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“A lot of things stopped with COVID”: Screening Pregnant Women for Opioid Use and Related Conditions During the COVID-19 Pandemic

Tara R. Foti, Ph.D., M.P.H., Shanda Vereen, M.S.P.H., Cheryl Vamos, Ph.D., M.P.H., William Sappenfield, M.D., M.P.H., Russell S. Kirby, Ph.D., M.S.

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"A lot of things stopped with COVID": Screening Pregnant Women for Opioid Use and Related Conditions During the COVID-19 Pandemic

Tara R. Foti, Ph.D., M.P.H.[1,2] tara.r.foti@kp.org

Shanda Vereen, M.S.P.H.[2] svereen@usf.edu

Cheryl Vamos, Ph.D., M.P.H.[2] cvamos@usf.edu

William Sappenfield, M.D., M.P.H.[2] wsappenf@usf.edu

Russell S. Kirby, Ph.D., M.S.[2] kirbyr@usf.edu

[1] Kaiser Permanente of Northern California, Division of Research (current affiliation, all work performed at the University of South Florida, College of Public Health), 2000 Broadway, Oakland, CA 94612, USA

[2] University of South Florida College of Public Health, 13201 Bruce B. Downs Blvd MDC56 Tampa, FL 33612, USA

Corresponding Author:

Tara R. Foti
Kaiser Permanente of Northern California, Division of Research
2000 Broadway, Oakland, CA 94612
Email: Tara.R.Foti@kp.org
Phone: 1-585-746-3857

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Keywords: substance abuse, evidence-based practice, perinatal health, maternal health, COVID-19 pandemic

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1 **ABSTRACT**

2 **OBJECTIVE:** We explored the impact of COVID-19 on universal screening programs for
3 opioid use and related conditions among practicing clinicians or staff who work with pregnant
4 patients.

5 **METHODS:** Semi-structured, in-depth qualitative interviews (n=15) were conducted with
6 practicing clinicians or staff in West-Central Florida between May and October 2020,
7 representing both a range of professions and clinical settings that serve pregnant patients.
8 Interviews were recorded, transcribed verbatim, and reviewed for accuracy. Independent coders
9 conducted thematic content analysis iteratively in MaxQDA to identify emergent themes.

10 **RESULTS:** Four main themes were identified: worsening health and life conditions of pregnant
11 patients, impaired patient-provider interactions, lack of priority and resources, and conducting
12 opioid screening remotely. Pregnant patients often faced worsening mental health, lack of
13 connection with healthcare providers, and socioenvironmental factors that increased the risk of
14 overdose and intimate partner violence. Healthcare providers and facilities faced an infectious
15 disease pandemic that simultaneously increased mental burden and reduced resources. Telehealth
16 improved access to healthcare for many, but also came with implementation challenges such as
17 inadequate technology, the need to address barriers to developing rapport with patients, and
18 difficulty with certain social screens.

19 **CONCLUSION:** These themes describe facilitators of and barriers to implementing opioid and
20 related screening programs during the COVID-19 pandemic, as well as the increasing urgency of
21 screening because of socioenvironmental factors. Patients, healthcare providers, and health
22 practices may benefit from emergency plans that anticipate screening challenges given their
23 increased importance during times of heightened risk, including disasters and epidemics.

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24 **INTRODUCTION**

25 Opioid use during pregnancy has increased in the United States in recent decades
26 (American College of Obstetricians and Gynecologists, 2017a; Center for Disease Control and
27 Prevention, 2013; Desai, Hernandez-Diaz, Bateman, & Huybrechts, 2014; Haight, Ko, Tong,
28 Bohm, & Callaghan, 2018). Maternal opioid-related diagnoses increased from 3.5 to 8.2 per
29 1000 birth hospitalizations from 2010 to 2017 (Hirai, Ko, Owens, Stocks, & Patrick, 2021). In
30 Florida, this increase has been even greater, with neonatal abstinence syndrome rates increasing
31 from 0.4 to 4.4 infant discharges per 1000 live births between 1995 and 2009 (Hudak & Tan,
32 2012). This is concerning due to associated mental illness, including depression, anxiety, bipolar
33 disorder and schizophrenia (Faherty, Matone, Passarella, & Lorch, 2018; Shen, Lo-Ciganic,
34 Segal, & Goodin, 2020) and adverse birth outcomes such as preterm birth, small for gestational
35 age, and placental abruption (Esposito et al., 2021). Maternal opioid overdose is a leading cause
36 of pregnancy-associated mortality (Gemmill, Kiang, & Alexander, 2019; Hall et al., 2020; Smid
37 et al., 2019). Fetal opioid exposure may result in neonatal abstinence syndrome/neonatal opioid
38 withdrawal syndrome, the rates of which have dramatically increased in recent years (Patrick,
39 Davis, Lehmann, & Cooper, 2015; Patrick et al., 2012). Children with fetal opioid exposure have
40 increased risk for cognitive, neurodevelopmental, and behavioral health challenges (Larson et al.,
41 2019; Rubenstein et al., 2019).

