problems like substance use and other risky behaviors may go overlooked.

Kaiser Primary Care Pediatrician:

> Well, the good thing is that if it's patients that we know, you just pick the things you're going to spend time on. You know, so if it's my teen who is stable from an eating disorder, I'm going to spend time on that. If it's, you know, a kid with ADHD, then I'm going to spend time on ADHD and their medicines and whatever. So maybe not on the other stuff because I know that stuff is okay.

Kaiser Primary Care Pediatrician:

> Well, teenagers – I spend more time because, not only do we need to do the physical and, usually, do a school form and talk them about immunizations and make sure that they're ready for sports and everything, but we have to also research their home life and their emotional selves. There's so much change happening for them and if I know the teen and we already have sort of established a relationship and they're pretty easy to talk to, then they will tell you anything honestly.

> But if you don't know the teen, then also takes some extra time to sort of make sure that they feel comfortable talking to you and opening up and telling you –

> You've probably seen the number of things that we have. We have asthma control tests, we have three questionnaires for the teen. We have the Obesity Get Healthy Action Plan game, we have their school forms and then you have to do Asthma Action Plans if they need them for school and, you could spend the whole time just doing clerical work.

FQHC Clinic Consortium Behavioral Health Integration Manager:

> Providers are overwhelmed with the enormous amount of mental health conditions that are – that they see in their practices. But quite honestly, this is not what they went into medicine for.

Workforce. While not discussed by providers, several of the managers and

policymakers had clearly thought about whom among their workforce might best be used to

deliver components of SBIRT and other integrated behavioral health intervention in their

settings. They talked about the benefits of using various different, non-physician personnel,

for screening and intervention, and some of the challenges involved in tapping those staff for

SBIRT.

FQHC Clinic Consortium Behavioral Health Integration Manager:

> So, [Clinic A] has their medical assistant do the initial screening, flags to do the larger level screening. They then do a warm handoff to a behavioral health clinician, and then, the behavioral health clinician will take on the larger screening and assess for sort of where a person's at, and then, do the brief intervention.
>
> Now they're actually trying to train a higher level of community health worker. There's a lot that those mid-level kind of professionals – you know, unlicensed or working towards their license – can be doing.
>
> How you think through the functions of your team, including your non-licensed professionals, and, you know, so that it alleviates the burden on just the licensed folks.

Workflow & warm handoff. Quite a few participants discussed their clinical

workflows with regard to handling teens' behavioral health risks. Those with access to

embedded behavioral health clinicians specifically discussed how a "warm handoff" – where

a primary care provider personally introduces the patient to a behavioral health clinician

during the course of the patient's visit – fits into their clinic workflows, and its importance in

facilitating patient engagement in behavioral health interventions.

Kaiser Primary Care Pediatrician:

Oftentimes I would already know that there was an issue, whether it was the private questions or, even if they weren't the private questions, grades are dropping or they admit to having a real problem sleeping, 'I've lost my appetite' – anything that would make me think that they weren't – that they might use some help just talking about it, to even just tease it out to see if there is an issue.

I would let them know: 'I'm really fortunate at this time. I've partnered up with Dr. XYZ, who does the mental health kind of check-in with teenagers. So I'll do the physical, and then I'll give her a call. And if she's available, she'll come in right away and talk to you. If not, she might just come and say hello and then follow up with you. But if she's not there, she will give you a call to follow up.'

I've never had her come down and be in and out in two minutes and be like, Oh, they didn't want to talk to me. Like, it's a minimum of 20 minutes, more like 30 minutes, and oftentimes 45 to an hour. Kids would talk to her, would open up. They would talk and really discuss what's going on with them. And she always has – she was able to get out of them a lot more than I could in, you know, 10 minutes.

I never had a patient say, No, I don't want to meet with her. I never had a parent say, Why do they need to meet with a therapist? I think everyone's kind of aware: Teenagers are hard. I think kids who are having challenges, parents are seeing it at home. It's not a big surprise.

And sometimes parents will say 'I want my kid to see someone. And I'll say, 'Well, we have someone who can meet with them right now.' And they, like, you know, want to kiss the ground I walk on, because they're just – because there's nothing like the immediacy. Sometimes they have a hard time getting their teen in here to begin with to discuss an issue which they feel is not an issue.

FQHC Primary Care Pediatrician:

If it's something like headaches and I really think that it's about anxiety or something, I'll say, 'Now that we've talked I really don't think that there is a purely medical explanation for what's going on and it sounds like a lot about what you were telling me about – about the stress at home and the violence is really contributing – and we have people here that can help you with that.

I could give you tons and tons of pills, but I don't actually think this is going to go away with just pills. I really want to introduce you to our social workers because I think they're going to be able to help.' Most kids at that point are like, "Yes. Please. Yes." They're open to talking to anyone. And I'll say, 'I'm really worried about you, and I actually don't feel comfortable letting you leave until you at least talk to them. You don't have to make a follow-up. You don't have to commit to anything. But I just want you to meet them face-to-face.' And, if the person who's on call isn't the

one that's down here, I'll say, 'Okay. Well, they're seeing patients right now. Let me call them and see if they're available. If they're available, I'll have them come to you. If not, we're going to get you an appointment as soon as possible.'

And then, if it looks like it's going to be a really long conversation that the social worker and the patient are going to need to have, then I'll ask the social worker to bring them up to their office, up here, so that we can free up the room and keep the flow of clinic going.

It didn't used to happen. We didn't have anyone down here so we used to have to call and see if they were in-between patients or could come down. And so we decided that it's much easier to have somebody who has no scheduled patients just be sitting there.

FQHC Medical Director:

I think most people agree that the best way to get patients to actually follow up with their health coaches was if there was a warm handoff, and they actually met the person, rather than someone calling them up later. Doing the counseling on behavior change, motivational interviewing, and even assessing the situation fully takes a lot more time than the 15 minutes or so that we have in our typical visits.

Linkages between departments. Throughout the interviews, participants across disciplines and organizations discussed the personal, professional and departmental relationships which impact the provision of behavioral health services for adolescents on a regular basis. It was clear from the interviews that linkages between departments and organizations often depend on the relationships between and efforts of individual staff people, rather than intentionally established, systematized connections intentionally created to link departments or organizations, creating "systems of care." When personnel changed, or if successful personal-professional relationships were never established, linkages were often weak, potentially compromising optimally integrated care for adolescents with co-occurring health and behavioral health concerns.

CD Provider: More of my work is with child and family psychiatry than the Pediatrics department. I probably have had interaction with Pediatrics through of my interaction with child and family, but that's the only time I've had any interaction with pediatrics. With Child & Family, going to a monthly liaison meeting."

Q: So it sounds like you don't get a lot of direct referrals from the pediatricians?

A: Pretty rare. I do.

Q: And when you do, are those the more severe kids would you say or –

A: I would say it tends to be more severe. I'm trying to think because there's so few.

Child & Family Psychiatry Clinician:

> I personally saw it on both sides of general psychiatry and chemical dependency recovery program, what Kaiser was trying to get us to do, end up no wrong door, because we know we lose people when we're referring over.
>
> There are certain providers that just seem to catch things more. I think it depends on the provider. For me, it's not been an issue of a close relationship. I just knew the other doctors more. And as they've retired, you know, we haven't done it in a while, but we've done different things over time. We used to do once a month case conferences where they'd come down here, we'd go down there. I don't know why that hasn't happened again. But, you know, it was a select few. It was those doctors who were more psychologically inclined. At least that was a nice opportunity. Many I don't even know, they wouldn't even know I worked for Kaiser.

It was clear that the weak linkages between pediatric primary care and behavioral health departments described by front-line clinicians were not well understood by policymakers at leadership levels:

Kaiser Policymaker:

> And one of the things that I think about pediatrics, though, that's different than with adults, is that pediatricians tend to stay much more involved with their patients. So there's a lot more communication and crosstalk between the pediatrician and the child psychiatrist or the therapist. So I think actually that makes them better informed, and so they're better able to understand what's going on, even if they're not treating the patient.

Referral process. Several participants described the referral process to specialty behavioral health services – either to Child & Family Psychiatry or to the Chemical Dependency program, in the case of Kaiser, or to outside behavioral health services, in the case of community-based primary care providers – once a teen was identified as needing more intensive services than could be provided in the context of primary care. Kaiser pediatricians described some of the barriers inherent in the referral process, including unwilling patients and families or inflexible program rules which exclude patients with co-occurring mental health and substance use problems. Community-based pediatricians also described patients unwilling to follow through on referrals to specialty care, preferring instead to continue to receive care in a familiar setting, with trusted providers. Community-based program administrators also discussed some of the service capacity limitations across community programs, and the impact the lack of resources have on the specialty treatment referral process.

Kaiser Primary Care Pediatrician:

> Sometimes, I would refer the child to Psychiatry but, as you probably know, there's not always a great follow-up with that. Or the parent really wants to have follow-up with that because they feel sort of at a loss to deal with their kid and I don't think we have excellent parenting resources. It's pretty hard. And to try to get the kid to agree but a lot of times, the teen won't agree to come. So you're sort of at a stuck position. Sometimes the teen really does want to go and will agree to referral and may actually go for the intake but doesn't often follow-up.

Kaiser Primary Care Pediatrician:

> Our behavioral medicine here, just a referral down to there to let them sort it all out, even if the parents are on-board and want to do it, and it seems like they have underlying reasons why they're using substances, I've found Child and Family Psych will not see them if they continue to use substances, so that's just out – you're stuck. There's no one then to advocate.

Kaiser Primary Care Pediatrician:

> If there's a drug issue, then behavioral medicine won't see them until they deal with that. But I don't know that I've had any patients that – maybe one or something – that's followed through and mostly because there was other things going on. But, I guess, it seems like it's such a huge, huge program, huge commitment that – for a normal, average, busy family that someone's using marijuana, you know, I'm not sure they're ever going to follow through.

FQHC Primary Care Pediatrician:

> Our patients that are really having a lot of other more complicated issues, we can refer out, but it's very, very limited who we can get in there. It's like very, very high risk and, you know, they have to have some sort of ongoing abuse or, you know, something like really, really acute.
>
> And, especially with teenagers, it's actually really hard when we refer patients out. So many times, they won't go. It's like, 'This is their clinic. This is where they're going to come for everything,' and particularly if they've already made a connection to one of those social workers, even if they are like, 'Your depression is really bad. I want you to start seeing a psychiatrist or a psychologist every week,' the amount of times that they actually follow through with that is so rare.

FQHC Clinic Consortium Behavioral Health Integration Manager:

> The other challenge is the referral part of it. I would say that our County system is trying to figure that out, trying to be as supportive as possible and create more resources, but it's not happening fast enough.

Information flow back to pediatricians about resolution of referral. In discussing the referral process, pediatricians often expressed frustration about not hearing back from specialty behavioral health colleagues about the outcome of a referral. While understanding about the specific confidentiality protections afforded mental health and especially substance abuse treatment (under 42 CFR), they longed for more information about the fate of their patients referred for care. A CD clinician confirmed that there is typically little follow-up contact with pediatricians following a referral for treatment, but also described the program's standard "consent-to-release-information" form signed by virtually all patients, thus pointing to a potential facilitator of better communication with Pediatrics.

Kaiser Primary Care Pediatrician:

Q: So, do you usually – what's it like when you refer people to behavioral health or to the CDRP? Do you get feedback from the programs about the disposition of the case?

A: More than I used to. CDRP I don't get anything back from, ever. Child and Family Psych – thank you very much – we usually at least get a note saying that they've been seen. And some people are better than others about sending us more information on what's happening.

Kaiser Primary Care Pediatrician:

So, once we put in a referral, we can't see it anymore and a lot of the providers, when they do the intake, there's no physical notes at all. Some providers really don't give us that much back. The thing with behavioral medicine is because of that confidentiality, you can't see – you can just see have they had any visits but you don't necessarily get… More information for me is always better – from everybody.

CD Provider:

Q: Do you get permission to talk to their primary care provider?

A: You know, it's rare that we contact pediatrics in terms of whether a teen has been in the program, unless there was that already there, that communication.

Q: Is that something that you would consider? I mean, do you think that would help sort of integrate – if the family was willing.

A: We do ask them to sign a release within Kaiser so we can talk. It's rare that we have that refused or declined, so it's kind of up there when the intake is done.

Infrastructure and resources. Several participants, particularly in the community-based settings, decried the lack of programmatic funding for adolescent specialty treatment services, and its impact on infrastructure and resources for services.

FQHC Psychiatrist:

So, you know, in a dream world, then everybody would get staffed up and we would all use this kind of collaborative model and the county would develop some kind of dashboard that connected everybody in terms of the county resources and the individual clinics would have caseload, you know, some type of AHRP flow that you could just update and there would be time allocated for us.

County Adolescent Alcohol and Drug Treatment Services Administrator:

> Everyone loves to complain about money, you know, and how there's not enough. But really, for adolescent treatment services, we are painfully underfunded. And I think our capacity to really meet the need that I think is out there isn't quite there.

Characteristics of the Intervention

All of the interviews included questions about SBIRT. Participants were asked about the importance of the evidence base in determining their adoption of new interventions and the role of cost-effectiveness in influencing implementation. Providers who had participated in the SBIRT trial were specifically asked to reflect on the merits of the different modalities of delivering SBIRT.

Cost. Quite a few participants discussed the role of cost as it influences the implementation of new interventions like SBIRT. While acknowledging that a new technology's cost and cost effectiveness was clearly an important factor in determining its ultimate adoption, they also allowed as how the demonstration of cost savings alone were not enough to insure implementation, and that factors such as quality and usefulness must be combined with cost effectiveness in order to encourage adoption. A community-based pediatrician felt that the use of an embedded behavioral health clinician increased her clinic's pediatricians' productivity, and that having such a resource allowed her to see a greater number of patients.

Kaiser Child & Family Psychiatry Clinician:

> How do you make the case to leadership that this is an investment we're going to make now? We may not see the benefit right away, but this is the right thing to do in terms of quality, in terms of care for our – our patient – our members, and, you know, a lot of these people are going to stay Kaiser members. And, so, we are planning the seeds of good health and well-being now. I mean, how do you do that?

> If you look at hospital rates among teens, the ones that are in and the ones that are repeated are the ones with dual diagnoses.

I think that is very expensive for the organization. One time we ran the numbers – like 60 percent of the patients that are repeated, that go in or stay longer, all have dual diagnoses.

So, they have some kind of chemical dependency problem, they also have psychiatric problems. And if you have the two together, they're much more dysfunctional, and they more dangerous, more high risk, and more likely to be in the hospital. So, we actually can say what we already have, you know? Focus on the short-term cost benefit.

Can we can decrease hospitalization rates, can we avoid them, can we have shorter stays if we have an actually integrated system in place from detection to intensive intervention? So, you can talk about a progression of treatments, right? So, you can have education, you have primary prevention, and then you have intervention, and you have intensive treatment.

FQHC Primary Care Pediatrician:

Because, it may increase our productivity. If I didn't have the social worker and the health educator downstairs, there's no possible way that I could through all my patients, because I would be doing it all myself. And, there again, it's not possible, because almost every person that comes into the clinic, has a mental health issue and a birth control need. Or diabetes or something. You know, like, it would health education needs and a mental health issue, regardless of what their visit is.

Evidence strength and quality. Many participants discussed the importance of evidence in determining whether they would adopt new intervention into their clinical practice. While they talked about evidence as an important element in determining clinical practice, and something the pediatricians aspired to have as a major factor in their own individual practices (several described evidence-based practice as "doing the right thing"), they described a nuanced situation in which the scientific evidence, quality and performance measures and leadership directives all played a role in determining clinical guidelines and by turn, individual clinicians' practices. Some also described the continued use of practices for which there was no evidence of usefulness, but which persisted out of habit. Interestingly, one policymaker began by discussing the importance of evidence, but made it clear that

evidence alone was insufficient to change practice in a large health system, and suggested

that anecdote can be as compelling to policymakers decision-making as the evidence base.

Kaiser Primary Care Pediatrician:

I think evidence is huge. Our medicine has significantly gone towards evidence-based management. I think everyone feels better knowing that someone's done some level of research and that you can hang your hat on it just for your own peace of mind, but also in explaining it to parents and to families and trying to get their buying in to what you're doing.

Kaiser Primary Care Pediatrician:

I think we all are more prone to do what is required of us. I mean, we all want to try to do the right thing, right? Then, next, it's the little dashboard things where we kind of forced to do that stuff and then we're going to – I think evidence-based is probably driving the dashboard but…

Kaiser Primary Care Pediatrician:

I think if people know the evidence, if people understand – we're all providers. I think everybody here wants to do the right thing. And I think evidence is really, really important. I think that's why education for me is really important. Conferences are really important because even if they hear it, it sorts of stays somewhere, you know? And maybe 30 percent of your Pediatricians will read it, but following a conference, occasionally an article gets sent to them, and they will click on it. And many read journals as well to just keep the practice going.

Kaiser Primary Care Pediatrician:

I think so much of what we do in pediatrics is not evidence-based. Think about all the medications we use that were never approved in kids, but we still use them. And – some of these metrics that have nothing to do with patient care.

Kaiser Policymaker:

The evidence base is crucial, but it's not sufficient. I think you can never take a model out to anyone and sell it without there being at least some very strong evidence that it works and in the way that it works as well.

If the issue is that we're not identifying enough substance use disorder and these kids are ending up 20 years from now in a really severe end-stage, substance use disorder of some sort, I need to have some data that supports that assumption to make the case and to paint the story for why we need to do it. But that's not going to be enough. I

need to also prove that it can be implemented in a cost-effective fashion and is really the best use of those resources.

So, if I'm going to take out a model that says you need to increase the length of the pediatrics visits to 20 minutes so they can address these issues when they arise, I need to have some very, very clear reasons why spending that extra money or, you know, creating those additional appointments in pediatric schedules, why that's going to be useful and how it's going to be helpful.

And I think that the way you actually do that is you come back to the patient and the experience of what is going to happen to that teen 20 years down the road based on what our evidence shows. Or even personal anecdotes can be very powerful in this regard as well. We know a lot of things about what happens to teens who are using substances. We need to bring those in and say, 'This potentially could be where this kid is headed, and we want to implement programs that will support this teen in making some better choices.'

