

Improving Quality for Child Care Centers in Greater Philadelphia: An Evaluation of Success By 6[®]

Technical Appendix

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INTRODUCTION

The Success By 6[®] (SB6) initiative is designed to support early care and education centers in improving and sustaining quality in Pennsylvania's Keystone STARS Quality Rating and Improvement System (QRIS).¹ Keystone STARS is a statewide QRIS that is comprised of four levels, STAR 1 through 4. Achieving high quality early care and education is a critical activity to promote positive development of children in Philadelphia and the nation, particularly for children from low-income families. SB6 was launched in 2007 by the United Way (UW) of Greater Philadelphia and Southern New Jersey with funding from the William Penn Foundation, United Way, and other community partners. Centers engaged in the 18 – 24 month initiative receive intensive technical assistance, program improvement funds, and other resources that target movement in Keystone STARS from a STAR 2 to a STAR 3. In addition, SB6 supports sustainability at the centers by offering leadership development as well as financial awards for centers that achieve a STAR 3 or 4.

SB6 is at a point in implementation that is ideal for reflection and evaluation. In the past eight years, SB6 has recruited 368 centers to participate in the initiative and has achieved an overall success rate (center movement to a STAR 3 or higher within 24 months of participation) of 60% regionally and 46% in Philadelphia. From the inception of SB6, the management team at UW, with partners from the Delaware Valley Association for the Education of Young Children (DVAEYC), Montgomery Early Learning Centers (MELC) and Saint Joseph's University, has engaged in shared decision-making and a continuous improvement process to revise and update service components in response to feedback from the centers that participate and the technical assistance consultants working in the field. To supplement this ongoing internal review of SB6 activities and progress, Child Trends was engaged in 2014 to conduct an evaluation of SB6 design, implementation and results. **The purpose of the SB6 evaluation report is to describe key findings and to offer a set of recommendations for SB6 stakeholders to consider for improvement. The report is intended to inform discussions about quality improvement within SB6 and nationally.**

The main report (available at www.childtrends.org) is structured to provide key themes and findings from the evaluation with minimal description about the methods and analyses. The main report includes the following:

- Background information about quality improvement initiatives similar to SB6 and what is known nationally and in Pennsylvania about movement up the quality levels in a QRIS
- A description of SB6 and its components (including a logic model)
- A brief overview of the evaluation questions and methods
- Evaluation findings related to SB6 design, implementation and success rate
- A synthesis of key themes and recommendations

This technical appendix accompanies the report and provides more information and details on methodology, as well as additional results in implementation and outcomes.

¹ Keystone STARS is an initiative of Pennsylvania's Office of Child Development and Early Learning (OCDEL).

TECHNICAL APPENDIX

Appendix: Data and Methods

Table A contains an overview of the data that were accessed or collected for each SB6 cohort included in the evaluation.

Table A: Data accessed or collected by each SB6 cohort

	Cohort # Start Date											
	5	6	7	8	9	10	11	12	13	14	15	16
	Jul	Jan	Jul	Jan	Jul	Jan	July	Jan	July	Jan	July	Jan
	2009	2010	2010	2011	2011	2012	2012	2013	2013	2014	2014	2015
CT Survey- Current Participants										X	X	
CT Survey- Previous Participants	X	X	X	X	X	X	X	X	X			
Contact Logs	X	X		X	X		X	X	X	X	X	
Child Trends Observations										X	X	X
OCDEL- Awards	X	X	X	X	X	X	X	X	X	X	X	X
OCDEL- Designation	X	X	X	X	X	X	X	X	X	X	X	X
OCDEL- ERS	X	X	X	X	X	X	X	X	X	X		X
OCDEL- TA Content	X	X	X	X	X	X	X	X	X	X	X	X
OCDEL- TA Goals	X	X	X	X	X	X	X	X	X	X	X	X
OCDEL- TA Time	X	X	X	X	X	X	X	X	X	X	X	X
UW Admin- Applications	X	X	X	X	X	X	X	X	X	X	X	

Notes. CT = Child Trends. OCDEL administrative data were obtained through a data sharing agreement and reflect Keystone STARS data as of April 30, 2015.

