



ARKANSAS FAMILY FIRST PREVENTION SERVICES ACT EVALUATION

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August 2023



SafeCare[®] Model Technical Appendix

UAMS



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Analytic Project Plan: SafeCare 2023

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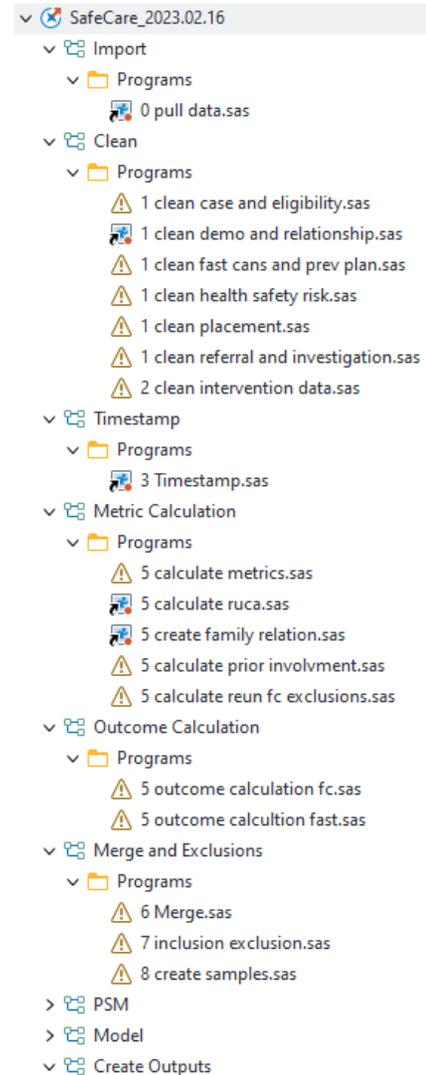
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Data processing details

Naming Conventions

- tablename0 is the raw, imported table. Ex tclient0.
- “F_” is FFPSA candidacy reasons or date from FFPSA eligibility file
- “univ” means universe
- “init” means initial
- “tf” is true finding
- “tp” is time period
- “fc” is foster care
- tp_0to6 – time period 0-6 months after treatment
- fc_0to6 – foster care during 0-6 month window after treatment
- tf_0to6 – true finding /open cases in the 0-6 month window after treatment

SAS process flow



SAS program summary

G:\DCFS Family First\Data\Analysis\SAFECARE_2023.02.16

Step	SAS program	Description	Input	Output
Analysis\SAFECARE_2023.02.16\Create analyzable datasets\				
0) Import Data	0 pull data	Pull data into SAS. Most tables reduced to include only clients with FFPSA assessment	.resources\CHRIScodes.xlsx includes a key to coded values in CHRIS .resources\chris_tables.xlsx includes list of tables that are imported into SAS(load=1) CHRIS: See Table Key Program Data: Data\Intercept\Data\matched_to_CHRIS\2022_07_31_program_data.csv. See Intervention Data	Input tables. See Table Key Saved with naming convention, tablename0, i.e. tclient0, telig0, trisk0, taddr0, etc.
1) Clean	1 clean case and eligibility	Clean addr and case table (both used for addresses) Clean case tables (see details) - Add case_err flag to case history - Combine consecutive involvement to clean client merge Clean FFPSA eligibility table - Link to CAS_ID. Find missing CAS_IDs by merging to tcascl_dt on CL_ID and the involvement date (invlv_start_dt) closest to the FFPSA assessment date. See details below.	taddr0 tcas0 (CAS_ID) tcas_typ_hist (CAS_ID) tcashist (CAS_ID) tcascl_dt- (CAS - CL_ID) telig0 – FFPSA criteria	taddr, tcas, tcascl tcashist tcas_typ_hist telig
	1 clean demo and relationships	Clean tclient (gender, dob, ethnicity) Clean relationships using dob and gender from tclient. Treln depends on tclient. Linked by CL_ID and RELTN_CL_ID .	tclient0, tclient_parent0, and treln0 .resources\Relationshipthematicgrouping	tclient, tclient_parent, and treln

		Thematic grouping for relationship type (ie parent, sibling, extended family) linked to treltn from resource file by CL_RELTN_ROLE_TYP		
	1 clean fast cans prev plan	Clean fast, cans, and prevention plan	tfast0, tfastcl0, tfastcg0, tcans0, tcanscg0, tprevpln0, tprevplndtis0	tfast, tfastcl, tfastcg, tcans, tcanscg, tprevpln
	1 health safety risk	Clean health, safety, and risk assessment	thealth0, tsafety0, trisk0	thealth, tsafety, trisk
	1 clean placement	Clean home removal and child placement tables	thmrvlhist0, tchldplcmnt0	thmrvlhist, tchldplcmnt, trial_home_visit, hmrvl_trial
	1 clean referral and investigation	Tref - identify 'out of home' referrals Tinvest - depends on tref to identify 'out of home' investigations Talleg - depends on tref for referral date	tref0, trefcl_dt0, tinvest0, talleg0	tref, trefcl_dt, tinvest, talleg
2) Clean intervention	2 clean intervention data	Link to telig anchor date: ffpsa_dt Find multiple enrollments and exclusion reasons See details	Intervention_0	intervention
3) Create time stamp	3 Timestamp	Add in all relevant dates. Link to telig anchor date: ffpsa_dt Case Open/Close Date <ul style="list-style-type: none"> - Link using tcashist (Case level) - Join using CAS_ID and find case open date nearest to FFPSA date using the absolute value of date difference Case Involvement Start/End Date <ul style="list-style-type: none"> - Link using tcascl_dt (Client level) - Join using CAS_ID and find the involvement start date nearest to the FFPSA assessment date using the absolute value of date difference REFER_ID and Referral Date <ul style="list-style-type: none"> - Link to REFER_ID using trefcl (Client level) 	Telig-ffpsa_dt Tcashist-OPEN_DT, CLOSE_DT Tcascl_dt-INVLV_STRT_DT, INVLV_END_DT Trefcl-REFER_ID Tref-REF_DT Tinvest-INVEST_DT, INVEST_CS_RQST_DT	timestamp