Relative advantages of BHC conducting SBIRT. By far the most discussed topic, and one raised by ¾ of the participants, was the relative advantage provided by the embedded Behavioral Health Clinician model. Kaiser pediatricians who had access to the embedded BHC during the trial, and community-based pediatricians whose organizations used the model, all described how it supported their practices, supplemented their work and allowed them to more fully address (or address at all) the behavioral health needs of their adolescent patients. Some discussed some of the workflow and logistical problems resulting from the using the embedded BHC, including exam room availability and the clinician not always being available to respond to a new case if she was already with another patient. Pediatricians who had not had access to the BHC also talked about the benefits of such a model, as offering a way to extend care services available to patients, in the context of the limited visit times and competing priorities discussed above. A community-based pediatrician said very explicitly that she could not do her job if she was not able to work in collaboration with an embedded behavioral health clinician, because of the high prevalence of behavioral health problems among her patients. Specialty treatment clinicians also talked about the benefits of

this model, describing the important referral facilitation role the BHC played, for those teens whose problems were severe enough to warrant a referral for specialty care. For one such clinician, the BHC was able to "prime" patients and families for engagement in specialty care. Another discussed the convenience of the "one-stop-shopping" offered by the BHC model as having potential to increase access to behavioral healthcare for busy families who might be unlikely to find time for multiple visits to specialty behavioral health. The Medical Director of a public health clinic described the initial, but ultimately unfounded fears among clinic staff about disruptions to clinic flow, and how ultimately, embracing the model has made his clinic more productive and less stressful. Kaiser policymakers acknowledged the important role behavioral health could play in pediatric primary care, but were less convinced of the value of the embedded BHC model, and spoke of the need for caution and careful consideration before implementing such a model.

Kaiser Primary Care Pediatrician:

Q: And how did it change for you having that embedded person?

A: Hugely, and I was very successful in having my patients meet with X, mostly because I actually did not offer it as an option. And, in my opinion, it's an injustice offering it as an option, because I kind of feel like, if the child has asthma, he needs albuterol. If the kid has diabetes, he needs insulin. If a kid has a significant social issue, they need to talk to someone about it.

I don't think it makes sense to have pediatricians doing more in-depth evaluation or counseling. Even if you kind of trained us, our system is not set up to allow for it, and it's not our expertise. I mean, there's a reason why people go to school for many years. Teenagers are hard when you're perfectly healthy, just kind of with the ups and downs of hormonal stuff, let alone, you know…

I think if Pediatricians were aware that it would really kind of shorten their visit. For some of them, that won't resonate, because they're not asking to begin with, and so there's nothing really to shorten. But I do think that the teens do need it.

Kaiser Primary Care Pediatrician:

I think having somebody available when you think there's a kid with a significant either depression or – or, you know, family issue or drug and alcohol issue, it would be great to have somebody around, because otherwise the chances of getting downstairs are iffy at best.

The big thing is: I get frustrated pretty easily and, you know, there's been a few times where I've called the number and either nobody has answered or they weren't available, and we have time pressure, we have room pressures, you know, and it's just hard. I'd love it if I could pick up the phone and call and say, 'This kid's got this problem. Deal with this.' We don't have the time to sit and wait and talk, and it's just not there.

FQHC Primary Care Pediatrician:

There's no possible way we could work here without it. Especially because our population, there is so much trauma and so much violence. I can't think of one patient that I haven't screened positive for something. It may not be current, but the amount of abuse and neglect and parents using drugs and physical violence and emotional and drugs use and sexual activity young. You know, in our ideal world, what we're really wanting to get to is a one-to-one ratio of behavioral health people.

It may increase our productivity. If I didn't have the social worker and the health educator downstairs, there's no possible way that I could through all my patients, because I would be doing it all myself. And it's not possible.

Kaiser Child & Family Psychiatry Clinician:

I think that there were more referrals and more awareness from Pediatrics. And I think having that early intervention was really helpful, because I think in some cases it helped for the family to get immediately connected with somebody, and it facilitated the process of them being oriented to our department and to therapy in general. And it was kind of more of a warm hand-off, as opposed to just having a referral through e-consult or something like that.

Kaiser Child & Family Psychiatry Clinician:

You know, Kaiser has struggled about behavioral health; having someone there makes sense because they could grab a person right then and there, and some triage function, sort of very lower level kind of secondary prevention, early intervention, and they're already there, but I'm sure the parent and/or kid would be thrilled, particularly the parent. And then if it actually need to be referred here, that works well. So, I'm not sure why as an organization they've struggled to take on that model because they talked about it in the past.

Kaiser Primary Care Pediatrician:

Ideally having someone who's just sitting right there to say, 'Alright, you need to come and meet with this teen right now' to get them hooked into whatever they need so I can go off and see another patient. But – but yeah, I think that would be an ideal world. You'd have someone sitting right there.

Kaiser Policymaker:

For CD specifically, I think those individuals can be particularly useful in differentiating what is kind of adolescent behavior around substances versus a budding substance-use disorder or a full-blown substance-use disorder that requires intervention. I'm not sure to what degree pediatricians can make those determinations.

Even if you don't hand off the patient to those individuals, having that person present and available, either in person or by phone, is really essential, because questions will arise, and different physicians are going to handle those questions in different ways. Some will be overly conservative and say, You know what? I think you've got a chemical dependency problem. You need to go to CDRP, when maybe they don't. Or you have others that actually are going to be more liberal and just not even pay attention to those questions.

So I think having those behavioral health providers in Pediatrics or at least immediately available is very helpful for answering questions, but then also to serve as a resource to train the rest of the staff. If I go in my department as the chief of psychiatry to train pediatrics, I'm going to be received differently than a psychologist who's working day to day with these same individuals and they've developed a relationship and a certain level of trust with that individual. And that, in my mind, is better for education and making things more consistent across the board.

Well, I think actually most anyone would want somebody just to hand over a patient to when they need to, because it's easy – it's easier, I should say. But that isn't necessarily the best for the patient. So, you know, if my kid is 14 or 15 and has been seeing the same pediatrician for the last 14 or 15 years, they know that person. They feel comfortable with that person, and they're likely to hear that person differently than if their pediatrician hands them over to someone who's completely new.

And so I think the use of a psychologist in primary care has to be very, very carefully orchestrated with the workflows of a pediatrician but, I think, has to really exist embedded along with the pediatrician, not as kind of a separate, 'I'm handing over a patient to you,' but more, you know, 'Let me consult with a colleague, and then, you know, I'll let you know what I think are the next steps.' That, to me, is more effective. It can be incredibly time-consuming, not to mention one of these psychologists is probably working with, you know, eight or 10 pediatricians and may

not be available. So those are some of the issues with that approach, but I think it works better.

FQHC Medical Director:

> You know, I think we were more worried it was going to change the flow of clinic, but it hasn't really been a big problem. I think everyone's been happy. They're finding things out that they hadn't found out and normalizing the screening process. I don't think it will ever go back the other direction. Hopefully not, because I think it's made a huge difference, made clinic just more effective and less stressful.

Relative Advantage of pediatrician conducting SBIRT. Some pediatricians also talked about the benefits of a model of behavioral health integration in which the pediatrician provides behavioral health care interventions such as SBIRT. They discussed the power of the rapport between physicians and their patients, the strength of the relationship they had established with their patients, and the unique potency that physician guidance around risk behaviors seems to have for patients.

Kaiser Primary Care Pediatrician:

> To me, my patients, they're girls and most of them have been seeing me for a few years. They are comfortable. That's why they come to me.

Kaiser Primary Care Pediatrician:

> There's so much change happening for them and if I know the teen and we already have sort of established a relationship and they're pretty easy to talk to, then they will tell you anything honestly.

Kaiser Primary Care Pediatrician:

> A lot of teens don't want to switch, don't want to see someone – they just want to see me. Especially the boys. A lot of them just want to stick with me. So, I'll sit them in a room, walk next door, talk through everything with her, turn around, come back in the room, talk it all out. And if I feel comfortable with the way I've explained it, and the family's good with it, then, we just do it that way, almost, like, you know, 'I'm just giving you an expert's opinion, with my opinion.' Run it that way.

Characteristics of the Individuals Involved

Fewer participant responses related to individual provider characteristics as either barriers or facilitators of SBIRT implementation. Individual provider attitudes, self-efficacy and knowledge and skills with regard to screening and intervention for substance use problems were among the individual provider characteristics which were discussed.

Provider self-efficacy. Participants were mixed in their assessment of pediatrician self-efficacy with providing behavioral health interventions like SBIRT. While some felt very comfortable discussing sensitive topics and risk behaviors with patients, to the extent that they felt the SBIRT training had not really increased their skills in this area because they were already quite competent in this area, most others were less confident in either their behavioral healthcare skills, or their ability to change behavior, or both.

Kaiser Primary Care Pediatrician:

> Because it makes me think, 'Well, how should my practice try to change,' right? You have to decide if someone comes in whose got psychosocial problems or issues or risky behavior, and also, has medical problems, what are you going to do? The fact that an obese teen has a 75 percent chance of being an obese adult, that's not really, honestly, something I'm going to be able to change, which is really hard to say. So, then you're, like, 'Well, maybe I can change some behaviors.' But it would be hard.

Kaiser Primary Care Pediatrician:

> I appreciated the training. I understood the point of the training. But part of it was sort of, like, well, I feel like I'm kind of already doing this to some extent. I didn't have a problem talking about it with teens and trying to get their feel – their take on it. I didn't feel any more effective, you know. I felt like I'm doing this because I was told I need to do it, but I've kind of being doing this. I think I'm effective. I think it was just how comfortable people are with teens, talking with teens. And I am comfortable with teens and I don't mind talking about these things.

Kaiser Primary Care Pediatrician:

> Everybody knows that telling someone that they're overweight and they need to make some healthy choices and walk in and 'Yeah, let's do this questionnaire and can you pick two goals?' and then having a phone follow-up later. That's not going to actually do anything –

Provider knowledge and skills. Closely related to provider self-efficacy are their skills in and knowledge of behavioral health. Both clinicians and policymakers acknowledged that behavioral health is frequently not a strength of most generalist pediatricians, and several of the doctors readily admitted that they lacked skills in this area and were happy to have specialists trained in behavioral health interventions handle these issues. A community-based behavioral health clinician discussed the tendency of pediatricians in her organization to both over- and under-identify significant behavioral health risks in teens. A Kaiser policymaker agreed that many doctors are uncomfortable handling screening and intervention for substance use problems, but felt that physician training in SBIRT had the potential to provide a lot of benefit, for relatively little effort.

Kaiser Primary Care Pediatrician:

> I think bringing the data to the Pediatricians also gives them some skills, but it also helps them – and honestly, I don't think anyone doesn't do it because they don't believe that it's helpful.
> But, you know, there are – a lot of these things, substance abuse, promiscuity or unprotected sex, and obesity, they're just – they're behavioral – changing behavior is still hard. You can talk about it ad nauseam, and I can see people being like, Yeah, I've already mentioned it 10 million times, and it's the same issue. It's kind of hard to – so having more skills.

Kaiser Primary Care Pediatrician:

> I feel like I know when to access the BHC and I know I don't really have the skills to do a lot. I can read the card about motivational stages of change, and where are you in the thing. My teens really like me, but I think they also really like the BHC, so I'm very happy to have someone who has way more skills. I mean, she's the sub-specialist – take that on and lead the way.

Kaiser Policymaker:

> SBIRT, you're talking about screening and training providers in pre-intervention, right? So the bar, in terms of the effect you get, is not that high, because it's not that intensive to do that. And my sense is that pediatricians will readily acknowledge that it's their responsibility to be looking out for those things but also readily say that they're uncomfortable dealing with it. They don't know what to say or what to do.

FQHC Behavioral Health Clinician:

I would say the problems with behavioral health here are the lack of behavioral health knowledge of medical providers and nursing staff. I think that that's like a personal issue for me. I feel like there's a lot of over pathologizing. I think that hurts patients. I think that that hurts people when we over pathologize them. And providers will say, 'This patient in room 4 is like so depressed,' and then I'll do an assessment. And I don't find any depression symptoms. I think that has to have some effect on the care.

And then, probably providers also missing symptoms, if they're not referring to me. So if there's a patient that's really suffering. I've done screens on people, the provider's like 'Oh, yeah. Yeah. They're great. Just going to college.' And she's suffering from psychotic symptoms. And in the back of my mind, I think, 'Thank God for behavioral health, because if I didn't catch her...'

Medical training. Unless they had specifically sought out adolescent medicine

during their medical education, most pediatricians reported receiving little training on

substance abuse, and indicated that further training was both needed and welcome.

Kaiser Primary Care Pediatrician:

Yeah. I think it'll be good to have more training. Because I think when I did my residency, they didn't have a whole lot of training. I think if you don't have training then it kind of makes it a little uncomfortable. So having more training, definitely is a good thing.

Kaiser Primary Care Pediatrician:

When I was in medical school for pediatrics, I chose to do a lot more pedi stuff, like, at Juvenile Hall and the Violence Intervention Program and stuff, so that was one thing. Then I was at UCSF, and they have a pretty good adolescent medicine. So I feel like I got a good education there.

Kaiser Policymaker:

Well, you know, now a lot of residency programs are requiring some substance use disorder training as part of their transition for, like, primary care and even psychiatry. We only had one month of chemical dependency training even in my psych residency; now I think it's up to, like, two or three. I think those are opportunities that are really important. But those are long-term fixes.

Implementation Process

A number of interview participants discussed the steps and processes involved in implementing new clinical activities or programs. They described their experiences with how new organizational initiatives and innovative practices had been implemented in the past in their organizations, and in some cases explicitly suggested strategies and tactics for adolescent SBIRT implementation.

Planning. Several participants from community-based organizations described the planning processes that they had gone through as they attempted to implement SBIRT. They discussed the need to consider issues such as workflow, workforce and cultivating relationships with other community resources as they begin to plan out implementation. Others offered or reflected on creative approaches for integrating behavioral health and SBIRT into Pediatrics which could be incorporated into future SBIRT implementation planning efforts.

FQHC Clinic Consortium Behavioral Health Integration Manager:

> A component of it also is the implementation and administrative kind of thinking about how you actually do this – so, one is a skill-level based, and then the other portion of it is, you know, kind of a work flow processes. And then I work with our behavioral health directors on what you would call implementation of it at the clinic level.

> Another layer of this that concerns SBIRT is that in the last couple months five of our eight health centers got a HRSA grant to do SBIRT and depression-focused initiative. That's the thrust of where we're at right now. People are trying to figure out, 'How do you do universal depression and alcohol screening in our clinics'

FQHC Behavioral Health Clinician:

> I think what would make it perfect would be – If we had more clinicians, would that be perfect? So that there is less waiting, less wait lists, more resources in the community, but then I imagine them being filled up just as they are because the need is unmeetable. Even if we had a third, if we had two medical providers downstairs and we were double screening, that schedule would fill up just as fast and then they'd be waiting two weeks anyway because it's a really high-need thing. If we just

screened everyone all the time, then we would be probably catching people that I'm not catching.

Kaiser Primary Care Pediatrician:

Well, I guess, some kind of class or an educational thing for parents about marijuana, for example. Would I be able to suggest it to some families without revealing that the kid's using or just mention it to everybody? Something like that where the parents could go and really hear and teens could hear this information.

Kaiser Primary Care Pediatrician:

Having every teen check have a psychologist that meets with them, it would be well-received by everyone, if it's the standard of care, which it should be. That makes more sense than to pick up the phone when there are issues. Even if they're the mousy one who doesn't do anything. They might be a ticking time bomb for something completely different that you don't understand – the stress of college, the stress of a loved one doing something, trying to help their siblings, you know.

Kaiser Policymaker:

Q: So, what do you think of the idea of bringing in people from CD or from Child & Family Psych to have some sort of a presence, whether it's groups or having an orientation in pediatrics?

A: I think that would be very powerful, because not only does it reduce the stigma, but oftentimes it's just more convenient for the families as well. And, you know, I think if you send a patient, either an adult or an adolescent, to a CD program, they're going to access a fairly intensive level of treatment, and oftentimes that's not necessary. So by having groups or programs in primary care, you're kind of doing almost an extended evaluation to really see, okay, what is it that this teen needs in this particular circumstance? And if it's done, you know, very seamlessly integrated with pediatrics, nobody really even notices that's what you're doing, actually.

Engaging. Several participants talked about their experiences engaging various critical stakeholders – in particular, different levels of leadership and fellow clinicians – in change processes. They described important organizational goals (e.g., in the case of Kaiser, "value") that must be addressed in order to support engagement in implementation, and suggested tactics (attempting local versus regional implementation) which could help engage support for implementation.

Kaiser Primary Care Pediatrician:

So I've learned that Kaiser really is going to show me the value, right? If someone says, I believe this would help: that's great, do a program. Show me that it works. It's not even the cost. It really is show me the value, does it really work? If you say, Let's go to 20-minute visits, or Let's go to 30-minute visits, tell me why. You know?

Case in point: when I was doing access, I was in a meeting with all the access people from all of Northern California, and there must have been about 60 people in the room, I think they were all pediatricians, actually. I said, How many people in the room feel that 15-minute well-care visits for teens are enough? And half the room raised their hands, and the other half didn't. I said, How many people feel that it isn't? And the other half did. So there's obviously already not agreement.

And I think that's what it would take to kind of integrate it. And I think even on a local level, because trying to change something on a regional level is crazy-hard. But trying to do it on a local level would definitely be better.

FQHC Pediatrician:

We're really lucky, our medical director is fully onboard with it. I think if she could figure out a way to finagle the budget to have it be one-to-one, she would. You know, but it's just not 100 percent up to her.

Kaiser Policymaker:

I would say increasingly we're trying to move towards: 'I have a really good model that I think really works, and we're trying to put this out everywhere in the region. Let me answer some questions for you to see if you could support implementing this at your local medical center.' That's a very different conversation than saying, Thou shalt implement this model, or something.

Executing. A few participants described specific, practical, logistical details involved in earlier and current implementation efforts, both with SBIRT and other new interventions, which could inform adolescent SBIRT implementation efforts in the future.

FQHC Clinic Consortium Behavioral Health Integration Manager:

The major focus of the training and the technical assistance, if you will, from the beginning, was the work of bringing in this behavioral clinician, getting them up to a proper skill-level, and working out the workflow with the primary care side. So, the warm handoffs come from the PCPs. Where the actual screening happens varies among the different clinics.

And quite honestly, that's something that, you know, everyone is trying to work out. Does the screening for anything, whether it's mental health screening, depression screening, anxiety screening, trauma screening – does that happen when a person first walks in the door? Do they get the screening form in front of them in the waiting room? Is it something that the medical assistant does? Is it something that the PCP monitors and then does a warm handoff?