42 To identify and address perinatal opioid use, several professional organizations
43 recommend universal screening (American Academy of Family Physicians et al., 2019;
44 American College of Obstetricians and Gynecologists, 2017a; ANA Center for Ethics and
45 Human Rights, 2017; Reddy et al., 2017). A targeted patient safety bundle identifies key primary
46 practices to perform universally or secondarily, based on positive opioid use screens (American

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47 College of Obstetricians and Gynecologists, 2017b). For example, all pregnant patients should
48 undergo primary screening, involving assessment for opioid and other substance use disorders
49 using validated screening tools, and positive screens should initiate secondary screening for
50 common co-morbidities (Table 1) (American College of Obstetricians and Gynecologists,
51 2017b). Early identification and warm handoffs with dependency treatment providers, which
52 involve face-to-face or telephone- or technology-mediated communication between providers,
53 promote and improve maternal engagement in beneficial programs (Taylor & Minkovitz, 2021).
54 This range of programs may include dependency treatment, such as medication-assisted
55 treatment (MAT); counseling or behavioral therapy; harm reduction; and social services to
56 address social determinants of health, such as housing and food access; and/or other educational
57 and prevention-oriented programs (Ecker et al., 2019; Kroelinger et al., 2019; Sutter, Gopman, &
58 Leeman, 2017).

59 Despite these recommendations, obstetricians often do not screen for opioid use during
60 pregnancy, and few use validated screening tools (Ko et al., 2020; Pentecost, Schmidt, &
61 Grassley, 2021). A cross-sectional survey of obstetrician-gynecologists identified that, of the
62 35% of obstetrician-gynecologists who responded, 79% frequently screened for substance use
63 while only 11% used validated screening tools (Ko et al., 2020). Another survey identified that
64 32.3% of obstetric healthcare providers had inadequate training on substance use during
65 pregnancy and were not comfortable verbally screening patients for substance use (Pentecost et
66 al., 2021). A minority of obstetricians usually recommend MAT to pregnant patients with opioid
67 use disorder (OUD) (Ko et al., 2020). Insufficient clinician awareness and training, along with
68 limited local services for patient referrals, may contribute to sub-optimal screening (Kroelinger
69 et al., 2019). Healthcare providers confront additional screening barriers when patients face

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70 stigma and punitive consequences for use, such as incarceration and child removal (Angelotta,
71 2016; Polak, Kelpin, & Terplan, 2019). In addition to these barriers, several frameworks
72 conceptualize other barriers to implementation of clinical recommendations and guidelines in
73 healthcare settings and highlight factors across system levels (e.g., provider knowledge and
74 attitudes, organizational support and resources, external policies, etc.) (Cabana et al., 1999;
75 Cane, O'Connor, & Michie, 2012; McNeely et al., 2018).

76 To improve prenatal opioid screening in Florida, a statewide quality improvement
77 initiative, the Maternal Opioid Recovery Effort (MORE), was spearheaded by the Florida
78 Perinatal Quality Collaborative beginning in November 2019 (University of South Florida,
79 2021). Baseline data from the MORE initiative showed sub-optimal prenatal opioid screening
80 from a limited number of participating clinical sites (Florida Perinatal Quality Collaborative,
81 2022). However, with the onset of COVID-19 (Velavan & Meyer, 2020) and the "Safer At
82 Home" statewide executive order (Desantis, 2020), clinical and quality improvement processes
83 were significantly impacted. The American College of Obstetricians and Gynecologists released
84 prenatal care schedule modifications (2020) to limit COVID exposure amongst pregnant patients.
85 Clinical facilities enacted policy changes to identify COVID-positive patients and prevent
86 transmission. Opioid overdoses increased in Florida and throughout the United States early in the
87 COVID pandemic (Auty & Griffith, 2022; Garcia et al., 2022; Page, Chen, Jacko, & Sainfort,
88 2022), necessitating an increased focus on early opioid identification. However, the specific
89 impact of the COVID pandemic on providers' experiences with universal opioid prenatal
90 screening in Florida is unknown. Thus, this study aimed to explore the impact of the COVID-19
91 pandemic on universal primary screening for opioid use and secondary screening for common
92 co-morbidities in pregnancy.

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93

94 **METHODS**

95 A comprehensive list of regional clinicians, organizations, agencies, and community task
96 forces that address perinatal substance use within an eight-country region was developed by the
97 research team. These individuals and groups were emailed a survey about opioid screening
98 during pregnancy and recipients were encouraged to forward the survey to those within their
99 professional networks who may be interested and eligible to participate. The survey aimed to
100 understand current screening practices and factors that impact screening through survey domains
101 that addressed participant demographics, opioid and related screening practices, related
102 workplace policies and procedures, and facilitators and barriers of screening. Within the survey,
103 participants could indicate interest in participating in an hour-long interview. Survey recruitment
104 occurred February-September 2020, with a pause from mid-March through early May due to
105 regional COVID acuity.