		<ul style="list-style-type: none"> - Link to Referral Date using tref (Referral level) <p>Join using REFER_ID and CL_ID and find the referral date by first prioritizing the referrals that occur before the FFPSA assessment date and then using the absolute value of date difference.</p>		
5) Create metrics	5 create family relation	<p>Find parents/caregivers. See link for details.</p> <p>Add in all relevant dates. Link to timestamp anchor date: ffpsa_dt</p> <p>First get all relationships: All clients with CAS_ID linked to FFPSA</p> <ul style="list-style-type: none"> - Link using tcascl_dt (Client level) - Join using CAS_ID and find all case members. Use involvement start date and end date to remove individuals not involved in the case around FFPSA date <p>All clients with REFER_ID linked to FFPSA</p> <ul style="list-style-type: none"> - Link using trefcl_dt (Client level) - Join using REFER_ID then same as above <p>All clients linked to an FFPSA CL_ID</p> <ul style="list-style-type: none"> - Link using tcascl_dt (Client level) - Join using CL_ID to CAS_ID and find all case members and then same as above <p>All clients linked to an FFPSA CL_ID</p> <ul style="list-style-type: none"> - Link using treltn (Client level) - Join using CL_ID to CL_ID and find all case members. Use relationship start date and end date to remove individuals not involved in the case around FFPSA date 	<p>timestamp-ffpsa_dt</p> <p>Tcascl_dt-CAS_ID, INVLV_STRT_DT, INVLV_END_DT</p> <p>Trefcl-REFER_ID, INVLV_STRT_DT, INVLV_END_DT</p> <p>Treltn- STRT_DT, END_DT, UPDT_DT, CL_RELTN_ROLE_GROUP</p> <p>Tfastcg- STRT_DT, END_DT, UPDT_DT</p> <p>Tclient-DOB, DOD</p> <p>Telig- LIV_ARNGM_TYP</p>	<p>casref_reltn_dups, caregiver_role, parents, n_reltn, pc_dyad</p>

		<p>Find most likely caregivers:</p> <p>tfastcg and caregiver FAST date</p> <ul style="list-style-type: none"> - Link to CL_ID using tfastcg (Client level) - Find whether there was a FAST assessment done 90 days before or 1 year after the FFPSA assessment <p>tclient and dob, dod</p> <ul style="list-style-type: none"> - Link to CL_ID (Client level) - Remove if dob is after FFPSA date or if dod is before FFPSA date <p>Living arrangement from telig</p> <ul style="list-style-type: none"> - Link to CL_ID (Client level) and FFPSA date - Note whether the type of relationship (ie parent) matches the living arrangement (parent't house) <p>The most likely caregivers are those that are on the same case or referral as the client, those that have a FAST assessment, those that are were not marked as out of the household. See link for details.</p> <p>Parent-child dyad includes parent gender (F,B,M) and DOB of oldest parent</p> <p>Once family details have been established, count of number of family members are stored in n_reltn. See link for details.</p>		
	<p>5 calculate RUCA</p>	<p>Combine address info from taddr, tref, and tcase to find zip codes. Missing ZIPs are filled by self merges and AR_zip_address.xlsx</p> <p>Zip codes are merged to timestamp and used to find RUCA and median income</p>	<p>timestamp, taddr, tref, tcase, AR_zip_address.xlsx, resource.ruca2006</p>	<p>Zip, ruca, income</p>

	5 calculate prior involvement	Prior involvement with DCFS (details), including prior caregiver investigations, case involvement, and foster care placements	timestamp, thmrvlhist, tinvest, tcascl_dt, trefcl parents	prior
	5 calculate metrics	<ul style="list-style-type: none"> - Parent mental health from caregiver fast (details). Depends on parent table from 5 create family relation - Caregiver substance use from allegation, fast, risk, and health assessment (details) - Case type from tfast, tcase, tcans, and tcas_typ_hist. (details) - Protection plan from tsafety - Inadequate supervision and FTR/medical neglect from talleg - Financial difficulty from trisk, fast, and cans (details) 	timestamp, tfastcg, tfast, tfastcl, tcase, tcans, thmrvlhist, tinvest, tcascl_dt, trefcl, parents, trisk, thealth, talleg, tsafety, tcanscg	tfast_cg, ctaker_substance_use, case_type, trisk_elig, tsafety_elig, talleg_elig, cans_financial
	5 calculate reun fc exclusions	<p>FC exclusion: Flag cases for the foster exclusion if they are placed in care prior to or around the same time as FFPSA (up to 7 days after FFPSA).</p> <p>Reunification case: Based on distribution of candidacy reason reunifications, a reunification case occurs when an individual was in foster care and reunification occurs in the 0-120 days prior to FFPSA (details)</p>	timestamp, thmrvlhist, invervention	reunification_case, fc_exclusion
<i>Analysis\SAFECARE_2023.02.16\outcome calculation\</i>				
5) Calculate Outcomes	5 outcome calculation fast	Calculate FAST outcome and find initial and final FAST (see details)	timestamp, tfastcg – Caregiver tfastcl – client tfast - TFT, CGA .resources\FASTvariables.xlsx	fast_avg, fast_init_final
	5 outcome calculation fc tf	<p>Determine observation windows (see details)</p> <p>Calculate foster care and true finding outcome (see details)</p>	timestamp mean_trt_length_days, intervention, thmrvlhist, tinvest, tcashist, tcascl_dt	fc_entry true_finding

	5 outcome calculation tte	Calculate time to true finding or censor date. Censor date includes end up follow-up time (Jan 31, 2023), foster care entry, and move out-of-state	Tinvest, tref, tcashist, tcascl_dt, chris_univ_first,	Time_to_event_ITT Time_to_event_SC
<i>Analysis\SAFECARE_2023.02.16\Create analyzable datasets\</i>				
6) Merge	6 Merge	Merge timestamps, demographic data and characteristics, intervention, data, and outcomes	Timestamp, tclient, telig, ruca, income, prior, case_type, n_reltn, reunification_case, fc_exclusion, pcdyad, trisk_elig, tfast_cg, ctaker_substance_use, tsafety_elig, talleg_elig, cans_financial, abuse_neglect intervention fc_entry, true_finding fast_init_final	chris_merge
7) Inclusion-exclusion flags	7 inclusion exclusion	(1) Flag individuals in FFPSA table with family members in intervention. These individuals should be removed from comparison cohort (2) Death exclusion flag - died before or within 24 months of FFPSA (3) Merge to create dcfs.chris_inclusions. Create flag for cases without CAS_ID. Add exclusion for treatment cases with a non-treatment FFPSA row so that they won't be included in the comparison cohort. Add flag for cases over 5. (4) Create flag for cases missing PSM variables (5) Exclude and create dcfs.chris_univ Exclusion flag that includes all exclusions: rm_flag	treln, chris_merge, parents, tcascl_dt, \create outputs\resource\comparison_variables_v2.xlsx";	dth_exclusion check_elig chris_inclusions chris_univ
8) Create samples for each	8 create samples	Create samples for each FAST and each time period (tp)	chris_univ	FAST: fast fc_during_treat, tp_0to6, tp_6to12 tp_12to18