Kaiser Primary Care Pediatrician:

For example, I'm the immunization champion. I send out outreach lists to all the Pediatricians of kids who are behind and what they want to do with these kids. These are kids under the age of two. And it's routine now. They all get the list back and they send it back to me and we just have a whole flow. And the same thing is now happening with asthma. It is part of the thing that we know we need to do that's part of the right care for our kids. So, I do think having a champion can help.

Evaluating. Surprisingly, only one participant, from a community-based organization, discussed the importance of explicitly including evaluation mechanisms in implementation efforts.

FQHC Clinic Consortium Behavioral Health Integration Manager:

So, in the end, there's a really rigorous, continuous learning cycle, which goes on for about six months. There's a measurement piece to that.

Leadership. Organizational leaders were cited as critical to implementation success by a number of respondents. Leadership support at all organizational levels – local, facility-level and particularly executive – was seen as greatly increasing the chances that an implementation effort would succeed. In some cases the implication was that leadership approval – of resources or simply of the concept of an intervention – was required. Leaders imprimaturs were also seen as likely to convince providers of the importance of adopting a new intervention or activity into their practice.

Kaiser Primary Care Pediatrician:

I think it absolutely does help to have something from above. I think pediatrics is not really as recognized that we're here, but when you have something that comes from above – from the Associate Executive Director, or even the Physician-in-Chief to

recognize that this is what Pediatrics is doing. You know, 'This is what they're doing. This needs to be recognized.' Then, 'Whoa!' We all, like, open our eyes. 'Oh, hold on a second. This is something we're doing that's important we should keep doing,' you know.

Kaiser Child & Family Psychiatry Clinician:

I'd start with leadership. You target your audience. Starting with the Associate Executive Director, you know, maybe a captive audience to say, let us show you the harm this is causing. About we have opportunities to grow, we have opportunities to integrate, and we have opportunities to put us ahead of everybody. Because once you get the leadership, you know, involved, then the second thing is we do a huge conference, you know, to bring the experts to – to start a movement. What I find with Kaiser is that once you start a movement, it moves a little bit.

Training. Many of the interview participants discussed training primary care providers for SBIRT (and other behavioral health interventions), and described both those training approaches that they had found helpful in the past, and others that had been less effective. Interestingly, Kaiser policymakers tended to downplay the complexity of training large numbers of providers in a new intervention.

Kaiser Policymaker:

So that's what you can take advantage of, to say, Look, we want to teach you how to do it more efficiently with evidence-based questions. We understand this can be uncomfortable. Here's, you know, the three best questions to ask. I mean, I think that's part of the pitch to them, right?

Kaiser Policymaker:

If we can demonstrate a reduction in risky use, I think that almost is enough of an argument, because it's easy enough to say, Okay, we're teaching them about safe patterns of use versus unsafe patterns of use, which, down the road, as they become adults – because they haven't had a chance to develop the health effects of using too much doesn't mean that we shouldn't try to intervene as early as possible.

I think the other thing you say is that you're already screening for these things. If we can show you a very quick intervention around these things, you know, we save you the anxiety of screening and not having anything to do, you know.

I think also just the organization sponsoring these kinds of educational programs and discussions is really powerful. If I'm in a medical center and my PIC says, I want all

the pediatricians to go to this one-hour grand round on screening for substance use disorders, that's extremely powerful, because the PIC is saying, This is important to me, and I think you all need to go, and, in fact, I'm going to require you to go, or something like that.

Kaiser Child & Family Psychiatry Clinician:

We should do Grand Rounds every year of how marijuana, alcohol, caffeine, how all of that affects the brain and what's out there, what are kids doing.

I think once a physician or PCP understands the impact, negative impact – some permanent impact – on the brain that these children, I think that they would be much more serious about it, you know? Like what we did with smoking. This is much worse than smoking.

FQHC Clinic Consortium Behavioral Health Integration Manager:

As part of the initiative, there's an arm of it that is training and technical assistance. We've made a purposeful training agenda to bring up the skill level of our behavioral health clinicians on different advanced base practices, SBIRT being one of them. Over the last three years or so, we've done a variety of different types of trainings with – we have expert trainers who are external to our organization.

There were five specific evidence-based practice models that were chosen at the very beginning. And the focus was, "Let's do evidence-based training on depression, on anxiety, on sleep disorders, on trauma" – and what was our other area?

We did five trainings focused on those areas, and that was our original training agenda two-and-a-half years ago. That was the original collaboration partnership with UCLA and Humphrey. All of the trainers were chosen for, you know, their expertise on delivering an evidence-based, therapeutic model.

We do this over an eight to ten week period for eight to ten sessions, I should say, not weeks. And then, every session, you check in about where the person's at and then develop essentially. We try not to do a one-off training, so it's not just one day, you get all your skills, and you're an expert, right? There's an understanding that you have to practice these skills. You have to go back and work with the client and see what went well, what didn't go well, where you still having challenges, where you're getting stuck. So then they come back for further training. They have what we call a follow-up training period –

Kaiser Primary Care Pediatrician:

I think having things sent to us through emails is always good because you can refer back to it, but also, in person at the department meetings is the best thing. Joint meetings between behavioral medicine providers and pediatric providers have been really great. But I think everybody is very pressed for time, so that's difficult, too. We get so many emails, like, 'Oh, how can I change it? Big, huge upgrade. Watch all these videos and figure out how to do it.' Everybody knows that coaching for some works and learning together works and reinforcing learning works, but there's not that much opportunity for any innovative things. That's what's kind of hard.

CHAPTER 8: DISCUSSION

This is the first study, to my knowledge, to explore the barriers and facilitators to implementing pediatric primary care-based SBIRT for adolescents. It fills a gap in the literature by examining the perspectives of pediatric primary care providers, specialty mental health and chemical dependency clinicians, pediatrics staff, and policymakers on SBIRT implementation in pediatric primary care, in the context of a healthcare system in which different models of adolescent SBIRT delivery were recently tested. It also includes interviews with key informants outside of the KPNC system, in order to provide perspective on which factors are unique to a large, integrated healthcare delivery system, and which factors are also found in publicly funded systems. While several studies have examined such factors as they effect the implementation of SBIRT for adults,[236-238] fewer have examined them in relation to adolescent SBIRT.[239]. While many of the same things found to impact SBIRT implementation in previous studies conducted in adult settings were reflected in the responses of participants in this study, some issues unique to the pediatric population and the health system also emerged. Below I discuss some of the more salient barriers and facilitators to SBIRT implementation discussed by participants – some more easily remediable than others – and suggest possible approaches which are included in the Plan for Change which follows. Because many of the barriers and potential facilitators identified through the interviews were similar across settings, while the focus of the Plan for Change is SBIRT implementation within Kaiser Permanente Northern California, many of its features are applicable to systems outside of Kaiser.

Outer Setting

Patient and family needs. Patient and family needs, particularly linguistic needs, and the high prevalence of co-occurring substance use and mental health symptoms, were mentioned by a number of participants. Many noted the high co-occurrence of mental health symptoms and substance use among their adolescent patients, and how this co-occurrence can exacerbate each condition and complicate intervention approaches. Given the constraints of limited appointment times and competing priorities, pediatricians may be forced to focus on one type of symptom or another (but not both) during the course of a typical well-visit. This is supported the finding from the parent RCT that patients in the pediatrician-only arm were less likely than patients in the embedded BHC arm to receive brief interventions for both substance use and mental health symptoms, even when both kinds of symptoms were endorsed.[152] The co-occurrence of mental health problems and substance use could also provide pediatricians an entrée to conversations about the possibility of behavioral health treatment with patients and families, who may be more amenable to going to the somewhat less stigmatized setting of mental health treatment than that of substance abuse treatment. Mental health clinicians I interviewed made clear, however, that in spite of the presence of "No Wrong Door" policies in place, and region-wide efforts to ensure that both Psychiatry and Chemical Dependency programs across the organization are "Dual Diagnosis Capable," i.e., having the skills, personnel, resources and capacity to assess and treat co-occurring mental health and substance use disorders,[240-242] Kaiser's Child & Family Psychiatry department does not typically see patients with frank substance use problems for long, and will refer them on to Chemical Dependency treatment as soon as possible. For this reason, and because many less-severe patients are unlikely to initiate treatment in either Psychiatry or Chemical Dependency, an embedded BHC, trained in the identification and treatment of

mild-to-moderate substance use and mental health problems and working as part of an interdisciplinary pediatric primary care team, offers an appealing and potentially cost-effective approach to adolescent behavioral health and may reach far more patients than the system as it is currently organized.

Reflective of California's demographic profile, Kaiser Permanente has a very diverse member population, and it is working hard to increase the linguistic capacity of its behavioral health programs in order to meet the needs of its members, through the use of mechanisms such as its interpreter services. However, given the very high prevalence of a few core languages in certain facilities, efforts should be accelerated to recruit behavioral health clinicians who are also fluent speakers of the most prevalent languages (e.g., Spanish, Mandarin and Cantonese, and Tagalog) and train them in integrated pediatric behavioral health.

Efforts to increase language capacity among pediatric primary care staff are farther along, and many families in which parents speak limited English are empaneled with pediatricians who speak their language. Given the recognition of the importance of culturally and linguistically appropriate behavioral health services (e.g., linguistically appropriate behavioral health care is a cornerstone of the recent "Excellence in Mental Health Act" of 2014[243]), it would seem incumbent upon health systems like Kaiser Permanente to target bi-lingual pediatricians in particular for training in behavioral health screening, assessment and brief intervention techniques such as SBIRT

Confidentiality. The issue of confidentiality plays a unique role in the delivery of SBIRT in pediatric primary care. The guarantee of confidentiality is one of the bedrocks upon which adolescent medicine rest, and which increases access to care to vulnerable

populations[244,245] and makes possible precisely the kind of conversations between pediatricians and patients during which the disclosure of risky behaviors, including substance use, is more likely to occur.[246] At the same time, it frequently acts as a barrier to effective substance use prevention and intervention, at least in the minds of many pediatricians. The pediatricians I spoke to interpret the limits of the California adolescent confidentiality law differently, and navigate those limits and their role accordingly. These different interpretations of the law and confusion about clinical implications contribute to a widespread skittishness among many (though not all) generalist pediatricians about addressing risky substance use in primary care, which we hear reflected in many of the participants' thoughts on the different approaches to SBIRT and the referral process.

The providers' confusion over the limits of adolescent health services confidentiality is well-founded. The law and policies are nothing if not confusing, and involve a number of (sometimes contradictory) intersecting federal and state laws and regulations, including privacy regulations under the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Under HIPAA, the protected health information and privacy of adolescent patients is generally protected if they are acting as individuals and if parents have "assented to an agreement of confidentiality between the health care provider and the minor, which occurs most often when an adolescent is seen by a physician who knows the family." In such a case, "the parent is not the personal representative of the minor and does not automatically have the right of access to health information specific to the situation, unless the minor requests that the parent act as the personal representative and have access."[247] Under California state law, adolescents aged 12 or older can receive care for a number of "sensitive" services (birth control, pregnancy prevention, diagnosis and treatment, abortion, STI and other contagious

and reportable disease diagnosis and treatment, HIV testing, sexual assault care, alcohol and

drug counseling by federally assisted treatment programs, alcohol and drug counseling by

non-federally assisted treatment programs, and outpatient mental health treatment) without

parental consent. State regulations enacted to implement a recent state law specifying that

children 12 and older can consent to mental health and substance abuse treatment without

parental consent specify the following, seemingly contradictory statements:

> **Parent Access/Confidentiality Obligation**
> If the minor consents or could have consented to care, the
> provider only may share the minor's medical information with
> parents or guardian with the signed authorization of the minor.
> Cal. Health & Saf. Code §§ 123110(a), 123115(a); Cal. Civ. Code
> § 56.10(b)(7), 56.11(c); 45 C.F.R 164.502(g)(3); 45 C.F.R.
> 164.508(a).[248]

and

> **Discretion to Inform Parents without Minor's Authorization**
> The health care provider is required to involve a parent or
> guardian in the minor's outpatient treatment unless the health care
> provider decides that such involvement is inappropriate. This
> decision and any attempts to contact parents must be documented
> in the minor's record. When services are being provided under
> Health and Safety Code § 124260, providers must consult with the
> minor before making the determination concerning parental
> involvement. Involving parents in treatment will necessitate
> sharing certain confidential information; however, having them
> participate does not mean parents have a right to access
> confidential records. Providers should attempt to honor the
> minor's right to confidentiality to the extent possible while still
> involving parents in treatment. Cal. Fam. Code § 6924; 45 C.F.R.
> 164.502(g)(3)(ii); Health & Saf. Code § 124260(c).[248]

In general, the providers I spoke with tended to embrace a more conservative

interpretation of confidentiality guidelines, although there was clearly variation among them.

In order to gain more perspective on this issue, I spoke with experts in the field of

confidential adolescent health: Dr. Charles Wibbelsman,[249] recently retired pediatrician with

the Permanente Medical Group, former Chair of the KPNC Adolescent Medicine Specialists Committee, Professor of Pediatrics at UCSF, and past president of the California chapter of the AAP, and Dr. Sharon Levy,[250] Director of the Adolescent Substance Abuse Program at Boston Children's Hospital, Assistant Professor of Pediatrics at Harvard Medical School, and Chair of the AAP Committee on Substance Abuse. Both acknowledged the critical importance of confidentiality, and agreed that it should not be broken except in cases of acute safety concerns, but both felt strongly that this potential barrier is one that can be addressed using clinical skills and tools (e.g., scripts, educational materials, etc.) that can be easily learned and developed.

Dr. Wibbelsman emphasized the importance of leveraging the strong pediatrician-patient relationship to convince patients to reduce or stop their use and lower risk, include their parents in the conversation about their substance use, or if they would not agree to include their parents, to agree to an initial assessment conversation with an adolescent specialist at the chemical dependency treatment program.[249] Dr. Levy feels that often far too much is made of confidentiality and that it is used as an excuse for not addressing substance use with adolescent patients, and that the reticence with which this critical health issue is approached by many pediatricians is indicative of the stigma still surrounding substance use. For example, while it is widely accepted that experimentation with substances is a developmentally-appropriate, if undesirable, phase of adolescence, acknowledgement and frank discussions of substance use, among parents, providers and teens is still a very sensitive, if not outright taboo, topic, and rarely occur. In many cases however, particularly with regular use, parents are already more aware of their children's use than many teens realize (though not always, and often not of the full extent of use or related consequences),

and pediatricians can very often guide patients toward discussing their use with their parents, particularly if that conversation also includes a discussion of strategies or interventions to reduce use and health and other risks and consequences. Dr. Levy stated that she usually broaches the possibility of this kind of conversation with questions like: "What would your mom say if we talked to her about your weed smoking and talked about ways to help you cut back?" and that often teens come to understand how relieved their parents are likely to be to be able to discuss something that has been causing anxiety and tension in their relationship with their child, and agree to engage in the conversation.

In cases where use is less serious and parents are not yet aware, or if patients refuse to disclose to their parents (the types of situations frequently raised in the participant interviews), the brief interventions used in SBIRT, delivered by the pediatrician or an embedded behavioral health clinician, are appropriate and precisely the circumstances for which SBIRT was developed.

Such fears may be unfounded. Dr. Levy reported that in her experience, parents are so used to multidisciplinary teams being used in clinics that only once in 16 years of working in an adolescent health clinic has she come across a parent who questioned or resisted having their child speak to a behavioral health clinician. This is consistent with our experience in the parent RCT; during the entire two years of the trial, we did not encounter any parent complaints or hesitancy about having their teen speak with a behavioral health clinicians; in most cases parents were enthusiastic about having such a service available to their child. Dr. Levy's matter-of-fact "script" for this scenario: "As part of the well-check today we're also going to be talking about behavioral health with a specialist here" is echoed by one of the key informant pediatricians who was also very comfortable navigating this conversation and

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normalizing the use of a behavioral specialist: "So, I'm going to do a physical on you today. I'm really fortunate at this time. I've partnered up with Dr. XYZ, who does the mental health kind of check-in with teenagers." This approach of normalizing a behavioral health assessment as a standard part of the adolescent well visit is a key component of the Plan for Change below.

Growing awareness of the role of behavioral health and stigma. The interviews reflected the striking cultural and clinical ambivalence about behavioral health in general, and substance abuse and treatment in particular. There is clearly *both* a growing recognition of the significant role that behavioral health plays in health and well-being, and an accompanying, gradual acceptance of behavioral health treatment, *and* the persistence of considerable stigma, among patients, their families and providers. Many participants readily acknowledged the very high prevalence of behavioral health problems among their patients, the complex relationship between those problems and physical health , and that these concerns are particularly salient for adolescents. Yet it was clear that, particularly in the Kaiser system, physical health and other preventive activities tend to trump behavioral health screening and intervention. This prioritization is manifested in myriad ways: the unsystematic assessment of substance use risk that we found in the parent RCT, and the fact that pediatricians reported that they generally do not follow-up with families or behavioral health colleagues on the results of referrals to behavioral health when they most certainly would do so in the case of another specialty (e.g., dermatology, orthopedics, radiology).

Participants were very clear that stigma continues to affect the identification of problems, by making patients or their families hesitant to disclose concerns to pediatricians and other providers, and that it inhibits families' willingness to initiate and engage in

specialty treatment, particularly specialty substance abuse treatment. However, providers in both settings reported that patient and family reluctance could be broken down by being introduced to an embedded BHC by a trusted primary care provider. Providing a spectrum of behavioral health offerings – from pediatricians trained in early identification and brief intervention, to behavioral specialists, to classes and support groups – in pediatric primary care could go far toward lessening the barrier of stigma and increasing access to care.

