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1 **Trauma-Informed Home Visiting Models in Public Health Nursing: an Evidence-based**
2 **approach**

3

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6

7 **Abstract:**

8 Traumatic experiences can have significant health impacts, particularly when experienced during
9 childhood. Structural determinants of health including environmental disasters, limited access to
10 mental health services and affordable housing can contribute additional stress for parents with a
11 personal history of childhood adversity. These factors can directly impact their children,
12 contributing to intergenerational trauma. Pregnant people and families with young children are
13 often referred to public health nursing maternal-child home visiting (HV) programs when there
14 are concerns about historical or evolving childhood trauma. Strict eligibility and/or participation
15 requirements of existing evidence-based maternal-child HV programs can exclude families who
16 have or are experiencing childhood trauma and its impacts, and limit innovation by public health
17 nurses, a hallmark of the field. Therefore, we advocate for and share implementation of a Trauma
18 Informed Approach in Public Health Nursing (TIA PHN) model that incorporates a trauma-
19 informed approach into a traditional maternal-child HV program in three California counties.
20 TIA PHN, which began enrollment in March 2021 (N=325), utilizes public health nurses and
21 community health workers, and integrates a program evaluation in pursuit of evidence-based
22 status.

23

24

25 **Introduction**

26 Trauma, which includes adverse childhood experiences (ACEs), has long been recognized to
27 have substantial negative impacts on health and health behaviors across the lifespan. It is only in
28 recent years that trauma has become recognized as a public health crisis that affects entire
29 systems and communities, across generations.¹ In the United States, evidence-based maternal-
30 child home visiting (HV) programs have shown great promise for optimizing family health, thus
31 reducing the long-term health-related effects of trauma. Programs such as Nurse Family
32 Partnership and Healthy Beginnings are generally funded through county, state, and federal
33 sources.²⁻⁴ These interventions, require extensive research before they can be considered
34 evidence-based and thus eligible to be supported by public funds and disseminated widely. They
35 also perpetuate structural bias in that counties and organizations that are already well-resourced
36 are the ones that are able to secure funding to implement and evaluate such programs.⁵ Further,
37 such requirements do not allow for flexible implementation of innovative approaches that are
38 tailored to local needs and populations. As a result, health systems miss opportunities for public
39 health nurses to positively impact families experiencing trauma.

40

41 Since 2017, the Sonoma County Field Nursing team has been developing and implementing a
42 Trauma Informed Approach in Public Health Nursing (TIA PHN) HV program to mitigate toxic
43 stress, improve resilience, and optimize health among low-income families who are at high risk
44 for trauma and who are experiencing medical and/or social challenges.⁶ Currently being piloted
45 in three Northern California counties, the TIA PHN model is not yet considered evidence-based
46 but represents a promising HV alternative for families affected by trauma. We describe the
47 evolution of HV models and argue that innovation in addition to fidelity to evidence-based
48 practice should be considered for HV and field nursing in the community. Further, we suggest
49 that support for interventions such as TIA PHN, which is evidence-informed, can equip public
50 health systems and nurses to respond more quickly to the crisis of childhood trauma, particularly
51 in the most underserved communities.

52

53 **Background**

54 Experiencing or being exposed to traumatic events during childhood can have substantial long-
55 term impacts on children, families, and communities across the lifespan and across generations.
56 Extensive research demonstrates that adverse childhood experiences (ACEs) – ten forms of
57 abuse, neglect, and/or household dysfunction before the age of 18 – are both common and
58 predict poor health and social outcomes in childhood and adulthood.⁷⁻⁹ The experience of trauma
59 can result in stress responses that alter a child’s biology and brain architecture, with long-term
60 consequences on health, including asthma (1.13 greater odds), sleep disorders (1.82 greater odds
61 of nightmares), and infections resulting in hospitalization (2.09 greater hazard).⁹ Further, ACEs
62 exposure is correlated with high risk and poor outcomes in pregnancy, including 4.2 greater odds
63 of maternal depression, 2.09 greater odds of preterm birth, and up to 1.8 times higher risk of fetal
64 death.¹⁰ The impacts of ACEs and resulting toxic stress have been declared a public health crisis.¹
65 But trauma is not limited to ACEs, and can include community violence, homelessness,
66 structural violence such as racism, environmental disasters driven by climate change, or a global
67 pandemic, among others.¹¹