106 Of the sixty individuals who completed a survey, 16 indicated interest in being
107 interviewed and were contacted by email and/or telephone to schedule a video-conferencing
108 interview. One participant who did not complete a survey contacted the study investigator
109 directly to complete an interview. We interviewed 15 English-speaking clinicians or staff who
110 worked with pregnant patients in inpatient or outpatient settings within an eight-county area in
111 West-Central Florida through Teams videoconference software, which participants could access
112 through the internet or by calling in by phone. Of the two individuals who did not schedule
113 interviews, one declined due to work responsibility changes and the other did not respond to
114 emails or phone calls.

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115 We developed a semi-structured interview guide (Supplemental Material 1) to elicit
116 opioid screening practices during pregnancy and how screening was impacted by COVID-19; it
117 was reviewed by three subject matter experts and modified to incorporate their feedback.
118 Interviews were conducted May-October 2020 and were audio-recorded and transcribed
119 verbatim. One researcher [blinded author initials] read through all transcripts to ensure
120 familiarity with the data. All responses related to COVID-19 were assigned to an a-priori
121 COVID parent code. Two researchers [blinded author initials] developed inductive codes directly
122 from the data in an iterative process utilizing MaxQDA 2020 (VERBI GmbH) and
123 collaboratively developed a codebook to define and refine each code, definition, and
124 inclusion/exclusion criteria. These researchers coded the transcripts using thematic content
125 analysis (Cresswell & Plano Clark, 2011). We began by jointly coding one transcript with the
126 updated codebook and resolved any coding discrepancies through discussion until reaching
127 consensus. Both coders then separately coded two subsequent transcripts and intercoder
128 reliability was calculated at kappa = 0.9. Parent and child code summaries were developed, and
129 exemplary quotes were identified for each code. Refined coding definitions, inclusion and
130 exclusion criteria, exemplary quotes, and summaries of findings were shared with the research
131 team. The University of South Florida Institutional Review Board reviewed this study protocol
132 and determined the study exempt from IRB approval.
133

134 **RESULTS**

135 The 15 interviews lasted 43 minutes on average (range 23-77 minutes). Participants
136 represented various professions: generalist obstetrician (n=1), maternal fetal medicine specialists
137 (n=3), pediatrician (n=1), nurse practitioners (n=2), registered nurses (n=3), mental health

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138 counselors (n=2), administrator (n=1), parent educator (n=1), and medical assistant (n=1). Most
139 participants worked in one large urban county (n=8) and reported female gender (n=13).
140 Participants identified as White (n=13), Black (n=1) and Asian (n=1) race and worked in a range
141 of clinical settings that included inpatient medical settings, outpatient medical settings, social
142 service agencies, clients' homes, and jails. When compared to survey participants, the same
143 proportion of participants were aged 20-29 (6.7%), more interview participants were aged 30-39
144 (46.7% vs. 30%) and 60+ (26.7% vs. 21.7%), while fewer interview participants were aged 40-
145 49 (6.7% vs. 20%) and 50-59 (13.3% vs. 21.7%). A higher proportion of interview participants
146 were physicians (33.3% vs. 25%) and advanced practice practitioners (13.3% vs. 6.7%); similar
147 proportions of nurses (20% vs. 25%), social workers and mental health counselors (13.3% vs.
148 15%), and other participants, including administrators and medical assistants (13.3% vs. 11.7%),
149 participated in interviews and surveys, respectively.
150 Four major themes emerged from the qualitative data: worsening health and life
151 conditions of pregnant patients; impaired patient-provider interactions; lack of priority and
152 resources; and conducting remote opioid screening (Table 2). Each of these themes is defined
153 and described with exemplary quotes below.
154
155 *Worsening health and life conditions of pregnant patients*
156 Several participants discussed the impact of COVID-19 on the mental health of perinatal
157 patients. One nurse practitioner reported an increase in anxiety and depression screens: *"I've*
158 *definitely seen [an] increase in anxiety in terms of [what] our [pregnant and postpartum]*
159 *patients are going through. [There is] definitely a lot more anxiety and depression..."* (#9, Nurse
160 Practitioner).