Marijuana policy. While policy advocacy is not the focus of the Plan for Change below, the issue of marijuana policy, and its impact on the health and well-being of adolescents, and pediatric primary care practices with regard to marijuana use, bear mentioning. This is of growing concern as California seems to be moving toward full legalization of cannabis in the next few years. The San Francisco Bay Area is already awash in marijuana, and participants in both settings reported that many patients view marijuana as "natural" and its use as benign, and that many parents share this view. This view is consistent with the continuing decline found among U.S. adolescents in their perception of the harmfulness of marijuana use in recent Monitoring the Future surveys.[19] For many adults, marijuana probably *is* less harmful than many other substances, certainly than alcohol, but this is not the case for adolescents, and the public's (including teens', parents' and many providers') misunderstanding of the risks of adolescent marijuana use continues to complicate clinical identification and intervention efforts. However, there does seem to be a growing awareness among providers, spurred on by recent scientific discoveries, of the deleterious and potentially irreversible effects of marijuana on the adolescent brain, offering an opportunity to motivate pediatricians and other clinicians to step up prevention and early intervention efforts such as SBIRT. California clinicians, health systems and policymakers

also need to carefully study the experiences of other states and territories which have already legalized marijuana (Colorado, Washington, Oregon, Alaska, the District of Columbia) in terms of youth use and health problems, and plan clinical and system responses accordingly

Inner Setting

Time and competing priorities. Factors intrinsic to the Inner Setting, i.e., system and clinic level factors, were the most commonly mentioned, and as in many studies of adult settings,[238,251] time pressures and competing priorities, endemic in modern primary care settings, were identified by many as the biggest obstacles to SBIRT implementation. The impact of time pressure on primary care pediatricians cannot be overstated: most of the pediatricians I spoke with talked about being inundated by what they needed to accomplish within the very limited visit length (15 minutes), and several were frankly overwhelmed. They recited the litany of tasks they were required to complete, many tied to published guidelines and performance measures, and some which they felt had little value. Providers are forced to prioritize the activities they perform, and frequently, because of the perception of behavioral health as less crucial than other health problems discussed above or, because patients may not immediately endorse behavioral health problems, they are overlooked or short-changed. It is beyond the scope of this Plan for Change to advocate for an increase in visit length for adolescent well visits in Kaiser, but it is certainly something worth considering. Short of that, using other clinicians and staff, in a team approach to care, may offer a way to effectively "stretch" doctors' schedules while not reducing the number of patients who can be seen during the course of a day. While certainly subject to the same time pressures and demands of Kaiser providers, those in the FQHCs seemed to have more time flexibility than in Kaiser, providing perhaps more opportunity for implementing one or both models of SBIRT.

Screening and assessment instruments and the electronic health record. Most of the clinicians, across settings and departments/disciplines, reported little if any use of standardized instruments for assessing substance use problems. They often relied on home-grown tools and questions they have come to feel comfortable with, or instruments developed for adult and inappropriate for use with teens, which they learned in medical school (e.g., the CAGE). In some cases these were combined with tools their clinic had in place, usually embedded in larger screening instruments. While a few pediatricians who had become familiar with the CRAFFT tool through the training they received in the parent RCT discussed its ease of use, most clinicians did not use brief evidence-based tools, even when they were easily available to them in the EHR, along with clinical tools such as the ability to track patients' substance use over time. It is well established that clinical impressions of substance use are frequently inaccurate, and that structured, evidence-based screening instruments offer a quick, easy and far more accurate way to identify adolescent substance use problems.[252] Any attempt to implement more effective substance use prevention and early intervention must focus on training providers on the value, effectiveness and use of evidence-based, EHR-embedded screening and assessment instruments and clinical decision-support tools, such as brief intervention and referral algorithms and scripts.

Workflow and warm handoff. The effects on clinic workflow of the adoption of either model of SBIRT – either physicians taking on the components and increasing the time spent with patients, or introducing the introduction of a behavioral health clinician into the clinic – should not be underestimated. With the embedded behavioral health clinician model, while studies suggest that having the specialist come directly into the exam room is ideal, this also has implications for space and clinic flow. While the "warm hand-off" was praised for

its effectiveness in engaging patients, and generally described as working well, some participants had valid concerns about logistics, and even the most enthusiastic participants reported some hiccups, mostly related to exam room availability and how to handle the hand-off when the behavioral health clinician was busy with another patient. Thus implementation of either model must carefully consider potential logistical obstacles, and do everything possible to operationalize SBIRT in the least disruptive, most seamless way.

Workforce. Workforce considerations inform most of the discussions about barriers and facilitators of either modality of SBIRT. Adopting the embedded BHC model necessarily involves the use of an interdisciplinary primary care team, whether formally or informally, and raises questions of who the "Behavioral Health Clinician" is and what training and credentials they must have: Must they be a licensed behavioral clinician, such as a Clinical Psychologist, Licensed Clinical Social Worker or Marriage and Family Therapist? Could they be a nurse? Could they be a Clinical Health Educator, who is not be trained in psychotherapy, but may be quite well-trained in the motivational interviewing and enhancement techniques central to SBIRT? What about para-professionals, who are increasingly being used to great effect in many primary care and community health settings? Medical Assistants, who in many cases speak the home language of many patients and families, could be a possibility for performing some or all of the components of SBIRT; Medical Assistants trained to work at the top of their scope of work are engaged in similar activities in innovative pilot programs such as the "Ambulatory ICU" at Stanford University Hospital, where they are conducting assessments of patients' social determinants of health and providing case management services in order to address the high utilization and costs of "super utilizers." [253] However, such alternative workforce approaches, which could prove

more effective and efficient than current models, must be considered very delicately in the context of a very sensitive labor-management environment in Kaiser in which roles, and professional and bargaining unit scopes of work, have been painstakingly hammered out and are carefully guarded. Non-Kaiser policymakers I spoke with seemed open to considering different types of professionals, and were already experimenting with creative combinations of licensed and non-licensed personnel, to deliver various aspects of SBIRT. Acceptance of different types of professionals and para-professionals is thus likely to differ across other settings, where professional roles vary based on cultural and organizational norms and state laws.

Networks, linkages and communications between departments and organizations. Sub-optimal linkages, both inter- and extra-organizationally, between pediatric primary care and the other disciplines and departments and organizations which also impact adolescent behavioral health clearly act as powerful barriers in both settings studied. The lack of well-organized systems of communication and well-established functional relationships was quite striking, particularly within Kaiser, an ostensibly "integrated" system. There were few regular, formalized communication channels that actually worked well between Pediatrics and specialty behavioral health, either Child & Family Psychiatry or especially Chemical Dependency treatment. For example, chemical dependency providers rarely looped back to a patient's pediatrician to discuss treatment progress, in spite of having the tools – information release forms – available to allow that conversation. Similarly, pediatricians reported that they rarely followed up on their referrals to treatment (although most believed that they could not obtain any information because of the privacy firewalls in place around substance abuse treatment). There were few

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opportunities for interdisciplinary meetings, in-services or training, and most providers seemed resigned to this weak linkage as simply status quo. Much of the engagement between departments that did occur seemed to depend on the individual interest, motivation or dynamism of individual clinicians and relationships. Across the disciplines/departments, providers did not really understand the procedures or services of the other settings, and seemed to make little effort to learn about them. Even between the specialty behavioral health departments – Child & Family Psychiatry and Chemical Dependency – there were significant gaps in knowledge about services offered and treatment/program philosophies. Many pediatricians had very little idea of what occurs in either department, or what happens to the patients they refer for services. Few participants talked of trying to bridge these gaps or strengthen linkages.

Similar gaps were reported by the community-based providers, and were often exacerbated by the lack of capacity in the community behavioral health system, whether it was linguistic or dual diagnosis or simply availability.

Solutions for these weak linkages seem relatively straightforward, and many are proposed in the Plan for Change: convening regular inter-departmental (or inter-organizational, in the case of an implementation plan in a public setting) meetings where programs, services, procedures and emerging issues are discussed; creating opportunities for interdisciplinary trainings on topics of mutual interest (e.g., SBIRT); and creating clear information flow mechanisms between departments and removing obstacles to communication, such as establishing a default protocol whereby all patients (except those who refuse outright, of which there are very few) sign releases of information at chemical dependency treatment intake and their therapist automatically communicates relevant

treatment outcome information back to each patient's pediatrician. Counteracting the deeper divisions and entrenched attitudes which have led to these weak linkages will require not only the pragmatic steps above, and ongoing troubleshooting and technical assistance, but also a careful and continuous nurturing of the relationships between departments. The Plan for Change calls for the use of an "Implementation Facilitator" for both of these types of activities. It goes without saying that healthcare is an intrinsically personnel-driven industry, the result, largely, of transactions between humans – clinicians, staff and patients and their families – and relationships are critical to its smooth functioning. Nevertheless, the strong linkages required for effective care coordination should not have to rely on personal relationships between clinicians in different departments or organizations, or the enthusiasm of individual clinicians alone, particularly not in a highly systematic and theoretically integrated healthcare system like Kaiser. It is also especially incumbent upon specialty behavioral health departments/programs, particularly chemical dependency to take initiative and proactively reach out to pediatric primary care, to make them aware of the substance abuse treatment program offerings and procedures.

Leadership Engagement. Many participants discussed the important role of leadership in the adoption and implementation of new interventions, and it was clear that leadership creates environments that are conducive to innovation, or not, in large and small ways. Leadership activities which enable implementation include non-material elements such as endorsement of projects consistent with organizational vision, which can, in turn, influence others' reception of said initiative, as well as approving the use of tangible resources, such as funding, space and staff; as Aarons says about aligning leadership to make institutions conducive to implementation, in both "word and deed."[254] A pediatrician in an

FQHC made it clear that her clinic's administrator was a supporter of the embedded-BHC model, and advocated for the staffing and resources necessary to support it. It was clear that in a large, highly rationalized and systematic organization like Kaiser, the imprimatur of different levels of leaders – both executive level and local Physicians-in-Chief – is crucial for mustering resources and approvals, and catches the attention of clinicians.

Characteristics of the Individuals Involved

Provider knowledge, skills and self-efficacy. Providers' ability to either conduct SBIRT themselves, or to screen patients sufficiently to identify those in need of further assessment and effectively conduct a handoff to a behavioral specialist, relies on their knowledge, skills and confidence. Many participants felt that they lacked knowledge, skill and self-efficacy, and physicians reported only minimal behavioral health content during their medical training. Both approaches to SBIRT delivery will entail developing a deeper understanding of adolescent behavioral health risks, and acquiring concrete practical skills, such as motivational interviewing techniques and fluency with scripts for dealing with a variety of circumstances. This will require a multi-pronged process of training and dissemination, as well as a "marketing" campaign to address the stigma and attitudes that underlie pediatrician reticence to deal with substance use and other behavioral health concerns – a "hearts and minds" campaign to normalize SBIRT as an integral part of adolescent healthcare within Kaiser Permanente. While this is a tall order, it is achievable. While many pediatricians currently lack the knowledge and self-efficacy to provide their patients top-quality, integrated behavioral healthcare, as more than one participant said: "*everybody here wants to do the right thing,*" and given the chance and sufficient support, most are interested in acquiring new competencies. Provider training, role-play and technical assistance and support are thus key components of the Plan for Change.

Characteristics of the Intervention

Evidence strength and quality. Several participants indicated that evidence of the effectiveness of any intervention was important in determining implementability. Evidence provided something to "hang your hat on" or support your decision to adopt a certain practice, but pointed out that many common practices, including many prescribed by performance measures or clinical guidelines, were not evidence-based or connected to health outcomes. Several also noted that evidence alone, regardless of strength, was typically not enough to insure implementation, and that a variety of other factors – executive championship, support from local leaders, effective marketing, and "value" - were also necessary..

The evidence on the effectiveness of SBIRT for teens is small – especially when delivered in pediatric primary care – but growing.[4,5,67-69,71,81] There is also mounting evidence of the effectiveness of integrated behavioral health approaches in general for improving child and adolescent health.[255] As the evidence for SBIRT's effectiveness, and potentially its cost-effectiveness, accumulates, it should contribute to Kaiser's willingness to adopt SBIRT. Other evidence which may help to support SBIRT implementation is the growing literature on adolescent brain development and the effects of substance use, which seems to be particularly compelling to pediatricians. The implementation findings from the parent RCT already seem to have caught the attention of pediatricians in Kaiser, and several have contacted me to discuss how to implement elements of one or both models of SBIRT in their clinics, and as patient outcome findings emerge, SBIRT may gain even more momentum.

Cost. Several participants mentioned the importance of cost data in influencing the adoption of innovations. Cost studies are sorely needed, not only to demonstrate the cost-effectiveness of each model, but also to examine potential cost offsets. However, the kind of cost savings which have been so important in establishing the value of adult alcohol SBIRT in reducing the prevalence of expensive chronic health conditions and thus utilization and costs,[256,257] are more difficult to demonstrate in adolescents, who typically have yet to develop such costly substance use-related health conditions (except for accidents). Moreover, health systems have not, historically, had much of a *financial* interest in preventing problems that take many years to develop, because adolescents often left health plans once they turned 18, unless they remained covered by their parents' insurance while in college. Under the ACA however, adolescents are more likely to stay insured at least until age 26 through the Medicaid expansion and the health insurance exchanges, making their ongoing health and well-being of greater interest to health systems.

Perhaps even more crucial are studies which examine the costs of integrated behavioral health models using embedded behavioral health clinicians, in terms of the net productivity and efficiency of primary care providers.

Relative advantage of PCP model. As discussed earlier, a physician-delivered model of SBIRT has a number of strengths and offers an appealing approach to SBIRT. It draws upon the unique power of the physician-patient relationship, and studies suggest that guidance from physicians regarding substance use can be very effective.[67,258,259] There are a number of practical logistical considerations which also make this model appealing. Depending on the pediatrician's level of comfort with a hand-off to another clinician, or clinic space constraints, simply delivering a brief intervention themselves may offer a more

streamlined workflow. Pediatrician-delivered SBIRT also addresses some of the participants'

concerns about confidentiality: if patients are unwilling to disclose their substance use to

their parents and are unwilling to consider treatment initiation, a brief intervention delivered

in the privacy of the exam room may offer the best (and only) treatment option available.

Resources also play a key role in determining the model of SBIRT which will be possible, as

many Pediatrics clinics currently do not have embedded behavioral health clinicians, and

thus, this model may be the only option for many at this time.

A big question, however, is whether pediatrician-delivered SBIRT can realistically

be implemented. Although the past few years have seen efforts to incorporate more substance

abuse screening, assessment and treatment content into medical training programs, most

pediatricians still do not receive much training in this area. Even relatively brief physician

training can certainly improve SBIRT implementation rates, as we were able to demonstrate

in the parent RCT; patients of pediatricians in the pediatrician-only arm were 10 times more

likely to receive a brief intervention than patients from the usual care arm.[152] A number of

recent evaluations of attempts to incorporate SBIRT training into pediatric residency

curricula suggest that various methods, including in-person and on-line training can improve

physician knowledge, skills and self-efficacy, as well as self-report SBIRT delivery.[260-264]

Moreover, there are emerging, evidence-based, computerized clinician SBIRT training and

skills assessment applications which show great promise for training clinicians, and which

could be particularly helpful for skills maintenance or "boosters."

(https://resources.kognito.com/sbirt/SBI_with_Adolescents_Overview.pdf)

But can high-quality, physician-delivered SBIRT be implemented, effectively, in the

time Kaiser that pediatricians are allotted for adolescent well visits? It is unclear whether

they can realistically incorporate and sustain SBIRT delivery into their tightly scheduled workflows as they are currently organized. Pediatrics may be able to learn from experiments in Adult Medicine. Informed by research conducted by our research group,[130] alcohol SBIRT was implemented in Adult Medicine in KPNC in June of 2013, and since that time, over 4 million alcohol screenings have been conducted, and over 218,000 brief interventions. The success of that large-scale SBIRT implementation effort within Kaiser, and that of the Veteran's Administration,[162] suggest that large-scale implementation is possible, but will require a carefully designed implementation strategy and significant leadership support, and will need to take into account the factors unique to the pediatric setting, such as confidentiality, in order to succeed. It may be that adopting pediatrician-delivered SBIRT could be an interim step on the way to a more fully fleshed-out integrated behavioral health model.

Relative advantage of embedded BHC model. Based on participant responses, the concept of having an embedded behavioral health specialist available to help teens with substance use and other behavioral health problems is very appealing, to pediatricians and behavioral health providers alike. A number of Kaiser pediatricians thought that this was the best approach to SBIRT, because it would free up their time to provide the medical care they are trained to do by handing off potentially lengthy patient conversations to clinicians who are specially trained to deal with behavioral health. Doctors who had been in the embedded-BHC arm of the trial praised the model for how well it had worked in their practice and how well it had been received by patients and parents alike. Physicians in FQHCs that had adopted the model lauded its value, with one pediatrician saying that working in concert with

the BHC made it possible for her to do her job: "*There's no possible way we could work here without it.*"

Many would argue that an interdisciplinary model of integrated behavioral health which includes primary care-based, BHC-delivered SBIRT is simply better quality care. Team-based care seems especially appropriate for Pediatrics, which is intrinsically preventive. Integrated behavioral health models using embedded behavioral health clinicians harken back to origins of Patient-Centered Medical Home model in Pediatrics, and have been called for in the "Joint Principles for Integrating Behavioral Health Care into the Patient-Centered Medical Home" recently developed and endorsed by the American Academy of Family Physicians, the American Academy of Family Physicians Foundation, the American Board of Family Medicine, the Association of Departments of Family Medicine, the Association of Family Medicine Residency Directors, the North American Primary Care Research Group, the Society of Teachers of Family Medicine, the American Academy of Pediatrics, the American Osteopathic Association, the Collaborative Family Healthcare Association, the American Psychological Association, and the National Association of Social Workers[265-271]: "*Physical integration of a behavioral health professional into the PCMH is a particularly attractive strategy for improving both access and coordination, making possible warm handoffs at the moment patients or families are ready. This reduces stigma, improves adherence, and augments access to support groups, parenting programs, and other neighborhood services.*"[266]

Whether Kaiser leaders are willing to support an embedded-BHC model of SBIRT is unclear. Support involves considerable faith that the up-front investment of resources such as space and behavioral clinician salaries will prove cost-effective. More than ever, healthcare

systems base decisions about adopting practices on their estimates effect on the bottom line. Innovations with limited evidence of cost benefit, particularly if not seen as responding to "life and death" problems, may not be supported by leadership. Kaiser has attempted (and effectively abandoned) embedded BHC models of care in the past, albeit not in Pediatrics. The Kaiser behavioral health policymakers interviewed for this study were notably lukewarm about embracing such a system, even as they acknowledged its potential for improving access and quality of care. The embedded-BHC model may find more support among Pediatrics leaders, particularly if it can be demonstrated that it can improve physician efficiency and clinic workflow. A centerpiece of the Plan for Change is generating both executive and local leadership support for SBIRT implementation within Kaiser. The FQHC and other public setting participants seemed more enthusiastic about implementing embedded-BHC approaches, and all were either beginning the implementation process or had already adopted some version of the embedded model. None of the public-sector participants I spoke to had attempted to implement a model which relied on physicians delivering all aspects of SBIRT.