68

69 Screening for trauma and its consequences (e.g., toxic stress, post-traumatic stress disorder) can
70 identify individuals most at risk for poor health and social consequences. Families that screen
71 positive can be supported in accessing the care they need to address trauma and mitigate further
72 trauma. Broad population screening of families for historical (parental) and evolving childhood
73 trauma has gained acceptance, and research supports the acceptability of screening in clinical
74 settings, including during pregnancy, as part of well-child pediatric visits, and by community-
75 based nurses who work with parents of infants.¹²⁻¹⁶ In 2019, in response to growing data on the
76 causal relationship between trauma and poor health, the Surgeon General of California enacted
77 policy to guide implementation of ACEs screening for children and adults in primary care
78 settings. The ACEs Aware initiative provides both reimbursement through Medicaid for
79 screenings that are conducted in a primary care setting as well as training and clinical protocols
80 for primary care settings that serve the Medicaid population. The goal of the ACEs Aware policy
81 initiative is to create state-wide systems change to decrease ACEs and toxic stress by half within
82 one generation.¹⁷ While this is a bold and important initiative to change the public health care
83 system in the State of California, limitations of screening within primary care settings exist.

84

85 **Meeting the Unique Needs of Families with Trauma**

86 Although screening for ACEs in primary care is feasible and acceptable, not all individuals are
87 seen within primary care settings, even publicly funded ones.^{18,19} In addition, simply screening
88 for ACEs does not take into consideration the individual and/or family experience and context in
89 which trauma takes place, for example homelessness, nor does it mitigate or respond to evolving
90 trauma within a family setting. Public health nursing, specifically maternal-child HV services
91 utilizing a trauma-informed approach, is an ideal complement to primary care for screening for
92 trauma and responding to its consequences.

93

94 ***Traditional Maternal-Child Home Visiting Services***

95 Traditional maternal-child HV programs originated in the United States under a model of
96 prevention and social justice with a goal of early identification of medical, social, and/or safety
97 needs, and linking families to community resources.²⁰ The first HV programs focused on
98 improved maternal-infant health, universal kindergarten, and supporting immigrant communities.
99 Around the time of the Civil Rights Movement, HV was an important component of efforts to
100 address poverty and social inequities. Towards the end of the twentieth century, HV was
101 identified as a potential tool to prevent child abuse and neglect.²¹ Currently, maternal-child HV
102 programs seeking government funding through the Maternal, Infant, and Early Childhood Home
103 Visiting Program (MIECHV) must implement evidence-based models focusing on six
104 prevention-based areas: (1) improving health for mothers, newborns, and children; (2) preventing
105 child maltreatment and reducing emergency room visits; (3) improving school readiness; (4)
106 reducing crime and violence; (5) improving economic stability; and (6) improving referrals and
107 coordination of community resources.²

108

109 ***The Current State of Maternal-Child Home Visiting Services***

110 In recent years, attention has pivoted toward funding and referrals for models that are considered
111 evidence-based, with the understanding that replicating services to model fidelity is more likely
112 to result in positive outcomes. Several HV models have successfully demonstrated improved
113 health and social status for enrollees, earning recognition as evidence-based models.²²

114 Pediatricians have argued in favor of greatly expanding HV to families of young children, using
115 available evidence-based models, with an endorsement of closer ties to primary medical home
116 sites.^{21,23} However, replicating model delivery to a scale that meets actual community need can
117 pose a challenge as fidelity measures move from the academic to practice setting.²⁴ An analysis
118 of data from the Maternal and Infant Home Visiting Program Evaluation (MIHOPE) and
119 MIHOPE-Strong Start studies of four evidence-based HV programs delivered to 4,229 families
120 in 12 states and 2,900 families in 17 states respectively confirmed benefit for some early
121 childhood and family health measures seen in the original studies, but only limited benefit for
122 expected birth outcomes and prenatal behavior; this was despite verification that services were
123 delivered to fidelity.³ To our knowledge, these HV programs did not formally use the ACEs tool
124 or incorporate a trauma focused curriculum. We are not aware of any studies that have evaluated
125 a curriculum that specifically addresses the impacts of trauma on maternal-child HV participants.
126