SB6 Management Team Interviews. Perceptions of Success By 6 were assessed through individual interviews with members of the Success By 6 Management team. Participants included TA agency supervisors, United Way staff, and a contracted facilitator (n = 14). Two researchers individually coded all interviews, and differences in codes were reconciled. Key themes were recorded. Descriptive statistics (means and totals) were calculated when appropriate.

Current Participant Survey. Directors and teachers from centers that were active in SB6 during the spring of 2015 were invited to complete an online survey administered via Survey Monkey. Centers were considered part of this sample if they were from cohorts 14 or 15 and had a status of “open” in SB6. Directors completed a 53 item survey; teachers completed a 38 item survey. A total of 31 directors, 44 teachers, and 8 assistant teachers completed the surveys. Response rates of 58.93% were achieved for directors and 51.49% for teachers and assistant teachers combined.

Surveys were downloaded from Survey Monkey into excel files for cleaning and coding. Once cleaned, a Child Trends researcher coded all qualitative questions in the survey and separate descriptive statistics were calculated for directors’ and teachers’ responses.

Previous Participant Survey. Directors and teachers from centers that were active in SB6 from July 2009 to July 2013 were invited to complete an online survey administered via Survey Monkey. Centers were considered part of this sample if they were from cohorts 5 through 13. Terminated, closed, and merged centers were included in this sample. Directors completed a 51 item survey while teachers filled out a 36 item survey. A total of 101 directors, 53 teachers, and 9 assistant teachers completed the surveys. Response rates of 55.19% were achieved for directors and 39.24% for teachers and assistant teachers combined. Cleaning, coding, and analysis processes were similar to those used for the current participant surveys.

Technical Assistance (TA) Consultants Survey. Technical assistance consultants from two agencies (DVAECY and MELC) contracting with SB6 completed a 51 item survey on their experience with and perceptions of SB6 consultation. Surveys included sections on: General Information, Training and Supervision, Quality Improvement in Practice, and Demographics. A total of 14 TA consultants (100%) filled out the survey, 9 from DVAECY (64.29%) and 5 from MELC (35.71%). Child Trends received a list of all active TA consultants from both DVAECY and MELC who were working with SB6 centers. Participants were recruited via email. United Way sent all TA consultants a preliminary email explaining the study and alerting them to future contact by Child Trends. After this email was sent, Child Trends emailed participants a link to the survey and a unique ID number, and requested they complete the survey. One reminder email was sent and the survey closed after 3 weeks. Cleaning, coding, and analysis procedures were the same as for the current and previous participant.

SB6 Contact Logs. TA consultants use SB6 contact logs to document TA services delivered to centers. Logs may report on services provided in person, via email, or via phone as long as the phone consultation is at least half an hour long. Every in person visit must be documented. Child Trends requested contact logs from 4 centers as a pilot to review the information in the log and the consistency with which it was documented. After the pilot, Child Trends requested all available contact logs from 13 additional centers. Centers were selected to represent a range of cohorts, status in SB6, and TA consultants. The sample included cohorts 5 through 15 and centers marked as “Star 3 or 4 achieved”, “Stayed at STAR 2”, “Terminated/closed”, or “Current”, and represented 24 different TA consultants. Across all 17 centers, a total of 365 contact logs were collected and analyzed.

For document analysis, researchers transferred contact log information to an Excel spreadsheet where every row documented a different contact log. Qualitative data was reviewed for themes and coded by a researcher. Descriptive statistics were run. Averages were found by first finding the means by center and then averaging the means.

Observations. Content and process of TA consultant visits were assessed through on-site observations. Using an observation tool developed by Child Trends, researchers conducted a total of 18 unique observations for centers in cohorts fourteen (n = 11), fifteen (n = 3), and sixteen (n = 4). Some visits included two researchers; therefore, a total of 22 observations were conducted across 18 unique centers. These 5 duplicates were removed from the sample for a total of 18 observations. Across all 18 observations, 9 unique TA consultants were observed with 1 TA consultants visiting a center in 15 observations and 2 TA consultants visiting in 3 observations. Observations were conducted by 5 Child Trends researchers in January and March of 2015. Observer 1 conducted 6 observations, observer 2 conducted 5, observer 3 conducted 5, observer 4 conducted 4, and observer 5 conducted 2.

