

Supplemental Table 1. Off-site Integrated Care Models and Interventions

Model*	Author	Specialist	Specialist Role/Intervention	Primary Care Provider/Settling	Primary Care Role	Target Population	Funding Source
Direct in-person care	Macdonald et al. (2004) ²⁴ ; Hickey et al. (2010) ²⁵	English Primary Mental Health Workers (PMHW) including nurses (46%), social workers (29%), psychologists and psychotherapists (13%), and other (12%).	PMHWS were based in primary care (23%), the community (27%), or tier 2/3 CAMH (48%). Primary Care-based PMHWs provide: <ul style="list-style-type: none"> • Consultation and liaison (most common) • Direct patient care • Education and training • Support for specialty referrals Specialty care (tier 2 or 3 CAMH)-based PMHWs provide: <ul style="list-style-type: none"> • Direct patient care (assessment and treatment) 	General practitioners across England	Not specified, varied, but some mention of primary care staff referring to PMHW to provide direct clinical work	Children and adolescents	UK government funding
Direct in-person care	Gardner et al. (2010) ³⁴	Psychiatric social worker (Suicide Prevention Team)	Suicide Prevention Team which responded to positive scores on a computerized suicide screening tool in primary care, including: <ul style="list-style-type: none"> • <i>SW at primary care clinic</i> who could meet with families on-site to triage, facilitate MH referral as needed in collaboration with MH Clinic SW; and • <i>SW at MH clinic</i> (on-call) who would receive notification of positive screens (immediately through a secure web page) and could meet families in the community to triage and schedule evaluation as needed 	9 clinics of an urban primary care system owned by Nationwide Children's Hospital, serving a predominantly minority population.	Suicide screening conducted on tablets in PCP waiting room, results received by PCP who discussed with patient/family or referred to on-site SW, who could refer to suicide prevention team (psychiatric SW) at mental health agency if needed.	Youth (age 11-20) seen in an urban primary care system.	Grant-funded (NIH)
Direct in-person care	Laukkanen et al. (2010) ²⁷	Each team included a psychologist, psychiatric nurse, consulting adolescent psychiatrist.	SCREEN intervention included: <ul style="list-style-type: none"> • 1-5 sessions = 90 min evaluation session plus 45-minute sessions for problem-focused therapy sessions. • Consultation with psychiatrist on medication to be prescribed by a GP if needed • Determination of next steps (including referral to specialty care if appropriate) made in final team meeting with both primary and specialty care providers 	2 Health Districts in 3 urban/semi-urban regions in Finland (populations between 30,000 and 90,000):	Primary care provider could be GP, school nurse, social worker, and participated in team meeting.	Adolescents	Funded by government and hospital
Direct in-person care; Indirect remote care	Myers et al. (2010) ³⁵	Child Psychiatrist (off-site) and SWs (native Spanish-speaking) as care managers (full time/on-site at urban clinic, part-time/off-site at rural clinic).	ADHD Collaborative Care including: <ul style="list-style-type: none"> • Care managers who <ul style="list-style-type: none"> ○ consulted with psychiatrists by telephone weekly ○ communicated recommendations to pediatricians ○ conducted psychoeducation sessions with parents • Up to 14 months follow up 	Two pediatric clinics, one rural and one urban setting, total of 15 pediatricians across the 2 sites.	Referred patients and implemented recommendations provided by psychiatrist	Children age 6–12 years old, diagnosed with ADHD by pediatricians.	Foundation and University funding