127 Inequities in access to evidence-based programs

128 While previous research has shown that HV programs in general have demonstrated
129 effectiveness in the provision of education, advocacy, and resources to families who are at high
130 risk for adverse experiences, there is little data to support whether or not individual programs
131 directly address the needs of families who have already experienced, or are currently
132 experiencing adverse events.²⁵ Further, many families who would benefit from HV services are
133 often ineligible or unable to participate in programs with proven efficacy because many of them
134 have strict eligibility requirements that are challenging for families in crisis.²⁶ Of the 19
135 evidence-based maternal-child HV programs eligible for federal MIECHV funding, seven either
136 require or strongly recommend that clients be first-time parents, enrolling early in pregnancy;
137 however families experiencing historical and emerging trauma are less likely to access prenatal
138 care, making necessary early enrollment very challenging.²⁷ Indeed, there are clear disparities in
139 demographic characteristics of those being served by evidence-based programs compared to
140 emerging models; for example, 53% of clients enrolled in emerging models are Latinx/Hispanic,
141 compared with just 30% of those in evidence-based models, and 55% of clients in emerging
142 models speak English as their primary language, compared to 76% of those in evidence-based
143 models.²⁸ These differences underscore the need for more equitable access to evidence-based HV

144 services for vulnerable families. Families with historical and ongoing trauma may benefit most
145 from tailored services that specifically address adverse childhood experiences. Emerging models
146 providing a trauma-related curriculum in their approach offer an alternative to vulnerable
147 families unable to meet the inclusion and participation criteria of existing evidence-based HV
148 programs. It is hoped that as these emerging models gather evidence to support effectiveness,
149 there will be a greater number of evidence-based programs that will extend to a wider population
150 of diverse families in need of services.

151

152 Family First Protective Services Act

153 The Family First Prevention Services Act (FFPSA) of 2018 seeks to prioritize upstream
154 interventions for families in which children have suffered maltreatment, through expansion of
155 referrals to evidence-based programs instead of to foster care.²⁹ However, Testa and Kelly
156 examined available evidence-based models' effectiveness in addressing the complexities of this
157 high-risk group, and questioned whether or not unintended consequences could arise for subsets
158 of the population (e.g. families living in poverty).³⁰ And while strict adherence to fidelity
159 measures and targeted eligibility have been cited as factors for success in evidence-based
160 models, flexibility to address the root causes of parental challenges offers a more inclusive
161 approach, as opposed to filtering home-visiting participants through narrow criteria known to
162 correlate with success in the research setting.^{31,32}

163

164 Further, financial constraints on publicly funded preventive social and medical programs coupled
165 with limited HV resources have resulted in the majority of referrals to HV services being for
166 families referred after a negative medical and/or social outcome has already occurred, including
167 challenging life circumstances.²⁰ These very experiences and circumstances, however, can make
168 it difficult for families to participate in HV programs either because of participation requirements
169 (e.g., meeting on a set schedule) or eligibility requirements (e.g., being a first-time parent). In
170 Sonoma County, many referrals to the Field Nursing program are for families who have already
171 encountered significant life stressors and traumas. From 2018-2021, more than one-third of
172 families referred were experiencing homelessness, and over 40% were experiencing substance
173 use. In fiscal year 2020-2021, half of families referred were experiencing interpersonal violence

174 at the time of their first home visit; 54% were experiencing current mental health concerns, an
175 increase from 34% and 33% in fiscal years 2018-19 and 2019-20, respectively. This shift from
176 preventing trauma to responding to it indicates a new paradigm for HV programs. A unique area
177 of focus regarding family challenges is the parent's own childhood trauma history.

178

179 Addressing the Parent's Childhood Trauma Histories

180 Several HV programs have piloted use of the ACEs measure with data collected by home
181 visitors, showing that higher child ACEs scores are linked to child developmental delays, and
182 higher adult ACEs scores are correlated with postpartum depression.^{33,34} An examination of the
183 nuances of social workers and PHNs delivering ACEs questionnaires to parents receiving home
184 visits found higher ACEs scores corresponding to positive depression screening responses.³⁵
185 Beyond the utility of ACEs data in facilitating an understanding of the sequelae of trauma, the
186 ACEs questionnaire can promote reflection of the parent/caregiver's experience and what they
187 wish to mitigate and prevent in their own child's experience. Therefore, we propose that
188 incorporating the adult ACEs screening combined with a trauma-informed curriculum for parents
189 receiving HV services represents an innovative approach to meet the needs of high-risk families
190 who are currently not adequately served through the existing evidence-based models.