Centers were chosen for observations based on size, location, cohort, TA agency represented, and the assigned TA consultant(s). Using these criteria, United Way created a matrix of all possible centers to observe with no more than 2 observations a day per observer. From this matrix, 18 centers were selected based on feasibility and logistics of traveling between centers.

The observational tool was based on a similar tool created for a separate Child Trends project and was created as a note taking guide. Of the five observers, two were involved in the development of the tool used for this study, one of whom had used the original tool. Content of the original tool was edited to best fit content likely to occur during a SB6 TA visit. After the tool was finalized, a training session was conducted to familiarize the other observers with the tool. To ensure consistent use of the tool, researchers debriefed after each day of observations. Debriefing included discussion of any irregularities with observations and clarification of any issues or questions that may have occurred with coding.

The observational tool was broken down into three components. The first component included fifteen minute cycles of note taking. During each cycle, observers recorded what was happening, who the TA consultant was interacting with, the consultation strategy being used, and the content/topic of activity. Observers filled out a separate cycle note page for every fifteen minutes of the observation. There was no limit to the number of cycles per observation. Observations averaged 167 minutes (2.8 hours) and ranged from 60 to 280 minutes (1 to 4.7 hours). The second component of the tool included a series of follow up questions with which researchers asked TA consultants, center directors and teachers about their experience with the TA visit. Four of the questions were formatted as a 4-point Likert scale with 1 representing strongly disagree and 4 representing strongly agree; an additional two questions asked about what went well during the visit and what could have gone differently. Space was provided to record any additional comments or explanations. The final component was an 8-item questionnaire for researchers to fill out after the observation. The questions were formatted as a 4-point Likert scale with 1 representing not successful and 4 representing very successful. The questions indented to capture how successful the TA consultant was in outlining goals, problem solving, and using various consultation strategies.

For analysis, all notes were entered into an excel spreadsheet in which each cycle constituted a row in the spreadsheet. When two observers went to the same observation, the more experienced observer's notes were used for analysis. In the case were observers had equal experience, notes were combined and averages were found when possible. None of observer 5's observations were used in analysis. Descriptive statistics were run. For cycle content analysis, cycles were first averaged by center. Those results were then averaged across all centers.

OCDEL Documents. Documents from the Office of Child Development and Early Learning (OCDEL) in Pennsylvania were used to analyze STAR rating and move up. Administrative records were formally requested from OCDEL through a public data request process, and files were obtained in late April 2015. Administrative files included: STAR designation file, awards file, ERS files (including ECERS, ITERS, SACERS, FCCERS [not used for analysis]), and files on technical assistance content, goals and outcomes, and time spent.

To prepare files for analysis, the Child Trends team started with a master list of all participating SB6 centers provided by United Way. This file contained descriptive information on each center such as cohort number, TA consultant assigned to the center, and the number of children at the center. Child Trends' researchers cleaned this file to only include cohorts 5 through 16 and only unique centers. If a center went through SB6 more than once, only the most recent cohort data was kept for that center. Next, centers from the SB6 master list were matched to their corresponding center in the OCDEL designation file. This was done in order to ensure the master list contained the same ID numbers as the OCDEL files. Centers were matched based on center name and address. If the matching ID number was unclear based on the designation file, the other files provided by OCDEL were used to match to the ID number. A total of seven centers were unable to be matched because their center names or addresses did not match between the SB6 master list and the OCDEL files. Once ID numbers were found, descriptive data from the SB6 master list was merged into each OCDEL administrative file.