Direct in-person care	Pidano et al. (2011) ³⁶	Mental health providers at mental health agencies designated as Enhanced Care Clinics (ECCs) in CT via statewide initiative (needed to meet 5 criteria related to provision of quality collaborative care to receive enhanced Medicaid reimbursements).	Connecticut's Enhanced Care Clinic Initiative allowed clinics to qualify as ECCs and thus receive enhanced Medicaid reimbursements if they met certain requirements, including: <ul style="list-style-type: none"> • Meet criteria related to: <ul style="list-style-type: none"> ○ Service accessibility ○ Collaboration with primary care ○ Assistance for members seeking services ○ Quality of care ○ Cultural awareness • Jointly (with primary care) establish and adhere to protocols for: <ul style="list-style-type: none"> ○ Patient referral to ECCs ○ ECC referral back to PCP ○ Communication expectations ○ Responsibilities of both entities ○ Education/training ○ Other optional collaborative activities 	28 pediatric practices across the state of CT	Help develop referral and communication protocols and guidelines, participate in joint conferences/discussions and optional education and training.	Children and adolescents insured by Medicaid	Grant-funded and visits received enhanced Medicaid reimbursement through state program.
Direct in-person care	Clark et al. (2014) ³⁷	Counselors/therapists contracted with the program in Auckland, NZ; one paid staff member (SW as care coordinator); multidisciplinary team (MDT) and cross agency triage team including specialty and PCPs	"Your Choice" intervention including: <ul style="list-style-type: none"> • Care coordinator triaged referrals (checked for appropriateness and collected information). • Multi-disciplinary team (MDT) reviewed referrals and suggested type of therapy. • Contracted counselors provided brief individual &/or group therapy to youth (including CBT, DBT, solution-focused therapy, and mindfulness), in schools, homes, and in the community. 	GP on a multidisciplinary team	Refer patients (could also be referred by schools, community organizations, and self-referrals).	Youth age 10–24 years with mild to moderate mental health concerns	Grant-funded.
Direct in-person care	Power et al. (2014) ³⁸	Clinicians (4 post-doctoral clinical or school psychology fellows) served as therapists. Community health partners (residents of the community with some college education and 10 years of experience in health education and family advocacy) supported families in school collaboration and identifying resources.	Partnering to Achieve School Success (PASS) (<i>intervention</i>) included: <ul style="list-style-type: none"> • Engagement strategies • Behavioral parent training • Family/school consultation • Medication if needed • Coordination with PCP to monitor progress • Trauma-informed care COMP (<i>"comparison group"</i>) included: <ul style="list-style-type: none"> • Treatment as usual by PCP • Four 90-minute group sessions led by a parent advocate 	PCPs from 4 urban primary care practices affiliated with a pediatric hospital in Philadelphia, PA. Patient population was 65% public health insurance-eligible and 90% African American.	Refer to treatment; work together with PASS team; prescribe medication.	Children with parent-reported ADHD in Grades K-4 who met criteria for past or present ADHD using structured diagnostic evaluation, without conduct disorder, ASD, or intellectual disability.	Details unclear, some internal hospital funding
Direct in-person care	Greene et al. (2016) ³⁹	Children's specialty mental health providers at 2 mental health practices (with 16 and 7 clinicians,	Practitioner-Informed Model to Facilitate Interdisciplinary Collaboration (PIM-FIC) , developed via provider surveys/interviews from both sites, included:	Pediatric primary care providers at 2 pediatric primary care	Implement PIM-FIC, which included 1) relationship building activities and 2)	Children and adolescents	Grant-funded (NIH and foundation)

		respectively) in CT, including psychologists, LICSWs, and master's level marriage and family therapists.	<p>1) Relationship building activities (e.g. introductory lunch, creating a staff directory with photos./contact info/insurance info, creating listserv for informal consultation, and cross-training sessions at primary care and MH sites) and</p> <p>2) Structured communication forms to fax with data and clinical impressions.</p>	practices (with 6 and 10 PCPs respectively) in CT.	communication tools as detailed.		
Direct in-person care	Hassink-Franke et al. (2016) ⁴⁰	Child psychiatrists in the Netherlands	<p>Collaborative ADHD program ("The Tornado Programme") included:</p> <ul style="list-style-type: none"> Psychiatrists conduct diagnostic evaluations for children with suspected ADHD Psychiatrists provide a 1-hour education session on ADHD medication management for GPs. 	23 general practitioners (GPs) in the Netherlands	Refer children to service; participate in 1-hour online course about ADHD; start and monitor medication.	Children age 6-18 with suspected ADHD	Details not clear, some grant funding
Direct in-person care	Huber et al. (2016) ⁴¹	24 school psychologists (~1:730) and social workers (~1:520) supported by about 4 trainees annually, 3 probation officers, 9 therapists at the CMHC, 1 or 2 school psychology interns splitting time between primary care and school.	<p>"Interconnected systems" approach (connecting medical, mental health, and education sectors)</p> <ul style="list-style-type: none"> Four-tiered public health model: <ul style="list-style-type: none"> Tier I=universal interventions Tier II=group/caregiver psychoeducation Tier III=individual interventions with caregiver consultation Tier IV= family interventions. Systems shared a tool to track progress collaboratively A liaison in each sector facilitated follow-up of positive screens and cross-sector communication 	18 primary care practices and 13 school districts serving over 7200 children.	Screening (with PSC) and referral to appropriate Tier based on results. Some Tier I interventions (e.g. parenting programs) and implementation of consulting child psychiatrist's recommendations.	Children and adolescents age 6–18 years in the county	Grant-funded
Direct in-person care	Fallucco et al. (2017) ⁴²	Child Psychiatrists (4 dedicated some time to the program, financial incentive not provided) located at a children's specialty care clinic	<p>Child Psychiatry Consultation Model (CPCM)</p> <ul style="list-style-type: none"> Expedited access to outpatient child psychiatric consultation for PCPs Child psychiatrists triaged consult requests for appropriateness Child psychiatrists sent copy of their consult recommendations to PCP within 2-5 business days of evaluation. Child psychiatrists could schedule a limited number of follow up visits before transfer back to PCP 	25 PCPs (who attended an adolescent depression workshop) from 3 urban practices: one (3 PCPs) serving mostly Medicaid, others mostly privately insured patients.	PCPs referred to the program, received written recommendations by the child psychiatrist, and assumed care after the consultation.	Adolescent with mild/moderate depression, anxiety that failed therapy, and ADHD that failed 2 medication trials	Grant funding and visits provided via fee for service
Direct remote care (phone)	Polaha et al. (2007) ⁴³	Psychology faculty (licensed) and advanced students (provisionally licensed) from the department of psychology at the University of Nebraska staffed	<p>Parenting Solutions Call-In Service "to address uncomplicated parental concerns" regarding child behavior, development, and emotional well-being"</p> <ul style="list-style-type: none"> Toll free to callers Not to be used as a crisis hotline Psychologists provided evidence-based treatment recommendations to families for focused problems. Optional written recommendations and reading materials by mail. 	2 rural pediatric primary care clinics (one private with 6 PCPs and the other hospital-based with 3 PCPs)	Provided referrals, ongoing care; integrated behavioral health services were available on site as another pathway/for additional support in both clinics	Parents of young children	Grant-funded