outcome and time period				
<i>Analysis\SAFECARE_2023.02.16\Create analyzable datasets\psm</i>				
9) PSM	PSM macro	Macro used to run PSM and calculate std. diff and variance ratio.	Variables used in PSM matching: \create outputs\resource\comparison_variables_v2.xlsx All samples from step 8	.\SAFECARE_2023.02.16\psm\data\psm_out contains PSM matched data and psm_summary.xlsx .\SAFECARE_2023.02.16\psm\data contains final matched samples and psm balance
	PSM FC	PSM matching process which includes final selected parameters and writes out matched cohort ITT Samples include: Foster care during treatment Outcomes at time period 0 to 6 months, 6 to 12 months, and 12 to 18 months		
	PSM SC	Same as above but not ITT. Cases that successfully completed program		
	PSM FAST	PSM matching process which includes final selected parameters and writes out matched cohort. Includes FAST sample		
	PSM TTE	PSM matching process which includes final selected parameters and writes out matched cohort. Includes time-to-event / survival analysis sample		
<i>Analysis\SAFECARE_2023.02.16\Create analyzable datasets\model</i>				
10) Model	Model outcomes	Create model datasets Find logistic regression to find effect size, OR, and p-values	Create datasets for modeling from PSM samples: SAFECARE_2023.02.16\psm\data fc_during, tp_0to6, tp_6to12, tp_12to18	Analytic samples and model results saved in: SAFECARE_2023.02.16\model\data
	Model outcomes continuous	Create model datasets Find effect size for FAST and calculate difference-in-differences	Create datasets for modeling from PSM samples: SAFECARE_2023.02.16\psm\data/fast	

	Model FAST not DID	Create model datasets Include covariates in regression for FAST outcomes	Create datasets for modeling from PSM samples: SAFECARE_2023.02.16\psm\data/fast	
	TF Survival Analysis	Create model datasets Survival analysis using Kaplan Meier and log-rank	Create datasets for modeling from PSM samples: SAFECARE_2023.02.16\psm\data\tte and tte_sc	
<i>Analysis\SAFECARE_2023.02.16\Create analyzable datasets\create outputs</i>				
Tables with automatic formatting	PSM tables v2	Get summary statistics (continuous: Mean, SE; categorical: N%) and p-value for PSM variables in matched treatment and control samples	chris_sc_univ fc_during, tp_0to6, tp_6to12, tp12to18 \create outputs\ resource\comparison_variables_v2.xlsx";	.\create outputs\data\[sample name] Report2.doc
	Macro for PSM tables	Macro to create tables		

Dependencies

- Telig0 depends on tcascl_dt
 - Cleaning eligibility table relies on tcascl (case client involvement). The dates stored in tcascl are used to find the most recent case id, which is the one where the client involvement date is closest to the ffsa assessment date
- Treltn depends on tclient
 - Cleaning the relationship table
 - Some relationships are entered in reverse (ie child instead of parent). DOB from tclient is used to identify this kind of error.
 - Error reduction used when deduplicating. When deduplicating, preference is given to those without a gender error (ie an Aunt that is a male). Tclient is used to link gender
- Tinvet depend on tref
 - Cleaning investigation table depends on tref table to remove 'out of home' investigations

Intervention Data

Data import and cleaning code

- Program data is from SafeCare, which is managed by UAMS
- Data import process:
 - o SafeCare Directory: <G:\DCFS Family First\Data\SafeCare>
 - o Files collated using SAS code:
 - G:\DCFS Family First\Data\SafeCare\Code\YYYY_MM_Safe Care.sas
 - Imports and merges UAMS' SafeCare assessment, contacts, program data, and intake form files
 - o Cases are then linked to CHRIS IDs using r code:
 - G:\DCFS Family First\Data\SafeCare\Code\YYYY_MM_match_safecare_chris.r
 - This code matches SafeCare to CHRIS IDs using weighted and fuzzy matching based on IDs, names, and DOBs.
 - o Results:
 - All but 3 individuals were linked to CHRIS ID
 - File contains 3,134 unique families, and 3,441 children
 - There are 3,630 rows. Some children were enrolled multiple times.
- Data cleaning process
 - o Code location and program name
 - [Analysis\SAFECARE_2023.02.16>Create analyzable datasets](Analysis\SAFECARE_2023.02.16>Create_analyzable_datasets)
 - 2 clean intervention data.sas
 - o Each enrollment is linked to nearest FFPSA date. (details below)
 - o Inclusion/exclusion reasons are applied (details below)

Linking to FFPSA date

- Matching program start date and FFPSA assessment date
 - o Assessments are sorted so that the FFPSA assessment (that is not all missing values) completed at a time closest to the program referral date is selected first, if available.
 - o Assessments that occurred more than 90 days after the program start or more 4 months prior to the start of the program are not included.