191

192 **Trauma Informed Approach in Public Health Nursing (TIA PHN)**

193 The Sonoma County Field Nursing Team developed the TIA PHN model in response to an
194 increase in unmet needs among clients, and as a means of addressing the crisis-driven nature of
195 many of the referrals coming into the program.³⁶ TIA PHN is an example of an innovative,
196 evidence-informed maternal-child HV approach that acknowledges and addresses the effects of
197 toxic childhood stress to break the cycle of intergenerational trauma.⁶ In 2017, rates of
198 homelessness, intimate partner violence, and mental health concerns among families enrolling in
199 the Sonoma County Field Nursing program increased by 17-28% in the months immediately
200 following the 2017 Sonoma Complex Fire, which destroyed more than 5,300 homes and
201 significantly affected the community's overall economy and safety net.³⁷ Since 2017, the county
202 has experienced nearly annual wildfires, flooding, and the COVID-19 pandemic. Each of these
203 disasters has had a significant social and medical impact on the families served by the Field

204 Nursing Team. In response, the TIA PHN model incorporates trauma-informed principles in all
205 client and staff interactions, the delivery of the TIA PHN model curriculum, and a conversation
206 about ACEs with the optional use of the original 10-item ACEs questionnaire, while continuing
207 to implement the case management components employed by most evidence-based models:
208 voluntary participation; the development of an individual service plan; mental health screenings
209 and referrals for adult caregivers; and developmental screenings and referrals for children. The
210 participants consist of referrals received in the three counties from medical providers and
211 community-based organizations to the maternal-child HV sections of the Public Health
212 departments; families included are those identified as high-risk pregnant people or families
213 experiencing trauma (past and/or current).

214

215 Multidisciplinary team

216 An integral component of the TIA PHN model is the use of a multidisciplinary team, consisting
217 of the public health nurse (PHN) and community health worker (CHW). The use of a PHN/CHW
218 team has previously been shown to improve participants' perception of the help and education
219 they receive, as well as increase participants' report of improved self-confidence and feeling that
220 they have someone to talk to who cares.³⁸ The TIA PHN model acknowledges the need for
221 nursing expertise outside of the clinic setting to identify and support families with complex
222 medical needs such as low birthweight and pre-eclampsia; and to provide and reinforce
223 education surrounding medical risks associated with pregnancy and post-partum such as sepsis,
224 perinatal substance use, cardiovascular events, and post-partum hemorrhage. The TIA PHN
225 model also recognizes the need for a community health worker to help support enrolled families
226 with culturally competent health and safety education, demonstration of the use of social and
227 medical services, and provision of assistance such as transportation to medical appointments.
228 Currently, however, there are no evidence-based maternal-child HV programs that incorporate
229 the collaborative efforts of a PHN/CHW team.⁴

230

231 Curriculum acknowledging parental ACEs and Trauma, and optimizing family health

232 To address historical and evolving traumas experienced by enrolled families, the TIA PHN
233 model utilizes a curriculum aimed at providing trauma-informed health education. The

234 curriculum was developed after an extensive review of the literature on ACEs, toxic stress, and
235 trauma, and their correlation to poor health outcomes. It provides both content and guidance for
236 engaging in conversations with clients in the following overarching areas: (1) Brain
237 Development and ACEs, (2) Pregnancy and Post-Partum; and (3) Mitigating Toxic Stress
238 through healthy eating, exercise, sleep, relationships, mental health, and mindfulness.³⁶ Rather
239 than relying on a didactic approach to education, the curriculum utilizes motivational
240 interviewing techniques to encourage the client's self-reflection, and client participation in the
241 information being shared. Clients are encouraged to identify existing strengths and, in
242 collaboration with the PHN/CHW, identify goals related to each topic that they would like to
243 achieve. These goals are then supported by the PHN/CHW through additional education and
244 linkages to local resources.

245

246 Although the original 10-item ACEs questionnaire is offered to adult clients, neither its
247 completion nor reporting of scores is required. Instead, the focus of the conversation is on the
248 effects that ACEs have on long-term health, and the ways in which families can empower
249 themselves to mitigate these effects and improve health. TIA PHN staff are encouraged to use
250 their discretion as to the timing and frequency of delivery of the model curriculum. This
251 flexibility in the curriculum structure acknowledges that many home visits occur as a family
252 encounters a crisis that inhibits their ability to be receptive to education or engage in self-
253 reflection.