		service for 4 hours each Monday					
Direct remote care (video)	Myers et al. (2007) ³² ; Myers et al. (2008) ³¹ ; Myers et al. (2010) ³⁰	Child (tele)psychiatrists and (tele)psychologists based at a major academic medical center (Seattle Children's Hospital)	Children's Health Access Regional Telemedicine (CHART) program, including: <ul style="list-style-type: none"> • Telepsychiatrists providing remote visits using varying strategies by provider, including: <ol style="list-style-type: none"> 1) Single consultation with recommendations implemented by PCP 2) Consultation with limited short-term direct care or intermittent follow up 3) Consultation plus regular follow up • No screening process or care protocol • Written recommendations to PCP 	5 primary care sites including pediatricians, family physicians, and midlevel practitioners in rural Pacific Northwest	Referral to treatment, resuming care following consultation. Referring physicians were invited to attend consults but did not.	Children and Adolescents	Grant-funded, then fee-for-service via negotiated agreements with payers.
Direct remote care (vide)	Jacob et al. (2012) ⁴⁴	CAP based at an academic medical center	Telepsychiatry consultation including: <ul style="list-style-type: none"> • One evaluation session • One feedback session 	Pediatric primary care providers in rural Georgia	Refer, receive consult reports, implement recommendations	Children and Adolescents	Grant-funded, insurance billed for sessions
Direct remote care (phone)	Reid et al. (2013) ²⁹	Graduate student in clinical psychology	Parenting Matters included: <ul style="list-style-type: none"> • Self-help booklet (with 6 weekly sections) • Two calls from a phone coach over 6 weeks 	Family Medicine doctors in 24 practices in Ontario, Canada	Family practitioner provides care as usual for both groups	Parents of children 2-5 years old with behavior problems	Grant-funded (Canadian Institutes of Health)
Direct remote care (video); Direct in-person care	Myers et al. (2013) ⁴⁵ ; Vanderstoep et al. (2013) ⁴⁶ ; Myers et al. (2015) ⁴⁷ ; Rockhill et al. (2016) ⁴⁸	Child (tele)psychiatrist and child (tele)psychologist located at an academic children's hospital	Children's ADHD Telemental Health Treatment Study (CATTS) Intervention included a combination of: <ul style="list-style-type: none"> • Six sessions over 22 weeks of medication management delivered by videoconferencing (using the Texas Children's Medication Algorithms with a treat-to-target goal) • Caregiver behavior training delivered in-person by a local therapist (who received training and supervision by a psychologist over videoconference) Control (augmented primary care) included: <ul style="list-style-type: none"> • One telepsychiatry consultation session followed by recommendations to PCP and ongoing management in primary care 	PCPs practicing in 7 underserved communities in WA and OR.	PCPs refer to treatment and resume care following intervention or consultation. Psychiatrists prescribed in intervention arm; PCP's prescribed in control arm.	Children age 5.5–12 who met diagnostic criteria for ADHD, with English-speaking legal guardians.	Grant funded (NIMH)
Indirect Remote Care; Direct In-person care	Connor et al. (2006) ⁴⁹ ; Aupont et al. (2013) ⁵⁰	Two CAPs and one Clinical Nurse Specialist (total 1.0 FTE), one full-time care coordinator, and later one SW as well, within the University of Massachusetts.	Targeted Child Psychiatry Service (TCPS) in MA that included: <ul style="list-style-type: none"> • Point of care phone consultation to pediatricians via on-call beeper (response within 20 minutes) during business hours • Outpatient (direct) psychiatric evaluation with option of short term psychosocial and/or pharmacological treatment (1-4 visits) followed by referral back to PCP or longer term mental health services. 	139 Pediatricians and NPs in 22 primary care clinics that care for over 100,000 patients in Central MA	Initiate phone call to psychiatrist, manage patients in primary care with recommendations. Spoke with psychiatrist after each visit, accepted patient back to primary care if possible.	Children and adolescents seen in participating primary care practices	One-time grant, then state funding, model evolved into MCPAP