Program Inclusion/Exclusion Criteria

- Inclusion criteria:
 - o Enrolled between 2019-10-01 and 2022-08-01
 - o At least 6 months of follow-up since enrollment date
- Exclusion reasons (listed in consort diagram)
 - o Not found in CHRIS (No CL_ID)
 - o No open case (No CAS_ID)
 - o Insufficient link to FFPSA assessment date
 - Missing an FFPSA assessment or FFPSA is empty
 - The FFPSA assessment date was more than 90 days after the program start date
 - The enrollment date was more than 120 days after the FFPSA assessment date
 - The program finished before the FFPSA assessment

- Duplications:
 - Multiple enrollments (only the earliest eligible enrollment period is included)
 - Another child from the family was selected (if there are multiple eligible children, one is randomly selected as focus child)
- Ineligible
 - Child is older than 5 years
- SafeCare Program Exclusions
 - Parent death
 - Imprisonment
 - Unsubstantiated referral
 - Home visiting org. closed

Exclusions / Inclusions

- Inclusions/Exclusions are coded in \Create analyzable datasets\7 inclusion exclusions.sas
- Handling multiples
 - a. Only one child per family is included in the treatment cohort. Individuals with a family member who participated in the intervention were removed from the comparison cohort.
 - b. If a comparison individual has multiple FFPSA assessments, only the initial assessment is used
- Exclusions
 - a. Individuals without open cases are excluded.
 - b. Individuals that are missing PSM variables are excluded
 - c. Individuals with an FFPSA assessment prior to 10/1/2019 are not included
 - d. Individuals who died within 24 months of the FFPSA assessment were excluded
 - e. Individuals more than 5 years old were excluded
 - f. An individual placed in foster care prior to FFPSA (and up to 7 days after) and not returned to home before FFPSA is excluded.
 - g. See outcome specific exclusions [below](#)
- Follow-up window date cutoffs
 - a. This is taken care of in sas program \Create analyzable datasets\8 create samples.sas
 - b. The end of the treatment/follow-up window must be before the cutoff date for the data to be included. Cutoff is Jan 31st, 2023

Foster care exclusions and Reunification cases

	Before FFPSA	Around the time of FFPSA	After FFPSA (during treat)	After FFPSA (after treat)	Exclude?				Reunification case?
					Q1 (FC at 6, 12, 18)	Q2 (FC during treat)	Q3 (TF at 6, 12, 18)	Q4 (Perm at 6, 12, 18)	
1	In FC	Reunification occurs	Outcome	Outcome	No	No	No	No (however, currently not enough sample)	Yes
2		New FC placement	Remaining in FC		Yes	Yes	Yes	Yes	No
3	← ----- In Foster Care throughout ----- →				Yes	Yes	Yes	Yes	No
4	In FC → Begin program with goal of reunification →			Outcome (Q4)	Yes	Yes	Yes	No (however, currently not enough sample)	Yes

Reunification cases: Service goal of reunification and serving recently reunified families. (#1 and #4)

Permanency Questions (we were referring to #1 and #4)

1. Reunification occurs around the time of FFPSA

- a. N=1 in treatment
- b. Candidacy reason: Reunification has occurred, and the case remains open
 - i. These individuals are no longer in DCFS custody at the time of the FFPSA
 - ii. The FFPSA should be redone when custody is returned to the family and the case remains open since it makes the case eligible for FFPSA funding for an intensive in-home service. Technically, the prevention plan table should also be updated.
- c. Coded definition: Based on distribution of candidacy reason reunifications, a reunification case occurs when an individual was in foster care and then custody is returned to the caregiver in the 0-120 days prior to FFPSA
 - i. Reunification includes those that were removed from DCFS custody because they were
 - placed with non-custodial parent (custody)
 - placed with non-relative (custody)
 - placed with relative(custody)

- reunified
 - Reunification does not include those that were removed from DCFS custody because they were
 - adopted
 - aged out
 - died
 - guardianship
 - d. These should be excluded from the foster care during and true finding outcomes because it is a permanency question
 - e. Problem – does choosing the first FFPSA reduce the number of reunification cases?
- 2. New FC placement around the same time as FFPSA**
- a. FC exclusion: New FC placement within 7 days of FFPSA
 - b. Flag cases for the foster exclusion if they are placed in care prior to or around the same time as FFPSA. These cases should be removed from both comparison and treatment as they are either not a good match for the treatment or they were an inappropriate referral or an exclusion. Essentially, these are cases that were in foster care at the same time as the program start date.
 - c. Shouldn't be in comparison since they wouldn't have been considered for the program as they were immediately placed in FC
 - d. 7 days captures a lot of those referrals for Garrett's law that are confirmed and babies are removed. That happens more in SC than the other models. It matches the window we put in place to make sure we were capturing any 3 day holds. If we're talking about the point at which the "program could have had any impact", then that's longer. The first visit is essentially an intake visit, I think – and that's all that 7 days would capture.
 - i. So a cutoff at 7 days makes sense both by the distribution and by the program impact – it allows enough time to remove inappropriate referrals
- 3. Foster care exclusion**
- a. FC exclusion: In foster care prior to FFPSA date and not returned at the time of FFPSA date
 - b. N=8+9 in treatment
 - c. Anyone in custody at the time of the FFPSA who continues to stay in custody (is not a reunification case) should not be included because they don't qualify for FFPSA.
 - d. This may include some program participants that were allowed in as an exception
 - e. Individuals in custody are not eligible for FFPSA funding. They are only eligible after reunification has occurred (FFPSA eligibility reason). When reunification occurs, the FFPSA assessment should be completed. Individuals in custody may participate in the program but they are not eligible for FFPSA funding and after 2023, they will not be able to participate (except Pulaski and Jefferson county)
- 4. Program goal is reunification (exclusion for now)**
- a. N=14 were reunified during treatment
 - b. How do we find a comparison? Program start is independent of FFPSA dt
 - i. There are very few of these cases
 - ii. If we ever do have a sizable number, we will have to create a different comparison cohort for this group
 - c. The real issue is that the program start date wouldn't be linked to the FFPSA anchor date and I think we'd have to create a whole new comparison cohort.

Variable Definitions

Demographic data

- Age at time of FFPSA eligibility assessment
 - a. calculated from DOB (TCLIENT) and FFPSA eligibility assessment date
 - b. Parent age - age of oldest parent if child has multiple parents
- Gender
 - a. retrieved from TCLIENT
 - b. Parent gender (CG_F and CG_M)
 - i. CG_F (0/1): has a female caregiver/parent
 - ii. CG_M (0/1): has a male caregiver/parent
 - iii. The two variables are separate, binary indicators.
- Ethnicity
 - a. Ethnicity of child
 - b. Retrieved from TCLIENT
 - c. Included categories:
 - i. Hispanic or Latino
 - ii. Non-Hispanic Black
 - iii. Non-Hispanic White
 - iv. Non-Hispanic Other/Unknown
 - If an individual has multiple ethnicities, the ethnicity that is highest on the list above is selected.