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161 A few participants described a confluence of factors that may have led to increases in
162 overdose rates among pregnant and postpartum patients. Such factors included unemployment,
163 loss of health insurance, loss of housing, difficulty accessing MAT, and increases in intimate
164 partner violence. Overdose rates in nearby counties were described: *"There are some places in*
165 *Florida that have had huge changes in overdose rates in and around pregnancy with COVID…*
166 *because you lose your job, you lose your income, lose your place to stay, and you may lose your*
167 *medically assisted treatment [for opioid use disorder]."* (#3, Obstetrician). Another participant
168 from a home visiting program described a similar impact more locally: *"I think the quarantine*
169 *has a lot to do with [the local rise in overdoses] and also financial stress and intimate partner*
170 *violence is on the rise."* (#6, Parent Educator). They went on to describe the impact on local
171 housing. *"One of the biggest challenges… we've had is housing. Housing is huge, trying to find*
172 *places for people to go. It's always a challenge, but with COVID it's been off the wall. [We're]*
173 *trying to [find] a safe place for people to live."* (#6, Parent Educator)
174
175 *Impaired patient-provider interactions*
176 The theme of impaired patient-provider interactions referred to how providers described
177 interactions and relationships between patients and providers as negatively impacted by the
178 COVID pandemic. There were several ways in providers perceived pregnant patients as isolated
179 and disconnected from their healthcare providers. Providers had limited contact with pregnant
180 patients as the prenatal schedule of visits was reduced and some visits transitioned to telehealth.
181 During the less frequent in-person visits, both providers and patients were covered with
182 additional personal protective equipment (PPE). A pediatrician described how the amount of
183 PPE worn by healthcare providers impacted their connection with pregnant patients which, in

184 turn, impacted the connection and rapport upon which successful screening was predicated.
185 *"One of the biggest skills in [opioid] screening is building connection with [patients and*
186 *developing] rapport. When you [cover] half my face [by PPE], it's really tough to build as good*
187 *a rapport."* (#11, Pediatrician)

188 Providers described how both they and patients may limit their face-to-face time in
189 clinical settings to prevent prolonged exposure and potential COVID transmission. According to
190 participants, patients may have postponed or avoided in-person visits out of concern about
191 COVID transmission. This lack of face-to-face time, negatively impacted screening, according to
192 this participant: *"There are times where we have COVID positive patients that providers want to*
193 *minimize their exposure, minimize their time with the patient. Whether that's for better or for*
194 *worse, it does hinder your ability to screen [for opioids] properly..."* (#11, Pediatrician).
195

196 *Lack of priority and resources*

197 Many participants described how health system priorities and lacking resources impacted
198 screening during pregnancy, particularly early in the pandemic. An obstetrician described how
199 COVID was central and how that may have taken attention off quality improvement initiatives,
200 such as opioid screening. *"COVID just took over and it was what everybody was thinking*
201 *about… I think we lost a lot of opportunities [for opioid screening] there because everybody was*
202 *so focused on [COVID]."* (#3, Obstetrician).

203 Participants from clinical healthcare settings described a lack of resources to allocate to
204 non-essential tasks, such as opioid screening and other research and quality improvement
205 initiatives, because of changes from the COVID pandemic. These changes included factors such
206 as staff not able to access electronic medical record systems from home, reduced patient load,

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207 and low reimbursement. In addition, prenatal opioid screening programs were negatively
208 impacted by the timing of the COVID pandemic and what was described as "COVID overload".
209 One participant addressed the impact of limited resources and mental overload:

210 *A lot of things stopped with COVID because everybody was in COVID overload, so you*
211 *could barely think beyond that… Unfortunately for us, this [opioid screening program]*
212 *started at a really difficult time. ...Many large hospital systems just put a pause on it*
213 *because they furloughed people, people were working at home, they didn't have access to*
214 *the hospital [medical record system]. The presence of COVID has certainly negatively*
215 *impacted the [opioid screening] initiative." (#3, Obstetrician)*

216 A few participants described how COVID required a high level of attention and focus,
217 particularly early in the period of rapidly changing clinical guidance and recommendations. This
218 led to providers feeling overwhelmed, especially early in the pandemic and during times of high
219 COVID rates and patient loads.

220 *[COVID has] completely taken all focus off anything else. Everything else has been*
221 *thrown out of the window as far as any new [opioid screening] initiatives because so*
222 *[many] resources have been devoted to COVID that it's taken away from everything*
223 *else... As clinicians, we're drained for having to deal with it. [We] have very little reserve*
224 *left in doing anything in addition to just doing medical care and all the COVID things on*
225 *top of it.* (#1, Obstetrician)

226

227 *Conducting opioid screenings remotely*

228 Due to COVID and local policies to mitigate public transmission risk, several changes
229 were made within clinical offices and practices. Many clinical visits were transitioned to video-

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230 or phone-based telehealth visits. Practices also limited the number of people in the office, such as
231 not allowing visitors or support people. Many of these changes were discussed by participants as
232 positively impacting patient engagement and opioid screening, although some changes were
233 perceived negatively.