Indirect Remote Care; Direct Remote Care	Lipton et al. (2008) ⁵¹	Clinical specialist, Child/adolescent psychiatrist	Healthy Minds/Health Child Outreach Service in Alberta provided: <ul style="list-style-type: none"> • Clinical consultation at point of care to PCP (via telepsychiatry or telephone) by a mental health provider (psychiatrist if needed) • Appointments included child, caregivers, and other professionals if needed • Psychiatrists to supervise other MHPs on complex cases 	Primary Care Provider from health regions and First Nations of southern Alberta	PCP receives consult, then retains clinical responsibility for ongoing care following scope of practice mandates.	Children and Adolescents	Government funding
Indirect Remote Care; Direct In-person care	Sarvet et al. (2010) ⁵² ; Dvir et al. (2012) ²² ; Sheldrick et al. (2012) ⁵³ ; Hobbs Knutson et al. (2014b) ⁵⁴ ; Straus & Sarvet (2014) ³³ ; VanCleave et al. (2015) ²³ ; Sarvet et al. (2017) ⁵² ; Van Cleave et al. (2018) ⁵⁵	1 FTE CAP (shared by 3-5 faculty), 1 FTE licensed psychotherapist, 1 FTE care coordinator, sometimes (APRN).	Massachusetts Child Psychiatry Access Project (MCPAP) , including 6 regional teams hosted by child psychiatry divisions at academic medical centers, with on-call coverage by child psychiatrists during business hours to support PCPs through: <ul style="list-style-type: none"> • Immediate telephonic consultation with PCP regarding mental health needs of any child in the primary care setting • Timely outpatient consultation (direct care) for a subset of referred children, with recommendations sent to PCPs in 48 hours • Assistance with coordinating care for follow up services • Bridge therapy with MCPAP therapist if needed • Education for PCPs 	PCPs who care for pediatric patients (Pediatric Primary care and Family Practice) in MA - 95% of children are seen by an enrolled PCP.	PCPs call for advice on managing patients with mental health problems. PCP generally maintains clinical responsibility even when face to face evaluation occurs.	Children and adolescents with PCPs in practices enrolled in MCPAP	State funding, Commercial insurance support, billing for direct in-person care
Indirect Remote care (phone); Direct Remote Care (televideo)	Hilt et al. (2013) ⁵⁶	Child Psychiatrist, Social Work, centralized	Washington State Partnership Access Line (PAL) program included: <ul style="list-style-type: none"> • Toll-free number that PCPs can call for immediate CAP consultation, staffed by central team of CAPs, followed by written recommendations and parent tip sheets faxed to PCP within 1 day • SW who can make community MH referrals when recommended by CAP or requested by PCP • Telepsychiatry visits with CAP if needed for Medicaid patients within one week, with local sites available for the videoconference • Care guidelines (published) • Regional annual education conferences 	970 PCPs from 22 rural counties in eastern and southwest WA (combined population about 500,000 children).	PCPs call toll-free number to access immediate psychiatric consultation, receive phone and written recommendations, and implement treatment recommendations. Can request direct patient consultation.	Children and Adolescents seen for primary care at participating site	State-funded
Indirect remote care; Direct in-person care	Gadomski et al. (2014) ⁵⁷ ; Kaye et al. (2017) ¹³	CAPs (senior faculty at hub institution, 2-3 at each of 5 hubs) and 1 master's level Liaison Coordinator per hub (for program assistance, referral support).	Project TEACH includes 2 programs in NY, including: <ul style="list-style-type: none"> • Child and Adolescent Psychiatry Education and Support Program for Primary Care Physician (CAPES), which offers: <ul style="list-style-type: none"> ○ Training with 3-hour educational sessions ○ CAP phone consultation to PCPs ○ Advice on referrals ○ Face-to-face evaluations as needed • Child and Adolescent Psychiatry for Primary Care program (CAP PC), which offers: 	PCPs across New York State; CAPES serves 17 mostly rural counties since 2005 and CAP PC serves the remaining 35 counties, including major	Assuming treatment. Even when face to face is done by the psychiatrist, this is one time with the goal of directing a treatment plan for the PCP to implement	Children and Adolescents (0-21) with an enrolled PCP	State government funding