Caretaker substance use

- Caregiver substance use from allegation, fast, risk, and health assessment
 - Definition: This was a “Yes” if the assessments closest to the FFPSA date and no more than 180 days prior or 90 days after described a caretaker with substance use issues.
 - FAST
 - TCAS_FAST_CG: ALC_DRUG_USE equal to 2 or 3
 - TALLEGATION
 - ABUS_NGLCT_TYP_CDE
 - 1, 1405 Alcohol Abuse – Caretaker
 - 7, 1406 Drug Abuse – Caretaker
 - 15, 1419 Substance Abuse - Caretaker
 - 6479, 6480 Substance Misuse
 - 11193, 11955 Garrett's Law-Newborn-Illegal Substance Exposure
 - T_HEALTH_ASSESS
 - CTAKER_SUBSTANCE_USE_SW: Indicates whether caretaker substance use is affecting his ability to supervise
 - T_RISK_ASSESS
 - NEG_PRIM_CTAKER_SUB_ABUSE_PROB: Primary caretaker has a current substance abuse problem
 - ABU_SEC_CTAKER_SUB_PROB_SW: Indicates Whether Secondary caretaker has substance Abuse Problem
 - ABU_SEC_CTAKER_SUB_PROB_AAP: Alcohol abuse problem
 - ABU_SEC_CTAKER_SUB_PROB_DAP: Drug abuse problem

- TFAMILY_FIRST_ELIG
 - Garrett's Law cases

Socioeconomic Status

- Income
 - 5 digit ZIP-code level median household income obtained from 2019 American Community Survey 5 year Estimate (cite).

RUCA (Rural-urban commuting area)

- ZIP codes retrieved from TCL_ADDR and TCASE and filled in from census tigris data
 - TCL_ADDR includes the start date for an address
 - TCASE address are linked to CAS and do not include dates
 - ZIPs with start dates are used when available. If no ZIP with start date is available, ZIP that is linked to case is used.
 - TCL_ADDR, and TCASE are used to create a lookup table of addresses. Missing ZIPs are filled by self merges. If the address is still missing zip code, zips were filled in using street and city zip codes from AR_zip_address.xlsx (census tigris data). The census data was restricted to include only partial addresses (street, city) that had one unique zip code and streets that continued across multiple zip codes were not included.
- RUCA
 - 2010 and 2006 RUCA were used. If 2010 was missing, then 2006 was used.
 - <https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes>
 - Codes were aggregated into urban, large rural, small rural, and isolated categories as follows:
 - urban (1.0, 1.1, 2.0, 2.1, 3.0, 4.1, 5.1, 7.1, 8.1, 10.1)
 - large rural (4.0, 4.2, 5.0, 5.2, 6.0, 6.1)
 - small rural (7.0, 7.2, 7.3, 7.4, 8.0, 8.2, 8.3, 8.4, 9.0, 9.1, 9.2)
 - isolated (10.0, 10.2, 10.3, 10.4, 10.5, 10.6)
 - Codes aggregated as described here:
<https://depts.washington.edu/uwruca/ruca-uses.php>

Risk Indicators

- Allegation type
 - Abuse and neglect allegations are included as two separate binary variables.
 - This information is stored in the allegation and risk assessment tables (TALLEGATION and T_RISK_ASSESS, respectively) and linked to individuals through client and referral ID
 - The complaint (abuse/neglect) type is included even if the investigation is not substantiated
 - For each individual, the record nearest to the FFPSA date was selected. Records more than a year prior to the FFPSA or more than 90 days after were not included.
- Child is living with a relative caregiver (Does not include provisional or relative foster care)
 - FFPSA candidacy reason

- Retrieved from the TFAMILY_FIRST_ELIG table, which includes the FFPSA date.
- Domestic violence
 - Retrieved from the FFPSA and risk assessment tables (TFAMILY_FIRST_ELIG and T_RISK_ASSESSMENT, respectively)
 - TFAMILY_FIRST_ELIG includes the FFPSA date.
 - The domestic violence variable was added to this table in April 2020.
 - T_RISK_ASSESS:
 - Caretaker has a history of Domestic Violence
 - Records nearest to FFPSA (within six months prior to FFPSA date and up to 90 days after) were selected.
- High or intensive risk assessment
 - Retrieved from the FFPSA and risk assessment tables (TFAMILY_FIRST_ELIG and T_RISK_ASSESSMENT, respectively)
 - TFAMILY_FIRST_ELIG includes the FFPSA date.
 - T_RISK_ASSESS:
 - Records nearest to FFPSA (within six months prior to FFPSA date and up to 90 days after) were selected.
- Supportive services (SS) case
 - We pulled case type (CAS_TYP_CDE) from the following tables: TCASE, TCANS, TFAST, TCAS_HIST_TYPE
 - Case type may change according to the date. To select the most relevant case type, we used the case type with the maximum date up to 3 months after FFPSA assessment. DCFS indicated that occasionally FSW will open a 'temporary' Supportive Services case so that services can begin while waiting on the results from an investigation. Then the case may change to CPS. The 3-month lag time should account for this.
- A TDM was held that did not result in removal and/or a protection plan was put in place
 - A binary variable indicates whether either of the events occurred
 - TDM and protection plan were retrieved from TFAMILY_FIRST_ELIG, which includes FFPSA eligibility date
 - T_SAFETY_RESPONSE assessment table also includes whether a protection plan was put in place. This was included if there was a protection plan put in place that was recorded in the safety response assessment that was nearest to the FFPSA date and within 6 months prior to the FFPSA and no more than 90 days after.
 - A protection plan is a written, supervisor-approved protection plan developed with and provided to the family to address identified safety factors thereby allowing the child to remain safely in the home

Prior DCFS involvement

- Prior caregiver assessments (in the 3 years prior to eligibility assessment)
 - a. This binary variable describes whether or not there was an Arkansas State Police Crimes Against Children Division (CACD) investigation with a true finding at the time of the FFPSA assessment or a DCFS investigation in the 3 years prior to FFPSA eligibility assessment.