Implementation Process

The Plan for Change takes into account the responses from participants to questions about how new innovations are disseminated and adopted in their organizations, and what implementation practices they have observed which were successful, and which were less so. Kaiser policymakers downplayed the complexity of a large-scale implementation of SBIRT and suggested that simple physician training in the use of screening instruments would go a long way toward achieving implementation. The Kaiser clinicians often had not been involved in the planning and execution of new practice implementation and were more likely to have been on the receiving end of implementation efforts. Some spoke about the constant

stream of information about new practices: so much that it was hard to keep track of what new initiative was beginning, and how and when. With the exception of the leadership support discussed above, the only other implementation strategy Kaiser clinicians mentioned as successful was the "champion" system used throughout Kaiser. Most facilities have numerous clinical champions, each tasked with being a subject expert and resource for their colleagues, frequently also monitoring and encouraging colleagues' performance. The Teen SBIRT Initiative Plan for Change incorporates both these important implementation components.

One of the interviewees, whose job it was to implement adult SBIRT throughout a consortium of FQHCs across the county, had clearly considered the process of implementation thoughtfully, from the planning stage, through engagement, execution, reflection and including evaluation. She described in great detail a thoroughly laid-out plan that she and colleagues had developed for implementing SBIRT and other integrated behavioral health programs, including extensive (and intensive) training, practice and feedback regimens, technical assistance, and a carefully crafted evaluation plan. The program they had developed, in the comparatively low-resourced context of a publicly-financed community health center system was quite impressive, and could serve as a model for a system with far more resources like Kaiser Permanente.

In some ways, Kaiser Permanente would seem to offer an ideal setting in which to attempt large-scale implementation of one or both models of pediatric primary care-based SBIRT. It is an integrated healthcare delivery system, and as such has many of the structural elements described as necessary for integrated behavioral health in the PCMH Joint Principles Statement, including joint medical records and shared revenue streams, along with

a mature, robust EHR into which evidence-based tools can be incorporated. It has used such aspects of its system to great effect in improving population health in some areas, such as blood pressure control and heart attack incidence. However, while it appears very integrated from the outside, behavioral healthcare in Kaiser remains fragmented in numerous important ways. For the most part, pediatric primary care remains separate from behavioral health, and potent barriers – both structural and attitudinal – continue to limit communication between Pediatrics, Child & Family Psychiatry and Chemical Dependency, inhibiting coordination and quality of care for adolescents with behavioral health problems. In many ways, community-based organizations seem to do a better job at integrating behavioral health and meeting the psychosocial needs of adolescent primary care patients than an "integrated" delivery system like Kaiser. It is unclear why publicly funded primary care systems seem to be further along in integrating behavioral health than a system like Kaiser. The social and behavioral health needs of public populations may be more acute than those of Kaiser members, and therefore more clearly apparent. Public funding and healthcare reform regulations may include a combination of mandates and incentives designed to facilitate integration which don't affect private health plans like Kaiser, or it could be that the social mission of community health centers are more closely aligned with the patient-centeredness of integrated behavioral health. While there is some evidence in the literature that public institutions are less open to the adoption and implementation of new evidence-based interventions,[254] the people I spoke with suggested that public settings have better implementation or innovation climates,[82,272] are more willing to adopt SBIRT generally, and seem particularly open to models which use embedded behavioral specialists and other personnel to perform one or more components, in order to maximize provider efficiency and

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impact. Recently, however, Kaiser has begun to make attempts to address behavioral health in adult medicine, such as the aforementioned adult alcohol SBIRT initiative and the initiation of depression screening, in compliance with HEDIS performance measures. The Teen SBIRT Initiative Plan for Change described below builds on these earlier integration efforts in adult medicine and expands integration into Pediatrics through a comprehensive, multi-pronged strategy for adolescent SBIRT implementation across the KPNC region.

While many of the activities of the Plan for Change are discussed in relation to the Kaiser setting, most (though not all) can be relatively easily adapted to other settings, including the emphasis on provider training, the use of evidence-based instrument, the use of performance feedback and marketing strategies, activities to strengthen linkages between departments or organizations, and a comprehensive evaluation plan. Moreover, many of the activities described in the Plan can be applied not only to the implementation of SBIRT, but to behavioral health integration efforts more broadly. It should be noted however, that the context for this study – Kaiser Permanente – is a closed, integrated healthcare system with a capitated payment structure, and as such, is relatively unique. The inclusion of participants from public health systems helped somewhat to provide a broader frame of reference for gauging whether the barriers and facilitators identified in by the participants in Kaiser were unique to that system, or generalizable to other types of systems. While there were some dissimilarities between Kaiser and the public settings in the study, particularly having to do with the public clinics' seemingly greater openness towards adoption of integrated behavioral health strategies like SBIRT, overall there were more similarities than differences. This similarity may stem from the fact that these systems both have at least some access to behavioral health services, whether provided within the system or through formal,

established relationships between entities, as is often the case between public programs. Both of these types of systems also have payment structures which ostensibly incentivize the delivery of preventive services such as SBIRT as a way of keeping covered members healthier and controlling cost and utilization, including more costly specialty behavioral health services.

Whether these findings, as well as the foci and activities outlined in the Plan for Change strategy described below, are generalizable to other types of systems, is less clear. While healthcare payment structures are slowly moving toward risk- and value-based payments, including capitated payment mechanisms such as Kaiser Permanente's, fee-for-service remains the predominant model of payment structure in the U.S.[273,274] Most adolescents in this country receive care in healthcare systems which do not have integrated or easily accessible behavioral health resources (and are often not responsible for the costs of behavioral health services, if they are contracted out to behavioral health firms), and which have no financial incentives – no "skin in the game" – for providing services for which there is no clear cost offset. Such systems may face even greater challenges to SBIRT implementation than the kinds of systems examined here, and the implementation strategy outlined below may not, or may only begin to, address those challenges. For example, it could be much more challenging to establish a multi-disciplinary Teen SBIRT Community of Practice, the cornerstone of the Plan for Change, as a private for-profit or not-for-profit health system with "carved-out" behavioral health benefits. It would require significant coalition- and relationship-building effort when such a health system likely has even more tenuous ties to community behavioral healthcare providers than either of the systems described here, and it will be considerably more work, with less clear immediate benefits for

members. It may require working within existing collaborations with public systems or adolescent or behavioral health affinity groups, to involve such health systems in coalition with others pursuing SBIRT implementation. Other possible incentives might come as the result of the adoption of performance measures; NCQA is beginning to consider the adoption of adult SBIRT measures in its HEDIS guidelines, and although clearly a long way down the line, adoption of adolescent SBIRT HEDIS measures would also do much to propel less inclined systems toward implementation. At the same time, open healthcare systems, in contrast to Kaiser's closed system, might offer less change-averse contexts, where cultural and clinical norms are less predominant, and innovations more likely to be adopted. Future studies should examine the challenges to and opportunities for SBIRT implementation across diverse types of healthcare systems.

CHAPTER 9: PLAN FOR CHANGE

Teen SBIRT Initiative

This Plan for Change, the Adolescent SBIRT initiative, will employ a multi-pronged approach to the creation of a plan for the region-wide implementation of systematic, evidence-based screening, brief intervention and referral to treatment as needed, for adolescents in KPNC with behavioral health risks. This implementation plan is informed by the extant adolescent substance use prevention and treatment, SBI/RT and implementation literatures. It uses the framework provided by the Consolidated Framework for Implementation Research to guide the direction of its efforts. It also incorporates implementation findings from the parent adolescent SBIRT RCT. Most directly, the activities described below respond to the barriers, facilitators and issues raised during the course of Key Informant interviews conducted for this study.

The CFIR model, described briefly in Chapter 2, was chosen to conceptually frame this dissertation for a number of reasons. The CFIR model incorporates and synthesizes concepts and constructs from across the dissemination and implementation science literature, organizing them under the broad domains of Outer Setting, Inner Setting, Characteristics of the Intervention, Characteristics of the Individuals Involved, and Implementation process. The CFIR is extensive and comprehensive, and includes many constructs, yet is flexible, in that it was explicitly developed so that users could choose those constructs relevant to their particular intervention, organization and context. The CFIR was developed through a careful review of the existing implementation science literature, using at its foundation Trisha

Greenhaglh's seminal 2004 systematic review of the literature on diffusion of innovations within services organizations.[275] Greenhalgh et al.'s review drew on literatures from a wide range of disciplines, from evidence-based medicine, to rural/agricultural sociology to marketing and communications, and was itself deeply informed by the early work of implementation science pioneers such as Everett Rogers.[276] It culminated in the development of a unified model for thinking about the diffusion of innovations within organizations. In turn, Damschroder and colleagues built on Greenhalgh's model, adding new studies from the rapidly emerging dissemination and implementation literature which were not captured in Greenhalgh's review, and combining them into a "meta-theoretical" taxonomy which fills the conceptual gaps left in most models by including the most salient constructs from each, and combining those which were clearly redundant. The CFIR is not a process theory, in that it does not indicate relationships or mechanisms itself between constructs, but instead:

> "…specifies a list of constructs within general domains that are believed to influence (positively or negatively, as specified) implementation, but does not specify the interactions between those constructs. The CFIR does provide a pragmatic organization of constructs upon which theories hypothesizing specific mechanisms of change and interaction can be developed and tested empirically."

Moreover, the CFIR implementation model was not developed for a specific purpose, such as implementation planning or evaluation, as many such models are.

For these reasons, the CFIR provided what I felt was an ideal conceptual framework for this dissertation. Because it is not limited to a specific purpose, in the way, for example, that the RE-AIM model described below was specifically designed for implementation evaluation,[277] it can be used for research, planning, implementation itself and evaluation. Thus it was appropriate for shaping the development of the Key Informant interview guides and interviews, and for creating the thematic coding structure used for analyzing the

interview data, and for informing the resulting Plan for Change strategy, and as such,

provided a unified theoretical underpinning and enhanced conceptual continuity across the

enterprise. Because the CFIR does not specify directionality among constructs, it is entirely

consistent with the fundamentally inductive methodology of qualitative research, which

allows data to emerge and shape explanations and theory,[278] and with the agnostic approach I

have taken in this dissertation toward data collection, analysis and application, allowing

themes from participants' perspectives on SBIRT implementation barriers and facilitators to

emerge on their own, with a minimum of preconception.

Because it is not, as noted above, a process model itself, the CFIR is complementary

to such models and as such, could easily be used in conjunction with one or another of them.

For example, the RE-AIM framework, which is at this point one of the better-known models

in the dissemination and implementation literature, is now widely used for evaluating the

impact of public health innovations and the translation of evidence-based practices to real-

world contexts. RE-AIM was developed explicitly for evaluation however, and is an elegant,

straightforward model for measuring an intervention's effects on the Reach (proportion of the

target population participating in an intervention), Efficacy (success if implemented

faithfully), Adoption (proportion of settings which adopt intervention), Implementation

(extent to which an intervention is implemented as intended in the real world), and

Maintenance (the extent to which the intervention is sustained over time). Because RE-AIM

necessarily assumes at least initial implementation of an intervention, it would not be

appropriate for use alone in this study which aimed to identify factors which will likely act as

barriers and facilitators to SBIRT implementation, in order to counteract and exploit them,

respectively. However, RE-AIM could easily be incorporated into the evaluation activities of

the Plan for Change below, in conjunction with the CFIR, particularly as it relates to measuring sustainability.

Another implementation framework which was considered but ultimately rejected in favor of the CFIR is the PRISM (Practical, Robust Implementation and Sustainability Model).[279] More comprehensive and nuanced than RE-AIM, the PRISM mirrors many of the constructs of the CFIR which emerged as important, from the Key Informant data. In particular, like the CFIR, the PRISM explicitly recognizes and assigns great importance to the role of clinicians, staff and other individuals and their perceptions and attitudes, in the process of implementation, which was clearly very salient in this study of SBIRT implementation, given the outsized role of pediatricians and other pediatric clinicians in delivering SBIRT. It also takes into account the needs and desires of clients/patients on a much deeper level than does RE-AIM. Moreover, PRISM focuses careful attention on the role of coordination across departments or specialties – the lack of which emerged as a key barrier from the SBIRT Key Informant interviews, and relatedly, organizational structure and capacity. The scope of the constructs it includes and the nuance and depth with which they and their impact are characterized would make PRISM an excellent choice if this dissertation was strictly concerned with development of the Plan for Change. Nevertheless, the PRISM is a process model, designed explicitly for planning and executing implementation, and as such, I felt it did not lend itself as well to the data collection and analysis components of this dissertation as the CFIR, and because Damschroder included the PRISM in developing the CFIR, the Plan for Change thus benefits not only from PRISM constructs but those of others as well.

Over a three year period, the initiative will engage in a variety of activities designed to lay the groundwork for an enduring coalition and infrastructure for addressing the public health impact of adolescent substance use problems among adolescent members of KPNC, including a sustainability plan. The Plan for Change will work toward supporting both modalities of delivering SBIRT examined in this study – pediatrician delivered SBIRT and embedding a behavioral health clinician in pediatric primary care. The short-term goal is to establish a robust program of pediatric primary care-based SBIRT using pediatricians as the administering clinicians (and embedded behavioral health clinicians in the minority of KPNC facilities that have them). A longer-term goal is to advocate for the increased use of the embedded behavioral health clinician model across KPNC, though engagement with leadership, strategic communications and development of the evidence base for such models.

Major initiative foci:

1. Creation of a multi-disciplinary **Community of Practice** ("Teen SBIRT CoP") focused on adolescent SBIRT implementation and the adoption of other behavioral health prevention and early intervention activities for adolescents in KPNC,

2. Finalization of **evidence-based SBIRT instruments** for KPNC with stakeholder input and development of a suite of **evidence-based clinical protocols** for delivering Teen SBIRT,

3. Identification of **Teen SBIRT Pediatrics and Child & Family Psychiatry and Chemical Dependency Treatment Health Champions**,

4. Identification of a KPNC **Executive Sponsor** for Teen SBIRT implementation,

5. **Training** of pediatric primary care providers (PCPs) and staff, and Child & Family Psychiatry and Chemical Dependency Treatment health clinicians and staff,

6. Formalizing KPNC adolescent behavioral health response **infrastructure,**

7. Establish a regular **performance feedback** structure to spur clinical quality improvement,

8. Development of **Communications & Marketing plans** (for health system leadership, Pediatrics leaders, Child & Family Psychiatry and Chemical Dependency treatment leaders, clinicians, medical assistants, parents and patients), including creation of Teen SBIRT provider-, staff-, parent- and patient-facing materials and materials for dissemination of initiative activities to larger community,

9. Creation of a **Sustainability** plan which includes as a top priority the increased use of embedded behavioral health clinicians in pediatric primary care,

10. **Evaluation** of short-, mid- and long-term Teen SBIRT Initiative outcomes,

11. Provide national **scientific and policy leadership** on Teen SBIRT and Integrated Adolescent Behavioral Health.

Leadership approach for the Teen SBIRT Initiative team. The leadership approach that will guide the Teen SBIRT Initiative team's efforts draws from a number of theoretical traditions, and is explicitly informed by the work of theorists such as Alice Eagly, Margaret Wheatley, Bill George, Fred Walumbwa and Bruce Avolio,[280-286] using an ethics-driven, intentionally participatory[287] and collaborative approach. It will be guided by the principles of Authentic Leadership, an intrinsically multi-dimensional approach which takes into account multiple domains of leadership rather than focusing solely on a single aspect of leadership (e.g., only a leader's innate traits or the specific situational context), and which underscores the important role of *both* intrapersonal and interpersonal factors. Authentic Leadership also includes an explicit ethical component, such that leaders' actions are

purposeful, value-centered, and driven by personal conviction and internalized moral perspective.[284] This approach is well-suited to the Teen SBIRT Initiative as its overarching objective is to prevent and/or alleviate suffering and improve the health and well-being of adolescents. Apropos to the nature of many of the initiative's core activities, Authentic Leadership emphasizes the importance of interpersonal dynamics, with a focus on the reciprocal relationship between leaders and others; authenticity emerges from the nature and quality of interactions between leaders and other stakeholders, and relationships are characterized by transparency.[285] The Teen SBIRT initiative will involve constant and ongoing collaboration with a wide variety of stakeholders – clinicians of various types, health system leaders, patients, researchers – and relies on maintaining the trust and goodwill of stakeholders in order to encourage adoption, implementation and sustainability of Teen SBIRT.

Below I describe the specific foci and activities of the initiative. Each of the foci proposed in the Plan for Change responds to themes which emerged from the Key Informant interviews, many of which correspond directly to CFIR constructs, or to sub-themes identified through coding and analysis. Table 7 describes each CFIR domain and interview theme and the Plan for Change focus wherein it is addressed. Table 8 describes each Plan for Change focus in specific detail, and indicates (prior to the description of specific activities) the particular overarching CFIR domain(s) and CFIR constructs, and implementation barriers, facilitators or issues raised during the Key Informant interviews to which the activities respond.