234 Prenatal care visits transitioning to videoconferencing or telephone telehealth
235 appointments was most frequently described positively in terms of increased access to healthcare
236 providers and an improved ability to conduct opioid screening remotely . Several participants
237 described the benefits of meeting remotely, which reduced barriers for patients to attend
238 appointments. One registered nurse described how meeting remotely helped opioid screening
239 because their patients/clients were better able to be comfortable and build a relationship with
240 their provider.

241 *I think [COVID] is positively affecting [our ability to conduct opioid screening]. I really*
242 *think it's helping break down a lot of barriers with these moms. We've had a lot of moms*
243 *being very blunt about the fact that they were dodging our calls until we offered them*
244 *telemedicine. They met us virtually when they were comfortable, where they have the*
245 *ability to hang up. [Laughs] And then we built a relationship, and we get text messages*
246 *from these moms that are saying, 'I'm so glad I met you guys.' So I think [telemedicine is]*
247 *very helpful [for opioid screening].* (#4, Registered Nurse)

248 However, transitioning some prenatal care to telehealth was perceived negatively by
249 some participants. While telehealth visits were generally accepted, some practices and patients
250 lacked the necessary technology. A nurse practitioner described the difficulty of opioid screening
251 by phone because their practice lacked the resources for other telehealth visits and, as a result,

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252 they were missing nonverbal components of communication that limited the quality of their
253 opioid and mental health screening.

254 *[We've transitioned to] limit[ing] patients in the office... and so you're not really having*
255 *that sit-down face-to-face interaction [with patients]. We don't have video conferencing*
256 *technology yet in the office, so [we're conducting screening] on the phone… [but we're]*
257 *not able to pick up on nonverbal cues and things like that that usually help prompt me*
258 *into thinking, 'OK, this person is saying they're fine and happy. But just looking at them, I*
259 *can tell that they're not.'* (#9, Nurse Practitioner)

260 Another participant also described the importance of evaluating their patients' affect and overall
261 presentation as an important component of opioid screening, which is missed when patients are
262 screened remotely: *"…When you're doing the [opioid] screening and assessment, sometimes it's*
263 *not what your client telling you, it's how they present. You're not seeing that, you know,*
264 *presentation [when having less in-person visits]."* (#13, Social Worker)

265 In addition to technological barriers, one screen was found to be particularly difficult to
266 perform remotely: intimate partner violence (IPV). A few participants described this difficulty,
267 which was summarized by one registered nurse: *"The one negative thing I would say is that IPV*
268 *screening, we're a little more cautious on how we do that because we don't know who could hear*
269 *it."* (#4, Registered Nurse).

270

271 **DISCUSSION**

272 This study highlights the impact of COVID-19 on universal primary screening of
273 pregnant patients for opioid use and secondary screening for common co-morbidities. Most of
274 the impacts of COVID-19 on primary and secondary opioid screening were identified as

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275 negative. Providers reported impacts of COVID on their patients/clients, including perceiving
276 that patients were experiencing greater burdens of depression, anxiety, and difficulties with
277 employment and housing. Because of COVID mitigation strategies, patients may have reduced
278 interaction time with providers and their face-to-face time was with added protective equipment,
279 decreasing opportunities for rapport building and thus limiting high-quality screening. Providers
280 were also impacted, especially in terms of competing priorities and the mental burden of
281 changing COVID clinical recommendations. These provider-related demands also negatively
282 impacted screening due to de-prioritization. Clinical settings and practices faced decreased
283 patient load and reimbursement, which impacted staffing and funding available for screening
284 programs and quality improvement initiatives. This impacted implementation of the statewide
285 perinatal quality improvement initiative to increase prenatal opioid screening. However, certain
286 practice changes had mixed effects on screening. Increased patient access through telehealth may
287 have improved opportunities for opioid screening, while lack of technology and difficulty
288 performing screening for IPV impeded both primary and secondary screening.

289 Participants in this study described their perceptions of the impact of COVID on pregnant
290 patients. Clinicians reported increased rates of overdose, perhaps related to policy and
291 socioeconomic effects of the pandemic and associated mitigation policies, such as losses in
292 employment, income, health insurance, and housing. This aligns with findings from previous
293 studies that demonstrated changes in social determinants of health during the COVID pandemic,
294 such as decreased employment and income, increased housing instability and homelessness, and
295 difficulties accessing health care (Green, Fernandez, & MacPhail, 2021; Lin, Law, Beaman, &
296 Foster, 2021). Perhaps resulting from these changing conditions, several studies have also
297 reported increases in substance use and overdose (Vo, Patton, Peacock, Larney, & Borquez,

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298 2022), mental health conditions (Chen, Pusica, Sohaei, Prassas, & Diamandis, 2021), and family
299 and interpersonal violence during the COVID pandemic (Mazza, Marano, Lai, Janiri, & Sani,
300 2020; Moreira & Pinto da Costa, 2020; Sanchez, Vale, Rodrigues, & Surita, 2020). These family
301 and household impacts of COVID may also reduce pregnant individuals' participation in
302 healthcare visits, limiting the ability to be screened for opioid use and related conditions.