			<ul style="list-style-type: none"> ○ Training via a weekend-long course (REACH Institute Mini-Fellowship) plus follow up case-based phone conferences ○ CAP phone consultation to PCPs via hotline staffed by 5 hubs (academic institutions), each covering one day of the week ○ Advice on referrals ○ Face-to-face evaluations as needed 	metropolitan areas, since 2010.			
Indirect Remote care; Direct In-person care; Direct remote care	HobbsKnutson et al. (2014a) ⁵⁸	CAPs & mental health consultants (MHCs) in statewide programs (MA, WA, IL, ME, AR, TX).	Programs offered: <ul style="list-style-type: none"> ● Phone consultation to PCPs from child psychiatrists (<i>all</i>) ● Care coordination (<i>all</i>) ● Written records of consultations (<i>all</i>) ● Psychiatric evaluations in-person or by Telepsychiatry if needed following initial phone consultation with PCP (<i>MA, WA, AR, and ME</i>) ● Interim therapy when needed (<i>only MA</i>) ● Education for PCPs (<i>all but TX</i>) ● 24-hour access to MHCs (<i>only TX</i>) 	Statewide primary care providers who care for children (including pediatric, family medicine)	Varied by state, in most cases PCPs assume primary responsibility for managing patient and implementing recommendations	Children and adolescents seen for primary care	Multiple
Indirect Remote Care; Direct Remote Care	Marcus et al. (2017) ⁵⁹	Behavioral Health Consultants (BHCs), Child Psychiatrists, Perinatal psychiatrists	Michigan Child Collaborative Care Program [MC3] included: <ul style="list-style-type: none"> ● Phone and telepsychiatric consultation in primary care in 40 counties in Michigan ● Regional BHCs who: <ol style="list-style-type: none"> 1) linked PCPs to child and perinatal psychiatrists for phone consults; 2) connected patients/families with local mental health resources; 3) facilitated telepsychiatry consultation for more complex cases 4) Helped to triage patients with positive autism screens in larger clinics 	Pediatricians across 40 counties in MI, including in private offices, FQHCs, rural and school-based health centers.	Treatment	Youth age 0-26 years and postpartum women	State, federal, and private funding.
Indirect Remote care	Platt et al. (2018) ⁶⁰	Board-certified CAPs serving on faculty at Johns Hopkins University or the University of Maryland	Maryland's Child Psychiatry Access Program (CPAP) , including: <ul style="list-style-type: none"> ● Phone consultation for PCP provided by child psychiatrist ● Resource/referral assistance (provided by BHC) 	Pediatric PCPs, primarily MDs, DOs, NPs, statewide	PCP manages patient, consultant provides input but does not see or co-manage the patient	Children and adolescents seen for primary care	State-funded program

*The main model is listed first, followed by any additional models utilized.

Abbreviations: ADHD=Attention-Deficit/Hyperactivity Disorder; AR=Arkansas; APRN=advanced practice registered nurse; ASD=Autism Spectrum Disorder; BHC=Behavioral Health Consultant; CAMH=Child and Adolescent Mental Health; CAP=Child and Adolescent Psychiatrist; CMHC=Community Mental Health Center; ECC=Enhanced Care Clinics; FQHC=federally qualified health center; FTE=Full Time Equivalent; HRSA=Health Resources and Services Administration; MA=Massachusetts; ME=Maine; MHC=Mental Health Consultant; MHP=mental health provider; MI=Michigan; NIH=National Institutes of Health; NP=Nurse Practitioner; PAL=Psychiatry Access Line; PCP=Primary Care Provider; PMHW=Primary Mental Health Worker; TX=Texas; WA=Washington