Table 7. CFIR Domains/Interview Themes and corresponding Plan for Change Activities

CFIR Domains and Interview Themes	Plan for Change Focus										
	1	2	3	4	5	6	7	8	9	10	11
OUTER SETTING											
External Policies and Incentives											
Confidentiality		x			x	x					x
Cultural Attitudes and Mores about Substance Use								x			x
Growing Awareness of the Role of Behavioral Health		x		x				x			x
Stigma								x			
Marijuana Policy & Legislation								x			x
Performance Measures				x			x	x	x	x	
Insurance coverage, co-pays, co-insurance											
Billing/Financing											
Patient and Family Needs				x		x		x			
Comorbidity		x	x			x					
Parental Attitudes											
Linguistic		x									
Patient Behavior											
Family Behavior											
Clinical Acuity		x									
Logistics/Distance											
SES											
Gender											
Health Care Reform, ACA											
INNER SETTING											
Structural Characteristics											
Time, Appointment Length		x				x		x			
Screening, Assessment Instruments		x		x							x
Competing Priorities		x				x	x	x			
EHR		x		x			x			x	x
Workflow		x				x	x	x			
Workforce		x					x		x		
Protocols											
Warm Handoff		x									
Leadership Engagement			x	x		x	x		x		x
Networks and Communications		x	x	x		x					
Referral Process			x			x					

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	Plan for Change Focus										
Linkages between Departments		x	x	x		x					
Information back to Pediatricians about resolution of referral						x					
Consultation with Colleagues											
Infrastructure							x	x	x		
Community Resources											
Implementation Climate							x		x		
CHARACTERISTICS OF THE INTERVENTION Total											
Relative Advantage of BHC Model									x		x
Evidence Strength and Quality	x	x		x			x	x	x		x
Information Technology		x		x		x		x	x		x
Cost							x	x		x	x
Relative Advantage of PCP Model							x				x
Impact of Trial									x		
CHARACTERTISTICS OF THE INDIVIDUALS INVOLVED Total											
Provider Knowledge and Skills	x	x	x	x		x	x	x	x		
Provider Attitudes (Toward Substance Use)				x							
Provider Self-Efficacy	x	x		x		x		x			
Provider Perception of Role vis a vis Behavioral Health	x			x							
Medical Training				x							
IMPLEMENTATION PROCESS Total											
Planning	x	x	x	x		x			x		
Executing	x	x	x				x		x		
Training	x	x			x	x	x	x			
Engaging	x	x	x	x	x	x		x	x		
Reflecting	x	x				x		x	x	x	x
Evaluating							x		x	x	x

Table 8. Teen SBIRT Initiative Foci

Focus #1: Teen SBIRT Community of Practice

CFIR Domains: Inner Setting, Characteristics of Individuals Involved, Characteristics of Intervention, Implementation Process

Specific Interview Themes Addressed: Evidence strength and quality, provider self-efficacy, provider knowledge and skills, provider perception of role vis a vis behavioral health, planning, engaging, executing, reflecting, and training

Activities:

- Identify relevant KPNC stakeholders in Pediatrics and Adolescent Medicine physicians/other pediatric PCPs, Child & Family Psychiatry and Chemical Dependency program clinicians at *each KPNC facility*,

- Contact identified stakeholders directly by phone and email to solicit their participation,

- Request representation (and related administrative time to participate) from each facility, from facility-level leadership,

- Market Teen SBIRT CoP at relevant interest and workgroup meetings (e.g., Pediatric Chiefs, Adolescent Medicine Specialists, KP Inter-regional Pediatric Behavioral Health Workgroup), to raise awareness of adolescent substance use problems, co-occurrence and health implications and to recruit participation,

- Assemble a Teen SBIRT stakeholder strategy group, with representation from pediatric primary care, Child & Family Psychiatry, adolescent Chemical Dependency treatment, regional leadership, research,

- Create a Teen SBIRT Facilitator position to staff and support Teen SBIRT CoP and to provide technical assistance to clinical staff during implementation,

- Convene an annual in-person meeting and quarterly, webinar-format Collaborative Teen SBIRT CoP meetings,

- Communicate regularly with Teen SBIRT CoP members to disseminate information and nurture and maintain a sense of shared purpose and enthusiasm

  Creation of the Community of Practice responds to a number of themes from the

  interviews, across the CFIR domains, and lays the groundwork for the rest of the

  activities of the initiative. Much of the early leadership work of the Teen SBIRT

Initiative will involve relationship building, and nurturing individuals' and groups natural tendency to self-organize.[286] To that end, we will work to maximize the influence and effectiveness of the Teen SBIRT Initiative and the Teen SBIRT CoP by fostering healthy, supportive and respectful relationships and communication between the CoP members, across disciplines.[286]

Focus #2: Evidence-based SBIRT instruments and protocols

CFIR Domains: Outer Setting, Inner Setting, Characteristics of Intervention, Implementation Process

Specific Interview Themes Addressed: Patient needs (acuity, linguistic, cultural, comorbidities), growing awareness of the role of behavioral health, time, screening and assessment instruments, competing priorities, workflow, workforce, warm handoff, networks and communications, linkages between departments, evidence strength and quality, provider self-efficacy, provider knowledge and skills, EHR, IT, planning, engaging, executing, reflecting, and training

Activities:

- Conduct an updated scan of state-of-the-art of Teen SBIRT screening and assessment instruments, interventions and practices,

- Assemble a set of core standardized Teen SBIRT screening and assessment measures, suitable for use in pediatric primary care,

- Develop a clinical workflow for responding to Teen SBIRT screening, based on Teen SBIRT RCT workflow but incorporating Key Informant Interview data,

- Carefully review State of California Adolescent Confidential Health Services laws and regulation and develop commonsense interpretation of confidentiality constraints,

- Obtain consensus on instruments and workflow, first from CoP, then from other relevant KPNC pediatric groups, including the Adolescent Medicine Specialists, Pediatric Chiefs, Child & Adolescent Psychiatry Performance Excellence Group and Adolescent Chemical Dependency Coordinating Committee,

- Teen SBIRT Project Strategy Group members and Teen SBIRT Implementation Facilitator will work with KP HealthConnect (EHR) Information Technology team to get screening and assessment tools and clinical decision support tools incorporated into the EHR,

- Teen SBIRT Project Strategy Group members and Teen SBIRT Implementation Facilitator will provide technical support to the Teen SBIRT CoP and clinicians throughout the organization throughout the implementation and maintenance period

An important early activity of the Teen SBIRT Initiative will be to review and agree upon an evidence-based, feasible set of core Teen SBIRT screening and assessment measures and intervention and referral protocols, through consensus of the Teen SBIRT CoP and informed by our current KP-based research, the research literature, expert consultation and best practices, which obviously responds most directly to the construct of evidence strength and quality, but cuts across a number of other constructs and themes as well. Our approach for this activity will use implementation science techniques to transfer "gold standard," evidence-based instruments and interventions whose efficacy and effectiveness have been tested in experimental trials such as the parent Teen SBIRT RCT, and adapt them if necessary to the KPNC pediatric primary care setting with clinician input, in a manner which will maximize the external validity of our approach for future scaling up and spread. This approach takes into account factors such as strength of the evidence, scalability of the intervention, characteristics of the patients receiving and providers delivering the interventions, and the organizational and environmental contexts for the intervention.[288,289]

Focus #3: Teen SBIRT Clinical Champions

CFIR Domains: Outer Setting, Inner Setting, Characteristics of Individuals Involved, Implementation Process

Specific Interview Themes Addressed: Patient comorbidities, networks and communications, linkages between departments, leadership engagement, provider knowledge and skills, referral process, planning, engaging, executing

Activities:
- Meet with Pediatrics Chiefs, Child & Family Psychiatry Chiefs, Adolescent CD Program Directors, Facility Physicians-in-Chief to communicate Teen SBIRT Initiative Activitys, describe workflow logistics and solicit support,
- Identify Teen SBIRT clinician champions in each facility, in Pediatrics, Child & Family Psychiatry and Chemical Dependency,
- Establish a Teen SBIRT Clinical Champion information dissemination protocol, based on current KPNC clinical champion best practices

Focus #4: Leadership Support

CFIR Domains: Outer Setting, Inner Setting, Characteristics of Individuals Involved, Characteristics of Intervention, Implementation Process

Specific Interview Themes Addressed: Patient needs, growing awareness of the role of behavioral health, performance measures, ACA, networks and communications, linkages between departments, leadership engagement, evidence strength and quality, EHR & IT, planning and engaging

Activities:

- Meet with Pediatrics Chiefs, Child & Family Psychiatry Chiefs, Adolescent CD Program Directors, Facility Physicians-in-Chief to communicate Teen SBIRT Initiative objectives, describe workflow logistics and solicit support,

- Identify leadership champions of Teen SBIRT Initiative,

- Teen SBIRT Strategy Team, with support and assistance from leadership champions, seek executive sponsorship at Associate Executive Director level

The involvement and engagement of leaders from all levels of an organization can increase its openness to innovation as well as providing critical resource support. In healthcare settings, particularly large systems such as Kaiser Permanente and county health systems, system-level leaders frequently determine organizational priorities and funding capacity at the local level, which in turn can determine clinics' ability to consider implementation of new practices.[254] Moreover, leadership support, both in terms of vision and material support, can often effectively enable or prevent the sustainability of newly adopted practices.[110] Plan for Change activities thus focus on fostering leadership support at all organizational levels.

Focus #5: Training

CFIR Domains: Inner Setting, Characteristics of Individuals Involved, Characteristics of Intervention, Implementation Process

Specific Interview Themes Addressed: Evidence strength and quality, screening and assessment instruments, provider self-efficacy, provider knowledge and skills, medical

training, provider attitudes toward substance abuse, provider perceptions of role vis a vis behavioral health, EHR, engaging, and training

Activities:

- Develop pediatric primary care provider, pediatric primary care staff, and behavioral health clinician training programs and materials on Teen SBIRT screening, assessment, brief intervention and referral workflows,

- Develop sample scripts for sensitive discussions with specific emphasis on confidentiality issues,

- Conduct trainings across region:

    o 2 pediatrician lunchtime trainings which include clinician roll-play, w CMEs, per Pediatrics department

    o 1 Pediatrics department staff (e.g., Medical Assistants, Reception) lunchtime training per department

    o 1 Child & Family Psychiatry training per facility, with CEUs

    o 1 Chemical Dependency program training per facility, with CEUs

- Offer technical assistance, training webinars and provider telephonic provider coaching on Teen SBIRT identification and brief intervention

    Efforts with clinicians will be informed by adult learning theory, leadership models

which emphasize relationship and coalition building, and implementation science

frameworks such as the CFRI which stress the importance of inter-organizational networks

and an ecological orientation.[82,275]

Focus #6: Infrastructure

CFIR Domains: Outer Setting, Inner Setting, Characteristics of Individuals Involved, Implementation Process

Specific Interview Themes Addressed: Patient needs, comorbidity, time, competing priorities, workflow, networks and communications, linkages between departments, leadership engagement, referral process, information back to pediatricians about resolution of referral, provider self-efficacy, provider knowledge and skills, IT, planning, engaging, reflecting, and training

Activities:

- Facilitation of inter-departmental/inter-disciplinary (pediatrics, psychiatry, chemical

dependency) relationships between clinical champions at each facility,

- "Matchmaking" introduction emails sent to clinical champions at each facility,

- Support for regular meetings and information sharing between champions,

- Encourage free flow of relevant information between departments through establishment of consistent practice of obtaining consent-to-release information to pediatricians for patients entering specialty behavioral health treatment,

- Establish protocol for consistent follow-up information from specialty behavioral health clinicians back to referring pediatrician

Focus #7: Performance Feedback

CFIR Domains: Inner Setting, Characteristics of Individuals Involved, Implementation Process

Specific Interview Themes Addressed: Performance measures, EHR, competing priorities, workforce, workflow, infrastructure, implementation climate, leadership engagement, IT, relative advantage of different modalities of SBIRT, provider knowledge and skills, executing, evaluating, training

Activities:

- Create facility-, provider- and medical assistant-level performance feedback report templates,

- Identify target audiences for performance feedback reports, e.g., Pediatric Chiefs, medical assistant managers, relevant executive leaders,

- Establish process and schedule for dissemination of performance feedback data,

- Encourage use of feedback reports for performance improvement efforts, through a combination of encouragement, incentives, and competition, using un-blinded performance reporting once Initiative is established

Focus #8: Communications & Marketing

CFIR Domains: Outer Setting, Inner Setting, Characteristics of Individuals Involved, Characteristics of Intervention, Implementation Process

Specific Interview Themes Addressed: Patients and families, marijuana policy, stigma, growing awareness of the role of behavioral health, cultural attitudes about substance use, performance measures, time, competing priorities, workflow, infrastructure, leadership engagement, evidence strength and quality, cost, IT, provider self-efficacy and knowledge and skills, engaging, leadership, training

Activities:

- Create and curate an Teen SBIRT CoP Wiki on-line, as a repository for Teen SBIRT screening and intervention materials and community forum,

- Develop email lists for easy communications,

- Develop and disseminate a brief, monthly Teen SBIRT Initiative email newsletter, with news from the field, clinical tips and integrated adolescent behavioral health advocacy tools,

- Create a marketing plan targeted at KPNC clinical leaders, policymakers and executive leadership focused on positioning Teen SBIRT screening and intervention as an approach which will set Kaiser Permanente apart from other healthcare systems as a leader in adolescent behavioral health,[290]

    o E.g., the physician-focused marketing approach will be positioned as providing "tools" for the pediatrician's "toolbox" and offering means (skills development, clinical tools, etc.) which can help to improve practice management, meet quality and performance measurement goal for preventive services, and address adolescent risk behaviors that many physicians find frustrating to treat. The marketing messages directed at physicians will also emphasize SBIRT's potential to help reduce patient office visits,

- Creation of a KPNC region-wide marketing campaign focused on children, adolescents and the deleterious impact of alcohol and drug use, problems and comorbidity, to raise awareness of adolescent substance use as a critical public health issue

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Focus #9: Sustainability

CFIR Domains: Outer Setting, Inner Setting, Characteristics of Intervention, Implementation Process

Specific Interview Themes Addressed: Performance measures, workforce, infrastructure, implementation climate, evidence strength and quality, cost, IT, impact of trial, leadership engagement, relative advantage of BHC model, provider knowledge and skills, planning, engaging, executing, reflecting, leadership and evaluating

Activities:

Short-term:

- The Teen SBIRT Initiative Strategy Group will create a plan for sustainability which will include eventual situation of Teen SBIRT Initiative functions in an appropriate

operational "home," e.g., as a function of a sub-committee of the Adolescent Medicine Committee, or Regional Health Education, or Pediatrics,

- A first activity of the sustainability plan will be to obtain funding to support .25 - .5 FTE of Teen SBIRT Implementation Facilitator role and .10 data analyst role,

Longer-term:

- Development of a business plan and organizational advocacy strategy to gain leadership support and marshal organizational resources for a spectrum of pediatric primary care-based behavioral health services for adolescents, including particularly the adoption of a model of universal embedded behavioral health clinicians;
    - this effort will involve use of both existing and new cost-effectiveness/cost-offset research to support resource allocation, as well as clear communication to executive leadership of the value such a model will add to Kaiser Permanente's organizational product and profile as a leader in preventive health.

Achieving this objective will require engaging in advocacy activities aimed at incorporating Teen SBIRT screening and intervention into the regional standards of care and workflows, and ultimately securing funding for ongoing service delivery, including the increased use of embedded behavioral health clinicians across the region. It will be informed by those components of implementation science frameworks which provide guidance on best practices for facilitating the institutionalization and maintenance of public health interventions.[82,275] We will use sustainability measures ("the extent to which (it) becomes routine and part of the everyday culture and norms of the organization") from the RE-AIM to measure maintenance of the implementation.[291,292]

Focus #10: Evaluation
CFIR Domains: Outer Setting, Inner Setting, Implementation Process **Specific Interview Themes Addressed:** Performance measures, EHR, IT, reflecting, evaluating
Activities: Creation of an evaluation plan for the initiative, incorporating measures which allow for

both short- and long-term evaluation. Our evaluation plan will draw heavily from the

practical evaluation framework developed by the CDC,[237] in which stakeholder perspectives

are kept at the forefront and the focus is on feasibility and usability of findings, including the

following steps:

- o Conducting a systematic analysis of stakeholders, formally describing their interests in the project to be, as well as how we envision them using the results of the evaluation.[177]

- o Engaging stakeholders from within and external to the project and the Teen SBIRT CoP to help guide the evaluation from the beginning

- o Describing The Program

- o Focusing The Evaluation

- o Gathering Credible Evidence

- o Justifying Conclusions

- o Ensuring Use of Evaluation Findings and Share Lessons Learned

- o Creating a detailed logic model describing the initiative's inputs, activities, outputs, short-, intermediate- and long-term outcomes, and develop a program theory to describe the theoretical model for the initiative

- o Developing short- and medium-term measures for clinical performance measurement and outcomes monitoring, for the specific initiative activities,

- o Developing longer-term measures for evaluating the overall health impact of the initiative,

- o Using operational data, documentation processes and analytics effort to the extent possible to maximize efficiency, and adapting and supplementing existing operation data as necessary for evaluation,[293]

- o Dissemination of interim and final evaluation data will be made to the stakeholder evaluation committee, and the larger Teen SBIRT CoP and community healthcare provider partners.[177]

Performance Feedback Data

- Initiative staff will work with operational metrics and analytics departments (e.g., Quality and Operations Support department) to establish data reporting relationships, in order to obtain a stable source and flow of monthly Teen SBIRT Initiative performance data, for the performance feedback activities described in Activity #7,

- Creation of standardized performance measure reports (figures and graphics) for monthly dissemination to executive and facility-level leaders and clinicians,

- Teen SBIRT Strategy staff will be tasked with monitoring documentation and data collection, in order to ensure the availability of consistent data points, and will troubleshoot and provide technical assistance as necessary

Focus #11: Scientific and Policy Leadership on Teen SBIRT

CFIR Domains: Outer setting, Characteristics of the intervention

Specific Interview Themes Addressed: Growing awareness of the role of behavioral health, cultural attitudes and mores about substance use, marijuana policy and legislation, EHR, screening and assessment instruments, evidence strength and quality, relative advantage of different models of SBIRT, cost, IT, reflecting, evaluating, leadership

Activities:

- Continuing to pursue extramural funding to conduct research on SBIRT and other integrated pediatric behavioral health approaches,

- Continuing to contribute to the peer-reviewed scientific literature on this topic,

- Continuing to disseminate research and evaluation finding through a variety of mechanisms, such national and international conferences and meetings, advisory boards and social media,

- Conducting frequent literature searches to stay abreast on developments in this and related fields,

- Contributing to the national and international scientific dialogues about adolescent SBI/RT, and to policy conversations about best practices for adolescent substance use problem prevention and early intervention

APPENDIX A: COMPLETE LIST OF CFIR CONSTRUCTS

Adapted from Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC: Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science

RED BOLD font indicates constructs chosen, a priori, for qualitative coding themes

		Topic/Description	Short Description
I. INTERVENTION CHARACTERISTICS			
	A	Intervention Source	Perception of key stakeholders about whether the intervention is externally or internally developed.
	B	**Evidence Strength & Quality**	Stakeholders' perceptions of the quality and validity of evidence supporting the belief that the intervention will have desired outcomes.
	C	**Relative advantage**	Stakeholders' perception of the advantage of implementing the intervention versus an alternative solution.
	D	Adaptability	The degree to which an intervention can be adapted, tailored, refined, or reinvented to meet local needs.
	E	Trialability	The ability to test the intervention on a small scale in the organization [8], and to be able to reverse course (undo implementation) if warranted.
	F	Complexity	Perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement
	G	Design Quality and Packaging	Perceived excellence in how the intervention is bundled, presented, and assembled
	H	**Cost**	Costs of the intervention and costs associated with implementing that intervention including investment, supply, and opportunity costs.
II. OUTER SETTING			
	A	**Patient Needs & Resources**	The extent to which patient needs, as well as barriers and facilitators to meet those needs are accurately known and prioritized by the organization.
	B	Cosmopolitanism	The degree to which an organization is networked with other external organizations.
	C	Peer Pressure	Mimetic or competitive pressure to implement an intervention; typically because most or other key peer or competing organizations have already implemented or in a bid for a competitive edge.
	D	**External Policy & Incentives**	A broad construct that includes external strategies to spread interventions including policy and regulations (governmental or other central entity), external mandates, recommendations and guidelines, pay-for-performance, collaboratives, and public or benchmark reporting.
III. INNER SETTING			
	A	**Structural Characteristics**	The social architecture, age, maturity, and size of an organization.
	B	**Networks & Communications**	The nature and quality of webs of social networks and the nature and quality of formal and informal communications within an organization.
	C	Culture	Norms, values, and basic assumptions of a given organization.
	D	Implementation Climate	The absorptive capacity for change, shared receptivity of involved individuals to an intervention and the extent to which use of that intervention will be rewarded, supported, and expected within their organization.
	1	Tension for Change	The degree to which stakeholders perceive the current situation as intolerable or needing change.
	2	Compatibility	The degree of tangible fit between meaning and values attached to the intervention by involved individuals, how those align with individuals' own norms, values, and perceived risks and needs, and how the intervention fits with existing workflows and systems.
	3	Relative Priority	Individuals' shared perception of the importance of the implementation within the organization.
	4	Organizational Incentives & Rewards	Extrinsic incentives such as goal-sharing awards, performance reviews, promotions, and raises in salary and less tangible incentives such as increased stature or respect.

Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC: Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science

	5	Goals and Feedback	The degree to which goals are clearly communicated, acted upon, and fed back to staff and alignment of that feedback with goals.
	6	Learning Climate	A climate in which: a) leaders express their own fallibility and need for team members' assistance and input; b) team members feel that they are essential, valued, and knowledgeable partners in the change process; c) individuals feel psychologically safe to try new methods; and d) there is sufficient time and space for reflective thinking and evaluation.
E		Readiness for Implementation	Tangible and immediate indicators of organizational commitment to its decision to implement an intervention.
	1	**Leadership Engagement**	Commitment, involvement, and accountability of leaders and managers with the implementation.
	2	Available Resources	The level of resources dedicated for implementation and on-going operations including money, training, education, physical space, and time.
	3	Access to knowledge and information	Ease of access to digestible information and knowledge about the intervention and how to incorporate it into work tasks.

IV. CHARACTERISTICS OF INDIVIDUALS

A		**Knowledge & Beliefs about the Intervention**	Individuals' attitudes toward and value placed on the intervention as well as familiarity with facts, truths, and principles related to the intervention.
B		**Self-efficacy**	Individual belief in their own capabilities to execute courses of action to achieve implementation goals.
C		Individual Stage of Change	Characterization of the phase an individual is in, as he or she progresses toward skilled, enthusiastic, and sustained use of the intervention.
D		Individual Identification with Organization	A broad construct related to how individuals perceive the organization and their relationship and degree of commitment with that organization.
E		Other Personal Attributes	A broad construct to include other personal traits such as tolerance of ambiguity, intellectual ability, motivation, values, competence, capacity, and learning style.

V. PROCESS

A		**Planning**	The degree to which a scheme or method of behavior and tasks for implementing an intervention are developed in advance and the quality of those schemes or methods.
B		**Engaging**	Attracting and involving appropriate individuals in the implementation and use of the intervention through a combined strategy of social marketing, education, role modeling, training, and other similar activities.
	1	Opinion Leaders	Individuals in an organization who have formal or informal influence on the attitudes and beliefs of their colleagues with respect to implementing the intervention
	2	Formally appointed internal implementation leaders	Individuals from within the organization who have been formally appointed with responsibility for implementing an intervention as coordinator, project manager, team leader, or other similar role.
	3	Champions	"Individuals who dedicate themselves to supporting, marketing, and 'driving through' an [implementation]" [101](p. 182), overcoming indifference or resistance that the intervention may provoke in an organization.
	4	External Change Agents	Individuals who are affiliated with an outside entity who formally influence or facilitate intervention decisions in a desirable direction.
C		**Executing**	Carrying out or accomplishing the implementation according to plan.
D		**Reflecting & Evaluating**	Quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.

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Teen SBIRT Interview Guide – Kaiser Clinical Staff

Study ID: _____

Job Title: _____

Date of Interview: _____

Treatment Arm: _____

We'd like to invite you to participate in an interview to get a better understanding of your thoughts and experiences about addressing alcohol and drug use and other behavioral health problems in pediatrics. The interview will include both structured and open-ended questions. We will ask about preventive services in your clinic, alcohol and drug screening practices and policies in your clinic, and training you may have had for alcohol and drug screening and treatment or referral. We will not ask questions about any specific patients. The interview will last approximately 40 minutes.

Your participation is voluntary and you may refuse to answer or skip any of the questions. Participation, refusal, or withdrawal from this study will not affect your employment status at Kaiser Permanente. Study staff will **not** disclose your

study participation (or non-participation) to other clinicians, health plan administrators, or anyone else, unless compelled by law. All information obtained from you will be kept strictly confidential. The information you provide will be combined with the information from other participants and will only be presented as group results. Any reports or publications about the study will not identify you or any other study participant. You will not be asked for any personal information and we will not record your name as part of the interview.

We do not expect that you will get any personal benefit from being in this study, but participating in a research study is often rewarding. In addition, your feedback

combined with the feedback from other participants will help us improve the delivery of and access to health care for our members and do so in a way that works best for Kaiser Permanente providers and staff.

With your permission, I would like to record our interview. Tapes and transcriptions will be destroyed at the end of the research study. May I record the interview?"

Are there any questions that you have about the research study or the interview?

<u>**For All Clinicians**</u>

I'm going to start out with some questions about how you generally handle your patients' behavioral health concerns.

Can you walk me, step by step, through what happens if you feel like one of your patients is at risk for alcohol or drug problems, or mental health problems?

[Prompt: e.g., if a patient screens positive for alcohol or drug use, or emotional problems, on the Teen Well Check Questionnaire?]

How do you communicate to them that you are concerned about a behavioral health issue?

How does the conversation usually go?

[Probes: How do the patients usually respond? Do you mention anything about alcohol or drugs?

How do you involve parents in discussions about behavioral health problems?

How do parents/guardians usually respond?

At what point would you break confidentiality, if you were concerned about the teen's wellbeing but they didn't want to tell their parents?

Based on your experience, how would you compare teens' confidentiality concerns about substance use versus mood and anxiety problems versus contraception and sexual health?

What is your sense of the strength of the evidence for SBIRT for teens?

Can you talk about how much the evidence about an intervention matters to you, in terms of using it, or if other factors, like it being included in the EHR, are more important?

What do you see as the biggest barriers to implementing alcohol and drug Screening, Brief Intervention and Referral to Treatment (SBIRT) in pediatrics?

What would facilitate its implementation?

Ideally, if you could imagine or design a program to address substance use and similar issues with your teen patients, what would that look like?

What sort of organizational resources would need to be brought to bear to make that happen?

[Probes: Space? Staff? Training? Executive sponsorship?]

If behavioral health became a bigger priority, would something else take a back seat?

Who do you think is the best person or role to <u>screen for at-risk alcohol or drug problems</u> in Pediatric Primary Care settings?

MA
Primary Care Provider
Nurse
BMS
CHE/HEALTH EDUCATOR
Other: _____

Probes: Why? For example, efficiency, qualifications? If not an MA, why not an MA?

Who do you think is the best person or role to give <u>a brief intervention for at-risk alcohol or drug problems</u> in Primary Care settings?

E.g.:
MA
Primary Care Provider
Nurse
BMS
CHE/HEALTH EDUCATOR
Other: _____

Probes: Why? For example, efficiency, qualifications?

Only for Pediatricians in the PCP arm of the study (who were trained to deliver SBIRT)

Since the Teen SBIRT study, on a scale of 1 to 10, where 1 means not at all prepared, and 10 means completely prepared

     To what extent you feel prepared to conduct brief interventions for at-risk drinking?

     To refer to treatment?
Is there anything (either about the training or otherwise) that could have increased widespread use of the Teen SBIRT intervention?
What, if anything, facilitated its use or could help do so?

What is your sense of how beneficial the SBIRT procedures have been for patients, as they were implemented?

Only for those in the BHC arm of the study (who were trained to refer teens to the BHC)

How do you think that the Behavioral Health Clinician meeting with teens in your exam room might impact you referring to the Teen Healthy Lifestyle Check-Up?

How did it impact your workflow?

In what ways does the Behavioral Health Clinician meeting in the exam room make it easier or harder to engage the teen?

[*Probes*:

> To maintain privacy for the teen?
>
> To coordinate other services the teen will receive in the appointment (vaccinations, sexual health check-ins, etc.)?
>
> To reduce stigma experienced by teens and/or their parents?
>
> Did you ever decide not refer a patient to the Teen Healthy Lifestyle Check-Up because you did not want to risk a parent becoming aware of substance use? If so, please explain your concerns.
>
> Also for emotional health concerns?

Is there anything (either about the training or otherwise) that could have increased widespread use of the Teen Healthy Lifestyle Check-Up?

What might be potential barriers to using the Teen Healthy Lifestyle Check-Up?

What was the impact of the Teen Healthy Lifestyle Check-Up upon patient care?

What was the impact of the Teen Healthy Lifestyle Check-Up upon your workflow/workload?

Can you describe the most appropriate type of patient to refer to the Teen Healthy Lifestyle Check-up?

<u>For All Clinicians</u>

Do you feel that you have enough information about how to refer directly to the Behavioral Health services if you wanted to? If not, what sort of information would you like to know about the programs or the referral process?
Can you tell me about any barriers you have encountered trying to refer patients to Chemical Dependency or Child & Family Psychiatry?

What could make that process work more smoothly?

What type of a patient do you typically refer to Chemical Dependency treatment?

What type of patient do you typically refer to the Child & Family Psychiatry department?

After a referral to the Chemical Dependency Program or Child & Family Psychiatry, do you generally get feedback from the program or patient about whether they accessed treatment?

Anything else you'd like to comment on, about the Teen Healthy Lifestyle Check-Up, or about the screening and treatment of behavioral health problems for teens in pediatrics?

What kinds of questions or concerns or feedback have patients or their parents had about any of the SBIRT activities?

Teen SBIRT Interview Guide – Kaiser Policymakers

Study ID: _____

Job Title: _____

Date of Interview: _____

Treatment Arm: _____

We'd like to invite you to participate in an interview to get a better understanding of your thoughts and experiences about addressing alcohol and drug use and other behavioral health problems in pediatrics. The interview will include both structured and open-ended questions. We will ask about preventive services in your clinic, alcohol and drug screening practices and policies in your clinic, and training you may have had for alcohol and drug screening and treatment or referral. We will not ask questions about any specific patients. The interview will last approximately 40 minutes.

Your participation is voluntary and you may refuse to answer or skip any of the questions. Participation, refusal, or withdrawal from this study will not affect your employment status at Kaiser Permanente. Study staff will **not** disclose your

study participation (or non-participation) to other clinicians, health plan administrators, or anyone else, unless compelled by law. All information obtained from you will be kept strictly confidential. The information you provide will be combined with the information from other participants and will only be presented as group results. Any reports or publications about the study will not identify you or any other study participant. You will not be asked for any personal information and we will not record your name as part of the interview.

We do not expect that you will get any personal benefit from being in this study, but participating in a research study is often rewarding. In addition, your feedback

combined with the feedback from other participants will help us improve the delivery of and access to health care for our members and do so in a way that works best for Kaiser Permanente providers and staff.

With your permission, I would like to record our interview. Tapes and transcriptions will be destroyed at the end of the research study. May I record the interview?"

Are there any questions that you have about the research study or the interview?

I'm going to start out with some questions about how adolescent behavioral health is handled in primary care in your system.

Most important

1. Can you tell me how adolescent behavioral health issues are addressed in pediatric primary care in your organization?

2. Is there standardized screening for alcohol and drug use, mental health symptoms?

3. What do you see as the biggest barriers to implementing alcohol and drug integrated behavioral health care in pediatrics?

4. What would facilitate its implementation?

5. Ideally, if you could imagine or design a model of care to address substance use and mental health issues with adolescents, what would that look like?

6. What sort of organizational resources would need to be brought to bear to make that happen?
   [Probes: Space? Staff? Training? Executive sponsorship?]

7. If behavioral health became a bigger priority, would something else take a back seat?

8. Are clinicians in your practice/system trained in brief interventions for behavioral health issues?

Important, as time permits

9. How is it communicated to adolescents if there is a concern about a behavioral health issue?

10. How are parents be involved in discussions about behavioral health problems?

11. Who do you think is the best person or role to screen for at-risk alcohol or drug problems in Pediatric Primary Care settings?

    MA
    Primary Care Provider
    Nurse
    BMS
    CHE/HEALTH EDUCATOR
    Other: _____

    Probes: Why? For example, efficiency, qualifications? If not an MA, why not an MA?

12. Who do you think is the best person or role to give a brief intervention for at-risk alcohol or drug problems in Primary Care settings?

    E.g.:
    MA
    Primary Care Provider
    Nurse
    BMS

CHE/HEALTH EDUCATOR
Other: _____

Probes: Why? For example, efficiency, qualifications?

13. To what extent do you think the clinicians in your system (or clinic) are feel prepared to conduct brief interventions for adolescent drinking or drug use?

14. What is your sense of how beneficial Brief Interventions for alcohol and drug use are for teens?

15. Can you tell me about any barriers you are aware of, to referring adolescents to specialty substance abuse or mental health treatment?

16. What could make that process work more smoothly?

17. What kind of patients typically get referred to substance abuse treatment?

18. What type of patients typically get referred to mental health treatment?

19. Is there a flow of information between primary care and specialty care settings, e.g., do primary care providers generally get feedback from the program or patient about whether they accessed specialty behavioral health treatment?

20. Anything else you'd like to comment on, about the screening and treatment of behavioral health problems for teens in pediatrics?

Teen SBIRT Interview Guide – NON-KP

Study ID: _____

Job Title: _____

Date of Interview: _____

Treatment Arm: _____

We'd like to invite you to participate in an interview to get a better understanding of your thoughts and experiences about addressing alcohol and drug use and other behavioral health problems. The interview will include both structured and open-ended questions. We will ask about preventive services, alcohol and drug screening practices and policies, and training for alcohol and drug screening and treatment or referral. We will not ask questions about any specific patients. The interview will last approximately 40 minutes.

Your participation is voluntary and you may refuse to answer or skip any of the questions. Study staff will **not** disclose your study participation (or non-participation) to other clinicians, administrators, or anyone else, unless compelled by law. All information obtained from you will be kept strictly confidential. The information you provide will be combined with the information from other participants and will only be presented as group results. Any reports or publications about the study will not identify you or any other study participant. You will not be asked for any personal information and we will not record your name as part of the interview.

We do not expect that you will get any personal benefit from being in this study, but participating in a research study is often rewarding. In addition, your feedback

combined with the feedback from other participants will help us improve the delivery of and access to health care for our members and do so in a way that works best for Kaiser Permanente providers and staff.

With your permission, I would like to record our interview. Tapes and transcriptions will be destroyed at the end of the research study. May I record the interview?"

Are there any questions that you have about the research study or the interview?

I'm going to start out with some questions about how adolescent behavioral health is handled in primary care in your system.

21. Can you tell what you know about me how adolescent behavioral health issues are addressed in pediatric primary care in your system?

22. Is there standardized screening for alcohol and drug use, mental health symptoms?

23. What do you see as the biggest barriers to implementing alcohol and drug integrated behavioral health care in pediatrics?

24. What would facilitate its implementation?

25. Ideally, if you could imagine or design a model of care to address substance use and mental health issues with adolescents, what would that look like?

26. What sort of organizational resources would need to be brought to bear to make that happen?

[Probes: Space? Staff? Training? Executive sponsorship?]

27. If behavioral health became a bigger priority, would something else take a back seat?

28. Are clinicians in your practice/system trained in brief interventions for behavioral health issues?

29. How is it communicated to adolescents if there is a concern about a behavioral health issue?

30. How are parents involved in discussions about behavioral health problems?

31. Who do you think is the best person or role to screen for at-risk alcohol or drug problems in Pediatric Primary Care settings?

MA
Primary Care Provider
Nurse
BMS
CHE/HEALTH EDUCATOR
Other:	_____

Probes: Why? For example, efficiency, qualifications? If not an MA, why not an MA?

32. Who do you think is the best person or role to give a brief intervention for at-risk alcohol or drug problems in Primary Care settings?

E.g.:
MA
Primary Care Provider
Nurse
BMS
CHE/HEALTH EDUCATOR
Other:	_____

Probes: Why? For example, efficiency, qualifications?

33. To what extent do you think the clinicians in your system (or clinic) feel prepared to conduct brief interventions for adolescent drinking or drug use?

34. What is your sense of how beneficial Brief Interventions for alcohol and drug use are for teens?

35. Can you tell me about any barriers you are aware of, to referring adolescents to specialty substance abuse or mental health treatment?

36. What could make that process work more smoothly?

37. What kind of patients typically get referred to substance abuse treatment in your system?

38. What type of patients typically get referred to mental health treatment in your system?

39. Is there a flow of information between primary care and specialty care settings, e.g., do primary care providers generally get feedback from the program or patient about whether they accessed specialty behavioral health treatment, and vice versa – do specialty treatment setting get information from pediatric primary care?

40. Anything else you'd like to comment on, about the screening and treatment of behavioral health problems for teens?

APPENDIX C: SYSTEMATIC LITERATURE REVIEW RESULTS

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
				Efficacy/Effectiveness		
Boekeloo BO, Jerry J, Lee-Ougo WI, et al. Randomized trial of brief office-based interventions to reduce adolescent alcohol use. *Archives of pediatrics & adolescent medicine.* **Jul 2004;158(7):635-642.**						
RCT	5 pediatric primary care group practices belonging to a managed care health plan. 3 study arms: Group I - Usual Care; Group 2 - Usual Care + 15 minute audio-taped "priming" for visit, which involved a simulated teen office visit, including Providers discussing alcohol and alcohol risk behaviors and consequences, self-assessment of alcohol and drug use; Group 3 -	Eligibility: 12-17, first sibling in family recruited, had to have had appointment scheduled for 7 business days, well-visit, fluent in English. n = unclear (either 447 as indicated by diagram, or 444 indicated in text)	Physicians	Baseline interviewer-administered interviews; exit interview post-exam, to measure beliefs about alcohol; 6 and 12-month interviewer-administered telephone follow-up interviews. Follow-up measures included both alcohol use (any, binge/5+, drinking before sex); being around friends while they were drinking in past 30 days; instances of refusing alcohol when offered by friends; beliefs about alcohol; self-efficacy about alcohol-refusal, negative alcohol outcome expectations; perceived alcohol tolerance; intention to	At exit interview, both intervention groups reported perceiving lower amounts of alcohol as necessary to impair thinking that did those in the usual care group. Significantly higher percentages of both intervention groups reported intent to drink alcohol in the next 3 months. At 6 months, Group 3 was significantly more likely to report having refused alcohol offered by friends (p<.01). A higher proportion of Group 2 participants reported drinking in past 30 days and the past 3 months, at 12 months, than those in the Usual Care group (both p<.05). Both intervention groups were significantly more	Low The intervention group participants actually had significantly worse alcohol use outcomes at 6 and 12 months. The authors argue that these counter-intuitive findings could be due to the intervention groups increased forthrightness resulting from "priming" effects of psychosocial messages about the importance of honest and open discussion of alcohol use between providers and patients. However, the teens in the two intervention groups were significantly more likely to have drunk in the 3 months prior to baseline, perhaps suggesting a higher propensity to drink alcohol in general. The authors controlled for past 3 month alcohol use in the analyses.