254

255 Proposed Evaluation

256 After initial pilot work in Sonoma County, the TIA PHN model is currently in an expanded 30-
257 month pilot phase in the counties of Napa, San Francisco, and Sonoma.⁶ In partnership with a
258 nursing academic partner and with funding from the California Home Visiting Program (CHVP),
259 the goal of this work is to advance the TIA PHN model from evidence-informed to evidence-
260 based status so that it may be disseminated widely and supported through government funding.
261 The program evaluation is designed to answer the following questions: (1) Does implementation
262 of the proposed program result in improved family health for program participants? And (2) Is
263 there a difference in health and healthcare outcomes between clients who received the TIA PHN

264 intervention and comparable Medi-Cal recipients in the three counties? Over the course of the
265 30-month pilot, it is estimated that 750 families will be reached across the three counties. Data
266 for the comparison group will be derived from the Medi-Cal administrators of each county as
267 well as other population-based data.

268

269 Client-level outcome data from program participants will be compared to a demographically
270 similar Medicaid (Medi-Cal) non-participant population in the three counties. Outcomes of
271 interest include rates of child immunization; contraception; linkage to primary medical and
272 dental care; insurance coverage; rates and mean duration of breastfeeding; rates of screening,
273 identification, and referral for perinatal mood disorders (e.g., depression); and rates of screening,
274 identification, and referral for child developmental delays. All indicators are standardized across
275 counties, and can be compared to county-level population data already being collected by
276 Medicaid administrators or programs such as Women, Infants and Children. Indicators are
277 recorded by HV staff as clients exit the program. In addition, mean duration and dose of the
278 intervention will be tracked, along with if, when and how often clients receive the three
279 overarching elements of the TIA PHN curriculum (Brain Development and ACEs; Pregnancy
280 and Post-partum; and Mitigating Toxic Stress through healthy eating, exercise, sleep,
281 relationships, mental health, and mindfulness). Data will be collected by PHN/CHWs as they
282 deliver services and complete TIA PHN intervention components, and will be documented in the
283 electronic health record system of each county. Indicators for clients who have completed the
284 program will be abstracted quarterly from each county EHR; data on clients who were lost to
285 follow-up or who chose not to continue their participation in the program will also be tracked.

286

287 The team will also examine data describing the reach and recipients of the TIA PHN model for
288 differences with the Medi-Cal participants: age; stage at enrollment (prenatal,
289 postpartum/newborn, pediatric); gender identity, sex at birth, sexual orientation; racial/ethnic
290 identity; language spoken at home; number of pregnancies and live births; and reason for
291 referral, including housing insecurity, substance use, mental health, intimate partner violence,
292 and/or medical fragility. These data will help to identify whether the TIA PHN program achieves
293 its goal of reaching the most vulnerable populations. Preliminary data from the three counties

294 shows that 42% of enrollees between March and October 2021 reported a history of mental
295 health concerns, 40% were homeless or housing insecure, over one-quarter reported intimate
296 partner violence, and over 20% reported current or past substance misuse (Table 1).

297

298 An essential component of the TIA PHN model is the flexibility that it allows the PHN/CHW
299 team to respond to the needs of clients, and the discretion it affords them to determine
300 appropriate timing for delivery of various aspects of the intervention. Delivery of the ACEs
301 conversation, routine screenings and curriculum will be tracked for each participant enrolled.
302 Other fidelity measures include recording of standardized training and staff participation in peer
303 support (one on one and in groups). PHN/CHW staff will contribute qualitative data about
304 facilitators and barriers to implementation, as well as information about their own experiences of
305 delivering this precision HV program, including tailoring it to clients' needs. If feasible, the team
306 will also conduct in-depth qualitative interviews with a subset of program recipients/clients, to
307 understand their experience, with a particular focus on the experience of the ACEs conversation.
308 These data will contribute to overall understanding of the potential longer-term feasibility and
309 effectiveness of a more in-depth ACEs conversation in contrast to simple ACEs screening in
310 primary care.