303 Telemedicine use was intended to mitigate barriers to attending clinical visits while
304 supporting social isolation to prevent COVID exposure and transmission (Fryer, Delgado, Foti,
305 Reid, & Marshall, 2020). Many participants described how beneficial telemedicine was to
306 engage patients remotely and limit COVID exposure. However, patient or practice deficiencies
307 in technology or internet hindered telehealth visits. Additionally, with people at home to avoid
308 COVID exposure, having older children, large family households, or abusive or controlling
309 partners may preclude the necessary privacy for remote visits with healthcare providers.
310 Limitations of telemedicine implementation during COVID have previously been identified in
311 the literature, particularly for exacerbating inequalities for families and patients already at risk of
312 low clinical engagement (Katzow, Steinway, & Jan, 2020; Madden et al., 2020). Furthermore,
313 the present study also identified issues that providers must address to effectively utilize
314 telemedicine, such as the need to build rapport and the difficulties of screening for IPV, in order
315 to successfully implement opioid and related screening recommendations.

316 The need for patient-provider rapport within the context of effective screening is well
317 known (American College of Obstetricians and Gynecologists, 2017a). Within the additional
318 context of the COVID-19 pandemic, however, rapport may be particularly important. Patients
319 and providers may have less face-to-face time, limiting the ability and effectiveness of screening.
320 With remote visits, providers may need to learn additional strategies for developing rapport

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321 (Newcomb et al., 2021). Likewise, with the stress of in-person visits increased from limiting
322 visitors, wearing additional layers of PPE, and fears about COVID necessitating separation of
323 patents from their newborns, new approaches for rapport may be needed. Moreover providers
324 may face additional burnout, compassion fatigue, and an overall sense of being overwhelmed, in
325 addition to the physical burden from wearing excess PPE (Rao et al., 2021). Thus, healthcare
326 systems and practices may benefit from implementing worksite trainings on a range of topics,
327 such as developing rapport in virtual clinical environments, the importance of substance use and
328 mental health screenings, and provider self-care.

329 This study had several strengths and limitations. The study benefits from the perspectives
330 of a diverse group of health professionals who work in a variety of clinical settings. Many
331 participants reiterated similar points, which increases confidence in the findings. This was a
332 timely study, simultaneously occurring during initial implementation of a statewide quality
333 improvement initiative to improve opioid screening during pregnancy and shortly after COVID
334 mitigation strategies were enacted. However, there are also limitations to this study. With a focus
335 on clinical providers and their self-selection into the study, it is unknown how well the findings
336 can be generalized to a patient/client perspective or to other regions. Additionally, recruitment
337 patterns varied throughout the course of the study, largely due to provider clinical demands and
338 availability for interviews. For example, most obstetrician interviews took place early and
339 interviews with participants from other professions later in the study, causing the professions of
340 participants to be generally clustered in time within the recruitment period. Therefore, we do not
341 know whether participant perspectives varied over the course of the pandemic or if any temporal
342 differences in findings were an artifact of recruitment patterns. Future studies may wish to gain
343 the perspective of patients/clients and to quantitatively determine whether screening rates

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344 differed significantly during the COVID-19 pandemic. However, given the prolonged and
345 resurging nature of COVID-19, these findings may have immediate significance, as well as
346 implications for future disasters and pandemics.
347

348 **IMPLICATIONS FOR PRACTICE AND/OR POLICY**

349 In the face of increased risks for substance use and overdose, poor mental health, and
350 related conditions such as IPV, it is critical to develop plans to ensure appropriate and
351 comprehensive screening in the face of major global pandemics and disasters. Without focused
352 attention and commitment, clinical changes because of COVID may worsen existing health
353 inequities among populations at risk (Onwuzurike, Meadows, & Nour, 2020), such as pregnant
354 individuals with substance use. However, providers face competing priorities and changes in
355 allocation or lack of resources, along with periods of high patient load and acuity, that negatively
356 impact their mental health and ability to engage in quality improvement projects. Additionally,
357 measures to mitigate infectious disease spread may impact mental health and social
358 connectedness among patients. Telemedicine and other technological interventions can address
359 some patient screening challenges; however, barriers to implementing telemedicine, limitations
360 in the ability to perform certain social screenings, and difficulties building rapport need to be
361 addressed to engage in effective trust-building and screening.
362

363 **CONCLUSION**

364 Screening during a global pandemic is critically important due to related policy,
365 sociocultural, and economic changes that may increase risk factors for substance use while
366 simultaneously decreasing access to educational, preventive, and treatment programs and

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367 services. The COVID pandemic resulted in increased substance use and overdose, intimate
368 partner violence, and mental illness, along with changes in social determinants of health, such as
369 housing and food insecurity. Consequently, it is vital to universally screen people at critical
370 points, such as pregnancy and childbirth, and to incorporate these screens into emergency and
371 disaster planning and management.