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
	Everything in group 2 + actual providers given patients' answers to self-assessment and guide to interpreting self-assessment of risk behaviors. Participants in both intervention arms also listened to the same audio recording over the phone at the 6 month follow-up, as a booster.			drink.	likely to report binge drinking at both 6 and 12 months, compared to the Usual Care group: Group 2 teens were almost 3 ½ times as likely to report binge drinking at 6 months (p <.05) and 3 times more likely at 12 months (p<.01); Group 3 teens were almost 5 times as likely to report binge drinking at 6 months (p<.01) and almost 3 times as likely at 12 months (p<.05).	The groups differed in the percentage of African Americans in each group (83%, 83% and 71.5%, respectively in Groups 1, 2 and 3), and the percent who drank alcohol in the past 3 months (18, 29, and 30%, respectively). Randomization procedures are described as computerized randomization, stratified by provider as well at participant age and gender. While it is difficult to determine how randomization might have been flawed, the implications of Groups 2 and 3 being potentially more severe or "at risk" become more apparent in light of the results. Risk of selection bias is potentially quite high. Follow-up rates were high (92% at 12 months), and almost identical across groups. Risk of attrition bias is therefore low.

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
De Micheli D, Fisberg M, Formigoni ML. [Study on the effectiveness of brief intervention for alcohol and other drug use directed to adolescents in a primary health care unit]. *Rev Assoc Med Bras.* **Jul-Sep 2004;50(3):305-313.**						
RCT	20 min, single-session MI intervention for current AOD users, or 2-3 minute preventiv AOD psychoeducation for non-users, delivered in Tee primary care clinic	Among users: MI group – n=28, Controls – n=31 Among non-users: Ed group – n=20 Controls – n=20 Total N = 99	Physician	Past month AOD quantity and frequency, dependence symptoms (craving, tolerance, withdrawal), AOD-associated risk taking and problems	They found significant improvements from the BI among current users, and significantly lower rates of increase in alcohol consumption among the non-users. Among current users, those in the intervention group reported significantly greater reductions in the use of marijuana, inhalants, ecstasy, alcohol and tobacco, compared to those in the control group. Among non-users, while use of alcohol and tobacco increased in both groups, the increase in both frequency and intensity was lower in the preventive intervention group. Marijuana use increased in the control group but not the intervention group.	Moderate
D'Amico EJ, Miles JN, Stern SA, Meredith LS. Brief motivational interviewing for teens at risk of substance use consequences: a randomized pilot study in a primary care clinic. *J Subst Abuse Treat.* **Jul 2008;35(1):53-61.**						
Randomized pilot: 2 groups – brief MI and	15-20 minute MI intervention	MI group – N=23, usual care – N=24	Associate degree and MA-level	Peer influence (including perception of % of students in	Those in the intervention group were less likely to report intention to use	Low Considerable study refusal,

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
usual care.	delivered in primary care clinic. Also examined effect of booster phone call.		case managers	school who drank or used marijuana, how often they spent time around people who drank or used marijuana, friends' consumption of AOD); intentions to use alcohol or marijuana in next 6 months; alcohol and marijuana consumption (days per month, # times used per day, # drinks per day, and # of days of 3+ drinks); alcohol or marijuana-related consequences; social desirability.	marijuana in the next 6 months, reported a lower perceived prevalence of marijuana use at school, reported fewer friends who used marijuana, and reported using marijuana few times on the days they used, compared to the usual care group. No significant effects found as result of booster call.	drop-out and follow-up attrition along the way. Confusing flowchart of recruitment. 3% of original sampling frame/ 28% of eligible actually received intervention. Evidence of non-random follow-up attrition: those who did not follow-up had significantly more drinking days and more binge drinking days at baseline than those who did follow-up.
Ozer EM, Adams SH, Orrell-Valente JK, et al. Does delivering preventive services in primary care reduce adolescent risky behavior? *J Adolesc Health.* **Nov 2011;49(5):476-482.**						
Observational Ozer, 2011	3 general pediatrics clinics in large, managed care health plan. Two part intervention: screening and brief advice and referral on a variety of risk behaviors	(N=904) 14 year olds received intervention, 15 year olds assessed at well-visit. Comparison group consisted of California Health Interview Study (CHIS) adolescents, 711-	Pediatric PCPs + Health Educators	"ever used alcohol" "ever used drugs" Measured at 14 years and 15 years, at teen well-visits, compared to 14 and 15 year olds in CHIS survey dataset.	There was no evidence of an effect on self-report alcohol or drug use, compared to the comparison group.	Low Of the original ~ 1,546 adolescents contacted for recruitment, only 904, or 58% ultimately ended up participating. The authors provide no information on differences between those invited to participate and the final sample. There is considerable risk of selection bias given the low participation rate, although it

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
	by pediatrician, followed by reinforcement session by health educator on same topics, aimed at increasing teen's self-efficacy.	14 year olds, 699-15 year olds).				is impossible to determine, given the lack of information on refusers. 83% follow-up rate – moderate attrition bias rate. There is no discussion of the characteristics of the comparison group, beyond basic demographics: gender and ethnicity (which seems to differ, although no tests of significance are reported). There is no information on SES, health status, or most significantly, access to or receipt of preventive services.

Harris SK, Csemy L, Sherritt L, et al. Computer-facilitated substance use screening and brief advice for teens in primary care: an international trial. *Pediatrics*. Jun 2012;129(6):1072-1082.

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
Quasi-experimental trial, asynchronous, sites served as own UC controls	**Primary Care** 2 countries, 19 primary care clinics (U.S. = 9 and Czech Republic = 10), Computer-facilitated AOD screening,	U.S. N=2096, Czech N=589 Sites served as their own historical controls U.S. intervention N = 1068, control N = 1028 Czech intervention N =	Physicians	Past 90 day alcohol, cannabis, hard drug Q/F, perceived use by peers, siblings and parents. Rates of use, initiation among those reporting no use in past year, cessation in those reporting use in past year.	Implementation: Brief advice rates x2 in US and x4 in Czech, compared to UC. More patients rated provider advice as excellent or very good, said they were very satisfied with the visit, and reported being very likely to follow provider's advice in the intervention condition	Moderate-High Historical, self-as-control poses threat to internal validity if there were significant secular or environmental trends. The authors say they asked participants how often they had heard information about alcohol or drugs in the news or from friends of family to control for secular trends. Potentially inadequate way

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
	pediatrician-delivered brief advice.	297, control N = 292			compared to UC. US: intervention teens reported lower past 90 day alcohol use, and higher alcohol cessation rates at 3-month follow-up, compared to UC. Intervention teens reported lower alcohol initiation and higher cessation rates at 12-month follow-up. Czech: at 3-month follow-up, intervention teens reported lower cannabis initiation rates than controls. At 12-month follow-up, intervention teens reported lower past 12 month cannabis use rates, as well as lower cannabis initiation and higher cannabis cessation rates, compared to controls.	to control. Low risk of selection bias with regard to BLQ completion rate in US (86.5%), and in Czech (100%).
Louis-Jacques J, Knight JR, Sherritt L, Van Hook S, Harris SK. Do Risky Friends Change the Efficacy of a Primary Care Brief Intervention for Adolescent Alcohol Use? *J Adolesc Health.* **Nov 8 2013.**						
Secondary analysis of quasi-experimental trial, using US sample from Harris study.	**Primary Care** 9 pediatric primary care clinics. Computer-	Sites served as their own historical controls Intervention N = 1068, control N = 1028	Physicians	Alcohol use initiation and cessation.	Research question examined whether efficacy of intervention is moderated by peer risk, i.e., having friends who use, urge or suffer consequences related to AOD use.	Moderate-High Findings suggest that intervention effects may be moderated by relationships with peers who engage in AOD use or behaviors, and that intervention may be

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
Louis-Jacques, 2014	facilitated, pediatrician-delivered brief advice.				At the 3-month follow-up, those in the intervention group were significantly more likely to report quitting alcohol, compared to the UC group, only among the group reporting peer risk at baseline (OR 1.44). At 12-month follow-up, those in the intervention group were significantly less likely to report initiating alcohol use (among non-drinkers), compared to the UC group, only among the group reporting peer risk at baseline (OR .69).	more effective in these patients. Historical, self-as-control poses threat to internal validity if there were significant secular or environmental trends. The authors say they asked participants how often they had heard information about alcohol or drugs in the news or from friends of family to control for secular trends. Potentially inadequate way to control. Low risk of selection bias with regard to BLQ completion rate (86.5%).
Walton MA, Bohnert K, Resko S, et al. Computer and therapist based brief interventions among cannabis-using adolescents presenting to primary care: one year outcomes. _Drug and alcohol dependence._ Oct 1 2013;132(3):646-653.						
RCT	Compared two BIs, one delivered by a therapist trained in MI (TBI), the other computer-delivered (CBI), using a virtual "buddy" to guide participants	Cannabis-using adolescent (age 12-18) primary care patients (n=328), recruited from seven federally-qualified health centers	Master's-level therapists, and Computer-delivered intervetion	Outcomes measured included past three month cannabis, alcohol and other drug use, cannabis related consequences, and driving while under the influence (DUI) of cannabis.	Cannabis related consequences decreased significantly among the CBI arm participants at 3 and 6 months, and among the TBI arm participants at 6 and 12 months, while there were no decreases in consequences in the control group. Frequency of cannabis DUI decreased significantly in the TBI group at 3 months.	High They had good recruitment rates (90% among those who met eligibility criteria). Caucasians were significantly less likely to agree to recruitment. Randomization results suggested no significant differences across the arms. They had very good follow-up response rates (85%, 85% and 84% at 3, 6 and 12

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
	through discussions and scenarios about cannabis use decision-making in the Midwest, were randomized to one of the intervention conditions, or to an enhanced control arm, in which they received a brochure about cannabis problems and resources for assistance.				Cannabis use frequency decreased significantly in all three groups, with no differences between groups. Other drug use decreased significantly at 3 and 6 months, for both the intervention groups, but not for the control group. There were no decreases in alcohol use in any of the groups. In both intervention groups, participants reported significant increases in perception of risks of cannabis use and self-efficacy about avoiding use, and decreases in their intention to use cannabis. Generalized estimating equation models, examining the effects of the interventions over time, found no significant differences in effects by 12 months, except in alcohol use in the CBI arm.	months, respectively. African Americans were less likely than Caucasians to drop out of the study.
Walton, MA, Resko, S,Barry, KL, Chermack, ST, Zucker, RA, Zimmerman, MA, Booth, BM, Blow, FC. A randomized controlled trial testing the efficacy of a brief cannabis universal prevention program among adolescents in primary care. *Addiction* 2014 May;109(5):786-97.						
RCT	Compared two BIs, one delivered by a therapist trained in MI	Cannabis-naïve adolescent (age 12-18) primary care patients (n=714), recruited	Master's-level therapists, and Computer-	Outcomes measured included past three month cannabis, alcohol and other drug use, cannabis	CBI arm participants had significantly lower rates of any cannabis use over 12 months, of frequency of cannabis use at 3 and 6	High Good recruitment rates (84% among those who met eligibility criteria) and very good follow-up response

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
	(TBI), the other computer-delivered (CBI), using a virtual "buddy" to guide participants through discussions and scenarios about cannabis use decision-making in the Midwest, were randomized to one of the intervention conditions, or to an enhanced control arm, in which they received a brochure about cannabis problems and resources for assistance.	from seven federally-qualified health centers	delivered intervention	related consequences, and driving while under the influence (DUI) of cannabis.	months, of any other drug use at 3 months, compared to controls, (all p<.05). TBI arm participants had significantly lower alcohol use, and other drug use (both p<.05) and delinquency at 3 months (p<.01), compared to controls.	rates (95%, 96% and 88% across the three study arms), suggest relatively little selection and attrition bias. Boys and Caucasians were significantly less likely to agree to recruitment. Randomization results suggested few significant differences across the arms, with the exception of slight but statistically significant differences in age and percentage of sample in grades 6-8.
Systematic Reviews/Meta-Analyses						

Systematic Reviews/Meta-Analyses

Jonas DE, Garbutt JC, Amick HR, et al. Behavioral counseling after screening for alcohol misuse in primary care: a systematic review and meta-analysis for the U.S. Preventive Services Task Force. *Annals of internal medicine.* **Nov 6 2012;157(9):645-654.**

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
Systematic review and meta-analysis	A systematic review and meta-analysis	0 studies involving adolescents met	n/a		Determination of insufficient evidence available to assess efficacy	

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
	of the evidence for behavioral counseling conducted after screening for alcohol misuse in primary care.

Only trials of at least 6-months' duration that enrolled people identified with alcohol misuse in primary care settings. | review criteria. | | | or effectiveness for adolescents | |
| **Patnode CD, O'Connor E, Rowland M, Burda BU, Perdue LA, Whitlock EP. Primary care behavioral interventions to prevent or reduce illicit drug use and nonmedical pharmaceutical use in children and adolescents: a systematic evidence review for the U.S. Preventive Services Task Force.** *Annals of internal medicine.* **May 6 2014;160(9):612-620.** | | | | | | |
| Systematic review | A systematic review of the evidence for primary care behavioral interventions to prevent or reduce illicit drug use and nonmedical pharmaceutical use in children and | 6 studies were found which met criteria for review | n/a | | 4 of the 5 trials assessing self-reported cannabis use found statistically significant reductions among intervention group participants.

One trial found no effect on cannabis-related consequences or DUI.

3 trials found significant positive outcomes in non- | |

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Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
	adolescents.				medical prescription drug use. 3 trials found no reduction in depression symptoms at 12 or 24 months. Determination of insufficient evidence available to assess efficacy or effectiveness for adolescents.	
Implementation/Feasibility						
Stern SA, Meredith LS, Gholson J, Gore P, D'Amico EJ. Project CHAT: a brief motivational substance abuse intervention for teens in primary care. *Journal of substance abuse treatment.* **Mar 2007;32(2):153-165.**						
Feasibility	Testing feasibility of brief MI delivered in pediatric primary care setting	(N=8) 12-18 year olds identified as high risk (had experienced alcohol or drug problems or had developed patterns of regular use).	MFT, Health Educator	Examined feasibility, acceptability, via pilot testing intervention on teens and through qualitative interviews and groups with clinic staff and adolescents.		**N/A**
Lustig JL, Ozer EM, Adams SH, et al. Improving the delivery of adolescent clinical preventive services through skills-based training. *Pediatrics.* **May 2001;107(5):1100-1107.**						
Implementation	Testing the impact of two, 4-hour PCP trainings on the delivery of clinical preventive services for adolescents.	Pediatric primary care providers (n=63) in an integrated health care delivery system.	PCPs	Adolescent patients' reports of the services delivered by their PCPs.	According to patient reports, following the trainings, the percentage of adolescents screened increased significantly for seatbelt use (38% to 56%), helmet use (27% to 45%), tobacco use (64% to 76%), alcohol use (59% to 76%) and sexual behavior (42% to 58%). The percentage of	Weak Pre-post design, no control group, patient report of PCP behavior

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
					adolescents offered brief counseling following the training increased significantly for seatbelt use (36% to 51%), helmet use (25% to 43%), and sexual behavior (42% to 58%). There were no significant changes in rates of brief counseling for tobacco or alcohol use.	

Ozer EM, Adams SH, Lustig JL, et al. Can it be done? Implementing adolescent clinical preventive services. *Health Serv Res.* Dec 2001;36(6 Pt 2):150-165.

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
Implementation	Study of implementation of an intervention to increase delivery of adolescent preventive services in primary care. Testing the impact of a training curriculum, use of screening and charting tools, access to referral resources and access to the services of a clinical health	Pediatric primary care providers (n=89) in an integrated health care delivery system.	PCPs	Patient reports of delivery of preventive services (screening, counseling, referral) at pre-intervention T1 (n=104 patients), and 5-months T2 (n=211 patients) and 18-months T3 (n=998 patients) post intervention.	From T1 to T2, patients reported being screened a higher percentage of the time for tobacco (61% to 95%), alcohol use (59% to 96%), sexual behavior (47% to 82%), seatbelt use (36% to 98%), and helmet use (33% to 98%). (all p<.000)Increases from T1 to T3 were similar. There were small but significant decreases in screening rates from T2 to T3. Counseling rates increased significantly from T1 to T2: tobacco (55% to 96%), alcohol (46% to 91%), sexual behavior (41% to 76%), seatbelt use (32% to 99%), and helmet use (28%	Moderate Pre-post design, no control group, patient report of PCP behavior

Type of study	Intervention/ Program Description	Sample/N/ Comparison group(s)	Provider type	Outcome(s) data sources	Evidence of: efficacy, effectiveness, feasibility	Quality of evidence & Limitations
	educator.				to 98%) (all p<.000); rate changes were similar from T1 to T3. Rates in counseling on tobacco, alcohol, sexual behavior and helmet use did not decline significantly from T2 to T3.	
Haller DM, Meynard A, Lefebvre D, Ukoumunne OC, Narring F, Broers B. Effectiveness of training family physicians to deliver a brief intervention to address excessive substance use among young patients: a cluster randomized controlled trial. *Cmaj.* **May 13 2014;186(8):E263-272.**						
Cluster randomized implementation trial	Study of the effect of physician alcohol screening training, on patient drinking outcomes in primary care. Trainings consisted of two sessions, with a total of ~5 hours, with a mixture of didactic instruction and role-play practice.	Family physicians in Switzerland (n=33) were randomized to receive training on brief interventions for excessive substance use (n=17), or to a usual care control group (n=16).	PCPs	Self-report of past 30 day excessive substance use (binge drinking or ≥1 cannabis joint/week), among patients aged 15-24, at 3, 6 and 12 months after index consultation.	Excessive substance use did not differ significantly between the study arms at any time point.	High

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