311

312 **Discussion: Moving the Field Forward**

313 Public health researchers and policy makers in California are prioritizing the need to screen for
314 ACEs within primary care and other healthcare settings. The California Department of Public
315 Health has enacted policy where all Medi-Cal patients who access primary care in the state will
316 be screened for ACEs. While this is an important state level policy, there is a need to offer
317 interventions for families with historical or emerging trauma that may benefit from greater
318 assistance to achieve healthy outcomes; interventions within medical settings are in early
319 development and an evidence base is not yet established. Home visitors are uniquely poised to
320 address the health and social needs of families that have been exposed to adversity due to their
321 close relationship with the family and length of time afforded to each visit.³⁹ However, current
322 evidence-based HV programs primarily cater to families prior to situations of crisis, e.g.
323 enrolling only first-time parents early in pregnancy provides an opportunity to affect prenatal

324 medical care, address fetal exposure to substances, and identify parental knowledge deficits
325 ahead of abuse/neglect. Additionally, these programs lack precise curriculum focused on
326 historical and emerging trauma.

327

328 In response, Sonoma County public health nurses developed a model that brings a trauma-
329 informed approach to public health nursing (TIA PHN) to a community that has experienced
330 devastating environmental crises caused by the following wildfires: Tubbs, Nuns, and Pocket
331 Fires (2017), Kincade Fire (2019), and Glass and Lightning Complex Fires (2020). The TIA
332 PHN model incorporates an ACEs conversation with optional screening facilitated by a
333 multidisciplinary HV team of public health nurses and community health workers. The team's
334 ability to address trauma in a bicultural and bilingual manner is intended to promote resilience in
335 families with young children where historical or emerging trauma has been identified.

336

337 The TIA PHN model is an example of an intervention building on the evolving work of public
338 health nursing, an ethos embodied for over a hundred years to meet the needs of populations
339 served.⁴⁰ As public health nursing HV teams seek to employ evidence-based responses for
340 families identified by the California ACEs Aware Campaign, rigorous scientific evidence is
341 needed to prove effectiveness of existing practices for this population. Preliminary findings of the
342 TIA PHN pilot revealed that clients achieved 80%–100% of health-related outcome measure
343 goals when receiving this approach an average of 12 times over approximately 6 months.⁶ The
344 TIA PHN model represents an evidence-informed approach in the process of evaluation with
345 aspirations of eventually becoming an evidence-based model to meet the needs of families with
346 historical and emerging trauma. TIA PHN hopes to impact on the disruption of intergenerational
347 trauma in line with our state's goals.

348

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357

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365

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367

368 Human Participant Protection: Data reported in the article are regular service data collected from
369 all home visiting clients enrolled in the program, and therefore exempt.

370

371

372 **References**

373

- 374 1. Dube SR. Continuing conversations about adverse childhood experiences (ACEs)
375 screening: A public health perspective. *Child Abuse & Neglect*. 2018;85:180-184.
- 376 2. Kilburn MR. Evidence on home visiting and suggestions for implementing evidence-
377 based home visiting through MIECHV. *RAND Corporation Testimony presented before*
378 *the House Ways and Means Committee, Subcommittee on Human Resources on April*.
379 2014;2:2014.
- 380 3. Michalopoulos C, Crowne SS, Portilla XA, et al. *A summary of results from the MIHOPE*
381 *and MIHOPE-Strong Start studies of evidence-based home visiting*. 2019. Available at:
382 [https://www.mdrc.org/publication/summary-results-mihope-and-mihope-strong-start-](https://www.mdrc.org/publication/summary-results-mihope-and-mihope-strong-start-studies-evidence-based-home-visiting)
383 [studies-evidence-based-home-visiting](https://www.mdrc.org/publication/summary-results-mihope-and-mihope-strong-start-studies-evidence-based-home-visiting). Accessed October 24, 2021,
- 384 4. U.S. Department of Health & Human Services Administration for Children and Families.
385 Home visiting evidence of effectiveness (homvee). nd; <http://homvee.acf.hhs.gov/>.
386 Accessed October 23, 2021.
- 387 5. Sanson-Fisher RW, Bonevski B, Green LW, D'Este C. Limitations of the randomized
388 controlled trial in evaluating population-based health interventions. *American Journal of*
389 *Preventive Medicine*. 2007;33(2):155-161.
- 390 6. Ballard J, George L, Zazueta-Lara E, et al. Trauma informed public health nursing visits
391 to parents and children. *Public Health Nursing*. 2019;36(5):694-701.
- 392 7. Corso PS, Edwards VJ, Fang X, Mercy JA. Health-related quality of life among adults
393 who experienced maltreatment during childhood. *American Journal of Public Health*.
394 2008;98(6):1094-1100.
- 395 8. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household
396 dysfunction to many of the leading causes of death in adults: The Adverse Childhood
397 Experiences (ACE) Study. *American Journal of Preventive Medicine*. 1998;14(4):245-
398 258.
- 399 9. Oh DL, Jerman P, Marques SS, et al. Systematic review of pediatric health outcomes
400 associated with adverse childhood experiences (ACEs). *Pediatrics*. 2018;Vol. 141(1).