- If a CACD investigation occurred, this is an FFPSA candidacy variable and is stored in the TFAMILY_FIRST_ELIG, which also includes the FFPSA date.
- b. DCFS investigations includes whether an in-home investigation listing either the parent or the child occurred in the three years prior to the FFPSA assessment. The T_INVESTIGATION includes investigation records.
- Find prior caregiver case involvement (in the 3 years prior to eligibility assessment)
 - a. Case opened 3 years prior to FFPSA eligibility assessment.
 - b. Use involvement start date to indicate when whether client or parent was involved in case.
- Prior foster care placement -
 - a. Determine whether an individual was ever placed in foster care
 - b. Use table TCL_HMRMVL_HIST, column REMOVAL_TYP_CDE to determine whether an individual was placed in foster care.
 - i. Remove cases that with REMOVAL_TYPE_CDE="Adoption"
 - 1. Note: These are already removed with the eligibility table filter. However, code that removes them here is still included.
 - ii. All individuals that were removed from their home on or before the FFPSA eligibility assessment date were assigned prior_foster of 1. Individuals that are not in the table are assigned prior_foster of 0.

Parent-Child Dyad (Finding parents for CHRIS comparison dataset)

- Finding the correct caregivers for the children in CHRIS is necessary to find parent age and parent gender. Both of these are used to match intervention and comparison cases as part of the PSM procedure.
- Tables used:
 - The FFPSA eligibility table
 - All analysis is limited to clients with an FFPSA assessment
 - All other dates are anchored to the eligibility assessment date (ie age is calculated based on time from DOB to eligibility assessment date).
 - Living arrangement is used to help determine most likely caregiver.
 - The Case-Client involvement history table (TCAS_CLIENT_INVLV_HIST) provides
 - Case ID, Client id, Involvement Start Date, Involvement End Date, Involvement End Reason Code, Last update date for this record.
 - The Relationship table provides:
 - Relationship start date, end date, update date, and same household (Yes/No), relationship role group, behavior type
 - A relationship is described as the link between the Client ID to relationship ID. The relationship role group and the behavior type describe whether the relationship ID is the Clients parent, mother, sibling, aunt, etc.
 - If a relationship description changes, the one updated closest to the FFPSA assessment is used.
 - Reducing duplicate records:
 - If a record was changed later in the day, the most recent update from that day is used and the earlier record is discarded.
 - If there is a duplicated relationship and one of the records has a gender error (a female listed as a Father/Uncle/Brother or a male as a Mother/Aunt/Sister), then the relationship without the error is used.

- If there is a duplicated relationship and the child/grandchild is older than the parent/grandparent (using DOB from tclient) then the record without the error is selected.
 - The caregiver FAST table provides:
 - Dates when caregivers were assessed using the FAST criteria.
 - The TCLIENT table provides:
 - Gender, death date, dob
 - Caregiver Algorithm:
 1. Find all linked individuals (potential household members)
 - a. Case information is merged into the FFPSA eligibility table ((TCAS_CLIENT_INVLV_HIST)
 - i. Find all individuals involved in a case that is linked to an FFPSA assessment
 - ii. Include individuals where
 1. Their case involvement start is before the FFPSA assessment (or within six months of after the FFPSA assessment since there sometimes is a lag in when the case is opened and when the FFPSA assessment occurs)
 2. Their case involvement end date is missing or after the FFPSA assessment
 - b. This process is used for the case information is repeated for referrals linked to the FFPSA assessment, cases not linked to the FFPSA assessment, and the relationship table.
 - c. Note: relationships and case involvements are rarely end dated. At this point, there are many more relationships and individuals included than actually participated.
 2. Remove individuals that were not alive at the time of the FFPSA assessment
 - a. Use DOB and death date from TCLIENT to remove individuals who died before the FFPSA eligibility assessment and to remove individuals who were born after the FFPSA eligibility assessment
 3. The relationship type (i.e. parent, sibling, grandparent, fictive kin) is merged in. If there is more than one relationship type per relationship, the one updated closest to the FFPSA eligibility assessment is used.
 4. Data is saved here as dcfs.casref_reltn_dups
 - a. dcfs.casref_reltn_dups includes all linked relationships and is used to count the number of children and adults in a household (see “Relationships” heading)
 5. Find most likely caregiver using scoring system
 - a. Remove any individuals under 15 or listed as “peers”
 - b. Does the caregiver have FAST scores in the relevant time frame?
 - i. fast_dt_flag - FAST assessment completed between 60 days before FFPSA and 1 year after. (+2)
 - c. Does the living arrangement from the FFPSA table match the caregiver relationship (ie caregiver relationship is “Parent” and living arrangement type is “Parents Home”) (+1)
 - d. Both the relationship table and the case involvement history table indicate whether a person is living in the home. However, it isn’t always accurate and is

- often missing. Add a penalty if the individual was **not** in the home and the record was updated prior to the FFPSA assessment. (-2)
- e. Some people are only in the relationship table and are not also listed on the case. Add a penalty (-1)
 - f. Rank by the relationship type:
 - i. (+5) Parent
 - ii. (+4) Grandparent
 - iii. (+3) Adoptive Parent / Guardian / Extended Family / Foster Parent / Unknown but on the case and > 21yo
 - iv. (+2) Sibling (if sibling is >18yo) / Fictive Kin (If >18yo)
 - v. (+1) Self (This is very rare and I may add an age qualifier or remove)
 - vi. (+0) Missing relationship type
 - g. Caregiver score = caregiver rank + fast date flag + matching relationship + in house penalty + missing from case penalty.
6. For each individual in the FFPSA table, find the caregivers with the largest caregiver score. Ties are allowed.
 7. Results are stored in dcfs.parents. An individual may have multiple caregivers
 - o Children with multiple caregivers –
 - i. Results are stored in dcfs.caregiver_role
 - o Parent-child dyads
 - o Parent variables are consolidated and saved in dcfs.pcdyad
 1. Gender – if both male and female parents are present, parent gender is assigned “B” for both
 2. Age – age of the eldest parent
 3. Relationship role group – parent/grandparent/extended family (chosen in order of parent rank, then max age)