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372 References

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Table 1. Summary of Screening Recommendations in Prenatal Care Settings

Primary Screenings	**Secondary Screenings**
Population: All pregnant patients	Population: Patients with primary screens positive for Opioid Use Disorder
• Assess for substance use disorders • Utilize validated screening tools	• Screen for polysubstance use • Screen and evaluate for commonly occurring co-morbidities - Infectious diseases - Psychiatric disorders - Physical and sexual violence

Modified from the Alliance for Innovation on Maternal Health bundle available at https://safehealthcareforeverywoman.org/aim/patient-safety-bundles/maternal-safety-bundles/obstetric-care-for-women-with-opioid-use-disorder-aim/

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Table 2. Themes, Subthemes, and Exemplary Quotes Related to the COVID-19 Pandemic and its Impact on Opioid and Related Screening amongst Pregnant Patients

1: Worsening health and life conditions of pregnant patients	
Poor mental health	"I've definitely seen [an] increase in anxiety in terms of [what] our patients are going through. Domestic abuse, I don't know because those patients are even less likely to come into the office. So I'm sure there is a repercussion there. But in terms of psych effects, definitely a lot more anxiety and depression as well. We're seeing a lot more of that in our postpartum women, because I think we know to screen for that more in that population." (#9, Obstetrician)
	"More of [our pregnant patients] are more depressed and especially those moms that are [COVID] positive and we have to separate their baby from them while they are inpatient or we have to restrict their visiting ability because we have to wait for them to get retested and get the results before their visitation can be resumed… [We're seeing], you know, anxiety, depression, and stuff like that." (#5, Nurse Practitioner)
Factors increasing risk for overdose	"There are… huge changes in overdose rates in and around pregnancy with COVID because people were out of work and were getting evicted. People who use [medication-assisted treatment for opioid use disorder] from private providers or had to pay for it weren't able to get it. They had a significant rise in overdoses in their pregnant population there... So COVID really hit hard in some of these women just because you lose your job,

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	you lose your income, lose your place to stay, and you may lose your medically assisted treatment." (#3, Obstetrician)
	"I think the quarantine has a lot to do with [the local rise in overdoses] and also financial stress and intimate partner violence is on the rise." (#6, Parent Educator).
	"One of the biggest challenges in community resources we've had is housing. Housing is huge, trying to find places for people to go. It's always a challenge, but with COVID it's been off the wall. [We're] trying to [find] a safe place for people to live." (#6, Parent Educator)
2: Impaired patient-provider interactions	
Protective equipment hindering patient-provider connection	"I don't think that somebody who is dressed in full [personal protective equipment, or PPE] is coming from a place of low intimidation for the mom [or] feels like a really good connection. I think it hinders [connection] overall. There's an unaddressed or unidentified aspect of PPE as well. I don't have a good smile, but people always talk about how great it is to see me smile. And I feel like with massive PPE we lose a lot of that. That's really a part of human connection that we lose. One of the biggest skills in screening is building connection with [patients and developing] rapport. When you [cover] half my face [by PPE], it's really tough to build as good a rapport." (#11, Pediatrician)

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Limited face-to-face time	"There are times where we have COVID positive patients that providers want to minimize their exposure, minimize their time with the patient. Whether that's for better or for worse, it does hinder your ability to screen properly..." (#11, Pediatrician).
3: Lack of priority and resources	
System priorities and lacking resources	"And so I think definitely in terms of the [opioid screening] initiative, COVID just took over and it was what everybody was thinking about. ...For a while there was changing [guidance] every day, sometimes twice a day, what we were supposed to be doing. One's brain is always so big [chuckle]. So I think we lost a lot of opportunities [for opioid screening] there because everybody was so focused on [COVID]." (#3, Obstetrician)
	"But as far as just generally doing any kind of quality improvement right now, um, especially because over the last week or two, we are just seeing cases explode. All of our focus is on COVID again, so it's hard to add anything else. ...People are having to take forced [paid time of] because of low reimbursement... Clinics are feeling it because we're having to purposely decrease our volume, so [there isn't] money to do anything right now. We're barely making it so that we can continue to keep our employees employed. [Proposing opioid screening or] anything that involves more money is going to be [denied]." (#1, Obstetrician)
	"A lot of things stopped with COVID because everybody was in COVID overload, so you could barely think beyond that. There were so many issues each moment to think about. [Now] we're getting more the hang of