- 401 10. Olsen JM. Integrative review of pregnancy health risks and outcomes associated with
402 adverse childhood experiences. *Journal of Obstetric, Gynecologic & Neonatal Nursing*.
403 2018;47(6):783-794.
- 404 11. Lee H, Kim Y, Terry J. Adverse childhood experiences (ACEs) on mental disorders in
405 young adulthood: Latent classes and community violence exposure. *Preventive Medicine*.
406 2020;134:106039.
- 407 12. Flanagan T, Alabaster A, McCaw B, Stoller N, Watson C, Young-Wolff KC. Feasibility
408 and acceptability of screening for adverse childhood experiences in prenatal care. *Journal*
409 *of Women's Health*. 2018;27(7):903-911.
- 410 13. Hanson S. *How California Became ACEs Aware: A Case Study Examining Program*
411 *Implementation During the Covid-19 Pandemic*, The Claremont Graduate University;
412 2021.
- 413 14. Karatekin C, Hill M. Expanding the original definition of adverse childhood experiences
414 (ACEs). *Journal of Child & Adolescent Trauma*. 2019;12(3):289-306.
- 415 15. Mersky JP, Lee C-TP, Gilbert RM. Client and provider discomfort with an adverse
416 childhood experiences survey. *American Journal of Preventive Medicine*.
417 2019;57(2):e51-e58.
- 418 16. Selvaraj K, Ruiz MJ, Aschkenasy J, et al. Screening for toxic stress risk factors at well-
419 child visits: The Addressing Social Key Questions for Health study. *The Journal of*
420 *Pediatrics*. 2019;205:244-249. e244.
- 421 17. California Department of Health Care Services (DHCS). Trauma Screenings and
422 Trauma-Informed Care Provider Trainings. 2021; [https://www.dhcs.ca.gov/provgovpart/
423 Pages/TraumaCare.aspx](https://www.dhcs.ca.gov/provgovpart/Pages/TraumaCare.aspx). Accessed October 23, 2021.
- 424 18. Gross SM. *Screening for Adverse Childhood Experiences in Pediatric Primary Care*.
425 University of Maryland Baltimore; 2020.
- 426 19. Melnikow J, Evans E, Xing G, et al. Primary care access to new patient appointments for
427 California Medicaid enrollees: A simulated patient study. *The Annals of Family*
428 *Medicine*. 2020;18(3):210-217.

- 429 20. Finello KM, Terteryan A, Riewerts RJ. Home visiting programs: What the primary care
430 clinician should know. *Current Problems in Pediatric and Adolescent Health Care*.
431 2016;46(4):101-125.
- 432 21. Duffee JH, Mendelsohn AL, Kuo AA, et al. Early childhood home visiting. *Pediatrics*.
433 2017;140(3).
- 434 22. U.S. Department of Health & Human Services Administration for Children & Families.
435 Models eligible for Maternal, Infant, and Early Childhood Home Visiting (MIECHV)
436 Funding. nd; <https://homvee.acf.hhs.gov/HRSA-Models-Eligible-MIECHV-Grantees>.
437 Accessed October 13, 2021.
- 438 23. Avellar SA, Supplee LH. Effectiveness of home visiting in improving child health and
439 reducing child maltreatment. *Pediatrics*. 2013;132(Supplement 2):S90-S99.
- 440 24. Paulsell D, Del Grosso P, Supplee L. Supporting replication and scale-up of evidence-
441 based home visiting programs: Assessing the implementation knowledge base. *American*
442 *Journal of Public Health*. 2014;104(9):1624-1632.
- 443 25. Filene JH, Kaminski JW, Valle LA, Cachat P. Components associated with home visiting
444 program outcomes: A meta-analysis. *Pediatrics*. 2013;132(Supplement 2):S100-S109.
- 445 26. Daro D, Dodge KA. Strengthening home-visiting intervention policy: Expanding reach,
446 building knowledge. *New directions for America's preschool policies*. 2010:79-86.
- 447 27. Jamieson B. Exposure to interpersonal violence during pregnancy and its association with
448 women's prenatal care utilization: A meta-analytic review. *Trauma, Violence, & Abuse*.
449 2020;21(5):904-921.
- 450 28. National Home Visiting Resource Center. *2019 Home Visiting Yearbook*. Arlington,
451 VA2019. Available at: <https://nhvrc.org/yearbook/2019-yearbook/>. Accessed October 23,
452 2021,
- 453 29. Waid J, Choy-Brown M. Moving upstream: The Family First Prevention Services Act
454 and re-imagining opportunities for prevention in child welfare practice. *Children and*
455 *Youth Services Review*. 2021;127:106098.
- 456 30. Testa MF, Kelly D. The evolution of federal child welfare policy through the Family First
457 Prevention Services Act of 2018: Opportunities, barriers, and unintended consequences.
458 *The Annals of the American Academy of Political and Social Science*. 2020;692(1):68-96.