Using the designation file, several variables were calculated to use as potential match variables for the propensity score matching analysis. These included:

- *Time in Keystone STARS:* Length of time in Keystone Stars was calculated by finding the difference between April 30, 2015 and the date of a center's first recorded designation. The date April 30th was selected because the OCDEL files were received at this time; therefore, designation dates could not have been later than this date.
- *Date of first STAR 2:* The date of a center's first STAR 2 rating was found.
- *STARS entry status:* Whether or not a center joined STARS before the Start with STARS initiative began in 2009
- *Center Size:* Centers were categorized into one of three groups; 1-45 students, 46-99 students, 100+ students
- *Missing from STARS technical assistance files:* Child Trends received three OCDEL files that contained information on TA goals, TA type of service, and TA content provided. Centers were coded "0" if they were missing from the file. Not all centers were present in each TA file. Therefore, all three files were used in data analysis to capture as many cases as possible where centers were participating in STARS TA.
- *Missing from STARS awards file:* Centers were coded "0" if they were missing from the STARS financial awards file.
- *American Community Survey 2009-2014 by Census Tract of center*
 - Total population Black
 - Total population White
 - Total population under age 5
 - Percent employed, families with children under age 5
 - Percent poverty level, families with children under age 5
 - Median household income, (2013 inflation adjusted dollars)

OCDEL files were used in the matching and in three multivariate analyses: logistic regression, survival analysis, and latent profile analysis.

PIF Budgets. Program Improvement Funds (PIF) budgets were requested from United Way for the same 17 centers the comprised the purposeful sample for the contact log

analysis. The 17 centers represented a variety of SB6 center types and outcomes. Of the 17 PIF budgets requested, 13 budgets were available and included in this analysis. Line items were extracted from the budget spreadsheets and coded into one of twelve categories. To ensure the reliability of the coding, 10% of the line items were double coded by a second researcher. A total of 500 line items were analyzed, and descriptive statistics were calculated across all line items.

Appendix: Program Outcomes Results

Table B: Sample Characteristics Before and After Matching

	Before matching						After matching						Bias reduced by matching
	SB6		Non-SB6		Comparison		SB6		Non-SB6		Comparison		
	Mean	SD	Mean	SD	SMD	p-value	Mean	SD	Mean	SD	SMD	p-value	Bias reduced
Center Characteristics													
Years in Keystone STARS	6.17	2.23	6.79	2.30	-0.27	0.0012	6.15	2.28	6.25	2.01	-0.05	0.6740	82%
Enrolled in STARS before 2009	0.48	0.50	0.35	0.48	0.27	0.0012	0.45	0.50	0.45	0.50	0.00	1.0000	100%
Small Center (1-45 children)	0.39	0.49	0.51	0.50	-0.23	0.0062	0.46	0.50	0.42	0.50	0.08	0.4916	66%
Medium Center (46-99 children)	0.45	0.50	0.31	0.46	0.29	0.0006	0.41	0.49	0.45	0.50	-0.09	0.4203	68%
Large Center (100+ children)	0.13	0.33	0.10	0.30	0.09	0.3156	0.10	0.31	0.11	0.32	-0.02	0.8544	75%
Participation in STARS													
Set TA Goals	0.76	0.43	0.46	0.50	0.64	0.0000	0.71	0.45	0.71	0.46	0.01	0.9002	98%
Received TA Content	0.75	0.43	0.45	0.50	0.65	0.0000	0.71	0.46	0.71	0.46	0.00	1.0000	100%
Type of TA Content	0.81	0.39	0.49	0.50	0.71	0.0000	0.78	0.42	0.75	0.43	0.06	0.5913	91%
Received Awards	0.95	0.22	0.76	0.42	0.55	0.0000	0.96	0.19	0.96	0.19	0.00	1.0000	100%
Community Characteristics													
ACS: White	0.62	0.33	0.63	0.33	-0.02	0.7823	0.63	0.33	0.63	0.32	0.01	0.8990	37%
ACS: Black	0.29	0.33	0.29	0.33	0.00	0.9991	0.28	0.33	0.30	0.33	-0.05	0.6790	inf.
ACS: N under 5	159	156	145	115	0.11	0.2213	150	138	162	125	-0.09	0.4416	18%
ACS: N families with children under 5, employed	0.69	0.17	0.70	0.16	-0.08	0.3430	0.66	0.16	0.68	0.17	-0.09	0.4730	-21%
ACS: Median income	57001	25935	6025	27087	-0.12	0.1431	59129	25746	60173	24619	-0.03	0.6248	76%
ACS: N families with children under 5, poverty	0.19	0.24	0.18	0.25	0.07	0.4220	0.17	0.11	0.16	0.18	0.02	0.7906	66%

Source. Child Trends' analysis of Keystone STARS administrative data obtained from OCDEL, April 30, 2015, and ERS data from United Way.