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	COVID and so now we can go back to adding other things. Unfortunately for us, this [opioid screening initiative] started at a really difficult time. ...Many large hospital systems just put a pause on it because they furloughed people, people were working at home, they didn't have access to the hospital [medical record system]. The presence of COVID has certainly negatively impacted the [opioid screening] initiative." (#3, Obstetrician)
Providers are overwhelmed (particularly early in epidemic and during times of high rates of COVID)	"[COVID has] completely taken all focus off anything else. Everything else has been thrown out of the window as far as any new quality initiatives because so [many] resources have been devoted to COVID that it's taken away from everything else... As clinicians, we're drained for having to deal with it. [We] have very little reserve left in doing anything in addition to just doing medical care and all the COVID things on top of it. We're already bombarded with literally emails every day that change about what we have to do, screening policies for [COVID], which have been changing on an everyday basis..." (#1, Obstetrician)
	"And the [opioid screening] initiative, thankfully, there already was a structure there regarding how all of that is put together and we already have funding for that, so, you know, I think that can potentially be a thing, but, you know, as far as the people's willingness to participate, we're exhausted. So, you know, we're all on edge. We're all like mentally exhausted. Like, I was just talking to my boss and my other colleagues and we're just, you know, and now, unfortunately, we're seeing a surge. So we're all like, ugh, we're so over this. We are so tired. Um, and now it's just going to get worse." (#1, Obstetrician)

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4: Conducting opioid screening remotely	
Remote visits improve opioid screening	"I think [COVID] is positively affecting [our ability to conduct opioid screening]. I really think it's helping break down a lot of barriers with these moms. We've had a lot of moms being very blunt about the fact that they were dodging our calls until we offered them telemedicine. They met us virtually when they were comfortable, where they have the ability to hang up. [Laughs] And then we built a relationship, and we get text messages from these moms that are saying, 'I'm so glad I met you guys.' So I think [telemedicine is] very helpful [for opioid screening]." (#4, Registered Nurse)
	"Currently, right now, telemedicine has been huge. I think that has helped to kind of break down barriers between moms as well to where they feel more comfortable [disclosing substance use]. (#4, Registered Nurse)
Remote visits can hinder opioid and related screening	"There are pluses and minuses [to remote visits and screening]. Some people love it. Some people, we've learned that when we're opening a new person, we start by phone because it's just too uncomfortable and intrusive to do a video conference the first time. And as I experienced with you, [chuckle] I had technical difficulties because you're kind of like, just click on the link — how hard is that? But it proved to be *very* hard. So for the first month or so, we *barely* [screened] anybody. But then we [tried doing] the first two or three [visits by] phone calls and kind of get to know each other and then say, well, how would you feel about doing a video conference next time?

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	We kind of built up to that. It's not as good in terms of being there in person and interacting, but it's easier for some." (#6, Parent Educator)
	"Our [obstetric] visits of course are still in person, but there's often times that I've seen now our postpartum aren't in person… And so you're not really having that sit-down face-to-face interaction [with patients]. We don't have video conferencing technology yet in the office, so [we're conducting screening] on the phone… [but we're] not able to pick up on nonverbal cues and things like that that usually help prompt me into thinking, 'Okay, this person is saying they're fine and happy. But just looking at them, I can tell that they're not.'" (#9, Nurse Practitioner)
	"…When you're doing the [opioid] screening and assessment, sometimes it's not what your client telling you, it's how they present. You're not seeing that, you know, presentation [when having less in-person visits]. So [screening is] difficult for everyone involved, but you don't have a choice." (#13, Social Worker)
	"And then, of course, how honest are you going to be with me on a telemedicine visit in your house, when I'm asking you about opioid? Probably not, like it needs to be in a private setting. So that's kind of impossible to screen in that kind of a setting. …People are concerned that they may be overheard. Because people aren't being, I can tell, as honest with me as they would in-person." (#1, Obstetrician)

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	"The one negative thing I would say is that IPV screening, we're a little more cautious on how we do that because we don't know who could hear it." (#4, Registered Nurse)

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Author Biographies:

Tara Foti is a perinatal and family health socio-behavioral researcher focusing on high-quality, evidence-based healthcare for families addressing substance use, mental illness and violence. Tara is currently a delivery science postdoctoral fellow at Kaiser Permanente Northern California Division of Research.

Shanda Vereen, MSPH, is a PhD candidate at the University of South Florida College of Public Health whose research centers family health and wellbeing, with a particular emphasis on sexual health and inclusion of fathers/male caregivers in research and programming.

Russell Kirby is a perinatal and pediatric epidemiologist and Professor in the College of Public Health, University of South Florida. He has expertise in population-based surveillance of pregnancy outcomes, birth defects and developmental disabilities, and teaches maternal and child health.

Cheryl Vamos PhD, MPH, is an Associate Professor and Director of USF's Center of Excellence in MCH at the College of Public Health, University of South Florida. Her specializations include women's/reproductive health, health literacy, and implementation science.

William Sappenfield is a pediatrician/epidemiologist, Professor, Director of the Chiles Center, College of Public Health, University of South Florida, and Director of the Florida Perinatal Quality Collaborative. He has expertise in maternal and infant health surveillance and quality improvement.

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