Relationships

- Number of children, adults in household
 - a. See steps 1-4 under “Caregiver Algorithm”. These are used to generate dcfs.casref_reltn_dups, which includes all linked relationships and is used to count the number of children and adults in a household
 - b. Remove individuals not in the same household
 - i. Filtered using in_household^="N" which comes from
 1. TCAS_CLIENT_INVOLVEMENT_HIST: IN_HOUSEHOLD_SW^='N'
 2. and TRELTN: SME_HSHLD_TYP_CDE^=1118
 - c. Person type – if age at FFPSA assessment is >17, that person is an ‘adult’. Otherwise, they are a child, unless they are missing age.
 - i. `if age_at_ref=. then person_type=""`;
 - ii. `else if age_at_ref > 17 then person_type="Adult"`;
 - iii. `else person_type="Child"`;
 - d. Number of adults/ children per household
 - i. n_adult: total adults per case / refer
 - ii. n_child: total number of siblings + the child per case / refer
 - iii. n_PRFC: total PRFC per case / refer
 1. Primary caretaker (PRFC) is identified by PRFC_SW = 'Y'

- iv. Households are aggregated separately by CAS_ID, REFER_ID, and relationship table. The table source that matches the selected caregiver used if available. If there are still duplicates then they are selected by highest ranking source, (1-CAS_ID linked to FFPSA, 2-other CAS_ID, REFER_ID, relationship table)

Outcome Definitions

Program Completion Status

- Completed program: Sample is restricted to only the families where the caregiver(s) successfully completed the program
- Intent-to-treat: Treatment group includes all program participants included in treatment regardless of whether they completed treatment

Observation Windows

- Treatment window
 - o **For treatment cases**, the program start date and stop date are retrieved from program data. If the treatment length is less than the average treatment length for cases that successfully completed the program (169 days), then the treatment window ends 169 days after program start date. So, treatment end is 169 days after program start OR actual treatment end, whichever is longer.
 - Treatment start = program start date
 - Whichever is longer:
 - Treatment end = program end date
 - OR
 - Treatment end = program start + 169 days
 - o **For control cases**, the “treatment period” observation window begins at the eligibility assessment date and ends six months later.
 - Treatment start = FFPSA eligibility assessment date
 - Treatment end = treatment start + 6 months
- Observation windows continue at six-month intervals.
 - o 0-6 month window:
 - Control – Begins at treatment window end date, ends 6 months after
 - Intervention – Begins at program treatment window end date, ends 6 months after
 - o 6-12 month window:
 - Control – Begins 6 months after treatment window end date
 - Intervention – Begins 6 months after program treatment window end date,
 - o 12-18 month window:
 - Control – Begins 12 months after treatment window end date
 - Intervention – Begins 12 months after program treatment window end date

Child Safety Outcomes

1. Reduced entry into foster at 6, 12, and 18 months following completion of the intervention
2. Reduced entry into foster care during the treatment period.

3. Reduced true findings and/or open cases after program closure at 6 months

- 1-2) Reduced entry into foster care at (Q1) 6, 12, and 18 months post treatment.
Reduced entry into foster care (Q2) during treatment
 - a. Entry into foster care is defined using the TCL_HMRMVL_HIST table.
 - i. Is the child in foster care at any point in time during the observation window?
Defined as:
 - 1. Child is removed from care during observation window
 - 2. Child is in foster care at some point during observation window.
 - ii. Home Removal types:
 - 3040 Court-Ordered Foster Care
 - 3041 72-Hour Hold
 - 6181 Adoption
 - 3038 Voluntary
 - Note: Adoption and Voluntary do not show up in our eligibility filtered dataset.
 - b. Inclusions and Exclusions:
 - i. Exclude any child that turns 18 or dies prior to the beginning of the observation window
 - ii. Excludes cases in care throughout treatment and those with the goal of reunification. Includes those recently reunified. See [foster care exclusions for details](#).
 - iii. Foster care enters of less than 7 days are not included as these may be temporary holds.
 - iv. Sometimes, a child is removed from foster care for one of the following reasons:
 - 1. Guardianship, Placed with Non-Relative (Custody), Custody Transfer to Another Agency, Adoption, Emancipation, Independent Living, Child Aged Out
 - 2. If any of the above reasons is listed as the reason removed from care, the child is excluded from the following observation windows. For example, if a child is removed from care because they aged out during the 6-12 month observation window, this child would not be included in the 12-18 month observation window.
- 3) Reduced true findings
 - a. True findings
 - i. Investigation with true finding that also resulted in an open case.
 - 1. OVERL_DISP_TYP_CDE=1449(TRUE) from TINVESTIGATION table
 - ii. In-home investigations only
 - 1. INVSTGT_CAT_TYP_CD ^=1587 (in-home) from TREFERRAL table
 - b. Outcome definition
 - i. A true finding occurs within the time period (yes/no)
 - c. Inclusions and Exclusions:
 - i. Exclude any child that turns 18 or dies prior to the beginning of the observation window.

- ii. Excludes cases in care throughout treatment and those with the goal of reunification. Includes those recently reunified. See [foster care exclusions for details](#).
- iii. If any of the following events occur, child is removed from follow-up:
 - 1. Guardianship, Placed with Non-Relative (Custody), Custody Transfer to Another Agency, Adoption, Emancipation, Independent Living, Child Aged Out
 - 2. If any of the above reasons is listed as the reason removed from care, the child is excluded from the following observation windows. For example, if a child is removed from care because they aged out during the 6-12 month observation window, this child would not be included in the 12-18 month observation window.

Permanency Outcomes

Note: Not enough data to assess.

- 4. Increased permanency at 6, 12, 18, and 24 months following completion if started as a reunification case. (Note: Not enough data to complete this outcome). See [link](#) for reunification definition.