Table C: Odds of Centers Moving Up in STARS To Date

	Coefficient	Std. Error	Odds ratio	z value	Pr(> z)	
Participation in SB6	0.86	0.26	2.36	3.30	0.001	***
Years in Keystone STARS	0.20	0.07	1.22	3.05	0.002	**
Medium Centers (46-99 children)	0.78	0.28	2.18	2.78	0.005	**

Note. Other control variables include Enrolled in STARS before 2009, Missing from TA and Awards files, Census demographics. None of these were significant.
Source. Child Trends' analysis of Keystone STARS administrative data obtained from OCDEL, April 30, 2015, and ERS data from United Way.

Table D: Odds of Centers Moving up in STARS After SB6

	Coefficient	Std. Error	Odds ratio	z value	Pr(> z)	
Participation in SB6	0.51	0.26	1.66	1.93	0.050	*
Years in Keystone STARS	0.18	0.07	1.20	2.71	0.007	**

Note. Other control variables include Early Adopters, Center Size, Missing from TA and Awards files, Census demographics. None of these were significant.
Source. Child Trends' analysis of Keystone STARS administrative data obtained from OCDEL, April 30, 2015, and ERS data from United Way.

Table E: Move Up within 2 Years after SB6 by Cohort

	Number of Centers Ever Moved Up	Number of Participating Centers	% of Centers Ever Moved Up
Cohort 5	13	17	76%
Cohort 6	12	18	67%
Cohort 7	8	10	80%
Cohort 8	11	17	65%
Cohort 9	11	20	55%
Cohort 10	15	21	71%
Cohort 11	10	17	59%
Cohort 12	10	17	59%
Cohort 13	13	23	57%

Source. Child Trends' analysis of Keystone STARS administrative data obtained from OCDEL, April 30, 2015. These rates are unadjusted (i.e. do not control for any center characteristics) and include centers that were not in the matched sample analyzed in the main report.

Table F: Survival Analysis – Probability of Staying at STAR 2

	Coefficient	Std. Error	Hazard ratio	Interval of hazard ratio		z value	Pr(> z)	
				2.50%	97.50%			
Participation in SB6	0.62	0.21	1.86	1.26	2.76	3.09	0.002	**
Years in Keystone STARS	0.00	0.05	1.00	0.90	1.11	-0.04	0.971	
Medium Centers	0.29	0.22	1.33	0.87	2.05	1.31	0.189	
Large Centers	0.15	0.33	1.16	0.61	2.20	0.46	0.643	
Set TA Goals	-9.67	1867.00	0.00	0.00	0.00	-0.01	0.996	
Received TA Content	10.21	1867.00	27080.00	0.00	0.00	0.01	0.996	
Type of TA Content	-0.55	0.47	0.57	0.23	1.45	-1.18	0.240	
STARS Awards	0.72	0.74	2.06	0.48	8.83	0.98	0.329	
ACS: % white	-0.44	1.50	0.64	0.03	12.12	-0.29	0.769	
ACS: % black	-0.22	1.45	0.80	0.05	13.73	-0.15	0.879	
ACS: N children under 5	0.00	0.00	1.00	1.00	1.00	-0.60	0.551	
ACS: % employed	0.00	0.00	1.00	1.00	1.00	-0.69	0.490	
ACS: Median income	0.00	0.00	1.00	1.00	1.00	0.39	0.698	
ACS: N poverty	0.00	0.00	1.00	1.00	1.00	0.68	0.495	

Note. ** indicates significance

Source. Child Trends' analysis of Keystone STARS administrative data obtained from OCDEL, April 30, 2015, and ERS data from United Way.