- 459 31. Casillas KL, Fauchier A, Derkash BT, Garrido EF. Implementation of evidence-based
460 home visiting programs aimed at reducing child maltreatment: A meta-analytic review.
461 *Child Abuse & Neglect*. 2016;53:64-80.
- 462 32. Putnam-Hornstein E, Prindle J, Hammond I. Engaging families in voluntary prevention
463 services to reduce future child abuse and neglect: A randomized controlled trial.
464 *Prevention Science*. 2021:1-10.
- 465 33. McKelvey LM, Whiteside-Mansell L, Conners-Burrow NA, Swindle T, Fitzgerald S.
466 Assessing adverse experiences from infancy through early childhood in home visiting
467 programs. *Child Abuse & Neglect*. 2016;51:295-302.
- 468 34. Mersky JP, Janczewski CE. Adverse childhood experiences and postpartum depression in
469 home visiting programs: prevalence, association, and mediating mechanisms. *Maternal
470 and Child Health Journal*. 2018;22(7):1051-1058.
- 471 35. Johnson K, Woodward A, Swenson S, et al. Parents' adverse childhood experiences and
472 mental health screening using home visiting programs: a pilot study. *Public Health
473 Nursing*. 2017;34(6):522-530.
- 474 36. Sonoma County Department of Health Services. Trauma Informed Approach in Public
475 Health Nursing (TIA PHN). 2022;
476 [https://sonomacounty.ca.gov/Health/Public-Health/Maternal-Child-and-Adolescent-
477 Health/Home-Visiting/Trauma-Informed-Approach-in-Public-Health-Nursing-\(TIA-
478 PHN\)](https://sonomacounty.ca.gov/Health/Public-Health/Maternal-Child-and-Adolescent-Health/Home-Visiting/Trauma-Informed-Approach-in-Public-Health-Nursing-(TIA-PHN)). Accessed January 10, 2022.
- 479 37. Sharygin E. Estimating Migration Impacts of Wildfire: California's 2017 North Bay
480 Fires. In: *The Demography of Disasters*. Springer, Cham; 2021:49-70.
- 481 38. Roman LA, Raffo JE, Meghea CI. Maternal perceptions of help from home visits by
482 nurse–community health worker teams. *American Journal of Public Health*.
483 2012;102(4):643-645.
- 484 39. Flaubert JL, Le Menestrel S, Williams DR, Wakefield MK. The Future of Nursing 2020-
485 2030: Charting a Path to Achieve Health Equity. 2021.
- 486 40. Gray A. Advanced or advancing nursing practice: What is the future direction for
487 nursing? *British Journal of Nursing*. 2016;25(1):8-13.

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490 **Table 1: Risk Factors at Program Enrollment in Napa, Sonoma, and San Francisco**

491 **Counties (March-October 2021), N=325**

Risk Factor	Proportion of Enrolled Families or Primary Caregivers
Past or current Child Protective Services involvement	45 (13.8%)
Past or current mental health concerns	136 (41.8%)
Currently homeless / housing insecure	130 (40.0%)
Past or current intimate partner violence	98 (30.2%)
Past or current substance misuse (including alcohol and marijuana)	75 (23.1%)

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