Well-Being Outcomes

- 5. Increased family functioning from entry into to exit from protective services.
 - 6. Increased well-being from entry into to exit from foster care if started as a reunification case (Note enough data to access).
- 5) Increased family functioning from entry into to exit from protective services.
 - Family functioning assessed using FAST
 - CHRIS has 50 data points for FAST
 - We used the average score from each category
 - If a FAST assessment was completed and then updated later in the day (same date but different FAST ID), we used the updated FAST assessment.
 - If multiple caregivers/parents were assessed, their scores were averaged together (caregiver fast)
 - Assessments missing more than 25% of the questions/elements were excluded
 - Generally, assessments are either completely blank or completely finished. Only a few are missing a one or two elements.
 - FAST timing
 - We included individuals with three FAST scores taken in an appropriate timeframe relative to the request date for establishing a case (Table: TINVESTIGATION, Column: CASE_RQST_DT)
 - First FAST
 - FAST closest to the case open request date and occurring one month prior to the case request date to 2 months after the case request date
 - Second FAST

- Between 2 to 5 months (inclusive) after the case request date
 - Only qualifies as a second FAST score if there is an appropriately timed first FAST score
 - Third FAST
 - Between 5 to 8 months (inclusive) after the case request date
 - Only qualifies as a third FAST score if there is an appropriately timed first and second FAST score
- Four categories:
 - TFT – The Family together
 1. Parental/Caregiver Collaboration
 2. Relationships among Siblings
 3. Extended Family Relationships
 4. Family Conflict
 5. Family Communication
 6. Family Role Appropriateness
 7. Family Safety
 8. Financial Resources
 9. Residential Stability
 10. Home Maintenance
 - CGA - Caregiver Advocacy Status:
 1. Knowledge of Service Options
 2. Knowledge of Rights and Responsibilities
 3. Ability to Listen
 4. Ability to Communicate
 5. Natural Supports
 6. Satisfaction with Youth Living Arrangement
 7. Satisfaction with Youth Educational Arrangement
 8. Satisfaction with Services Arrangement
 - Caregiver
 1. Empathy with Child
 2. Boundaries
 3. Involvement
 4. Supervision
 5. Discipline
 6. Partner Relationships
 7. Vocational Functioning
 8. Mental Health
 9. Alcohol and/or Drug Use
 10. Posttraumatic Reactions
 11. Knowledge of Child
 12. Organization
 13. Physical Health
 14. Developmental
 15. Accessibility to Child Care Services
 16. Family Stress

17. Educational Attainment
 18. Legal
 19. Transportation
 20. Safety
- Child
 1. Relationship with Biological Mother
 2. Relationship with Biological Father
 3. Relationship with Primary Caregiver
 4. Relationship with Other Adult Family Members
 5. Relationship with Siblings
 6. Health Status
 7. Mental Health Status
 8. Adjustment to Trauma
 9. Cognitive Skills
 10. Self-Regulation Skills
 11. Interpersonal Skills
 12. Educational Status
- 6) Increased well-being from entry into to exit from foster care if started as a reunification case.
 - Well-being assessed using CANS
 - Note: Not enough data to assess this outcome
 - FFPSA candidacy reasons used to indicate if a case is a reunification case. See [link](#) for reunification definition.

Survival Analysis

- The follow-up time was defined as the number of days, beginning with the treatment end date and ending with the true finding date or the censor date.
 - The censor date is the end of the observation period for individuals that did not have a true finding. Here, the observation period ended when an individual moved out of state, was placed in foster care, or on the last follow-up date which was January 31, 2023.
 - Foster care info was found in the HMRVL table
 - Moved out of state info was found in the case closure reasons in the case history table.
 - True findings were found in the investigation table
 - For comparison, there was not a treatment end date so instead 6 months after the FFPSA date was used as a treatment end date. The is the same as the true finding and foster care time period outcomes.
- For the survival analysis, the Kaplan-Meier method was used to estimate survival rates and the log-rank test (SAS proc lifetest) was used to determine significance. Results are shown in figure X. For both samples, the log-

Table Key

A list of imported tables is [here](#). In linked file, tables where load=1 are imported into SAS.

File name (.csv)	SAS table name	Use description
TFAMILY_FIRST_E LIG	telig	Candidacy reasons, anchor date (assessment date), base table
TCLIENT	tclient	Demographics, deduplicate IDs
TCAS_HISTORY	tcashist	Case open and close dates
TCAS_CLIENT_INV LV_HIST	tcascl_ dt	Link CAS-Client ID Family Characteristics - number of children, adults, parents
TCASE_TYP_HIST	tcas_ty p_hist	Find case type from tfast, tcase, tcans, and tcas_typ_hist. Replaces FFPSA SS case.
TCASE	tcase	Addresses/RUCA
TCL_ADDR	taddr	Addresses/RUCA
TCL_RELTN	treln	Family Characteristics - number of children, adults, parents Parent type
TINVESTIGATION	tinvest	True findings, prior investigations
TREFERRAL	tref	True findings
TREF_CLIENT	trefcl	Link REFER-Client ID
TREF_CLIENT_INV LV_HIST	trefcl_ dt	Family Characteristics - number of children, adults, parents
TCL_HMRMVL_HIS T	thmrvlh ist	Entry into foster care / permanency
TCL_STAT	tstat	Entry into foster care / permanency (not used)
TCH_PLCLPLAN	tplcpla n	Entry into foster care / permanency (not used)
TCHLD_PLACEME NT	tchldpl cmnt	Entry into foster care / permanency (not used)
TFMLY_FIRST_PR EV_PLAN	tprevpl n	Prevention plan
TFMLY_FIRST_PR EV_PLAN_DTLS	tprevpl ndtls	Prevention plan
TCAS_FAST	tfast	FAST – family
TCAS_FAST_CG	tfastcg	FAST – caregiver
TCAS_FAST_CL	tfastcl	FAST – client
TCL_CANS	tcans	CANS
TCL_CANS_CG	tcansbf	CANS – Caregiver
TCL_CANS_BF	tcansc g	CANS – Birth to five
TCL_CANS_FP	tcansfp	CANS
T_HEALTH_ASSES S	thealth	Health assessment - Caregiver substance use
T_RISK_ASSESS	trisk	Risk assessment – includes caretaker substance use, financial difficulties, domestic violence, abuse/neglect
T_SAFETY_RESPO NSE	tsafety	Safety response – protection plan

File name (.csv)	SAS table name	Use description
T_ALLEGATION	talleg	Allegation table – supplement FFPSA eligibility candidacy reasons, abuse/neglect complaint
TCL_MERGE		Preprocessing. Linking Client IDs
TCL_SEALING		Preprocessing. Linking Client IDs, adoption
TCL_ADPT		Preprocessing. Linking Client IDs, adoption

Acknowledgments

Faculty and staff of the UAMS Department of Family and Preventive Medicine (DFPM) carried out the major components of the evaluation under contract from the Arkansas Department of Health, Division of Children and Family Services under contract #4600045495.

The information, content, or conclusions expressed in this material are those of the authors.

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