# Assessing and Enhancing the Maintenance and Generalization of Staff Implementation of Healthy Behavioral Practices using the Performance Diagnostic Checklist—Human Services

By



Nicole A. Kanaman
M.A., University of Kansas, 2020
B.S., University of North Texas, 2016

Submitted to the graduate degree program in Applied Behavioral Sciences and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Chair: Claudia L. Dozier, Ph.D.

Florence D. DiGennaro Reed, Ph.D.

Pamela L. Neidert, Ph.D.

Derek D. Reed, Ph.D.

Kathleen L. Lane, Ph.D.

Date Defended: 26 July 2022

The dissertation committee for Nicole A. Kanaman certifies that this is the approved version of the following dissertation:

# Assessing and Enhancing the Maintenance and Generalization of Staff Implementation of Healthy Behavioral Practices using the Performance Diagnostic Checklist—Human Services

Chair: Claudia L. Dozier, Ph.D.

Date Approved: 26 July 2022

**Abstract**

Variables that may impede employee performance include insufficient training, a lack of performance consequences, and competing tasks/contingencies, among others (Austin, 2000). The Performance Diagnostic Checklist-Human Services (PDC-HS; Carr et al., 2013) is an indirect assessment used to assess employee performance, identify barriers to satisfactory performance, and develop interventions that address the variables influencing performance deficits in human service settings (e.g., Ditzian et al., 2015). In Study 1 of the current evaluation, we conducted the PDC-HS with various staff and managers in three group homes at a large residential program for adults with intellectual and developmental disabilities to identify barriers to staff implementation of a company-wide prevention and intervention procedure (healthy behavioral practices [HBP]; Kamana et al., in preparation). Across practices and respondents, results of the initial PDC-HS revealed barriers in all four PDC-HS domains with higher reports of barriers in the *Task Clarification and Prompting* and *Resources, Materials, and Processes* domains. Based on the outcomes of the PDC-HS, we derived a packaged intervention to address the two major barriers identified: participant skill deficits and other tasks impeding implementation of the practices. In Study 2, we evaluated the efficacy of the treatment package which included the development of a home schedule and implementation of a staff intervention package (i.e., booster training [including a discussion on how to implement HBP in conjunction with other tasks], introduction of two job aids, and on-the-job feedback) to increase staff implementation of HBP across the day in the absence of in-person observation. Baseline and post-training observations were conducted remotely and participants were not made aware of the observation times to reduce potential reactive responding (Kazdin, 1979). Results of Study 2

demonstrated the efficacy of the function-based intervention package for increasing staff implementation of HBP in the group home setting.

## Acknowledgments

To my advisor, Dr. Claudia Dozier, the space allotted for acknowledgements is not near enough for me to provide an adequate thank you for the support you have provided and the impact your presence in my life has made. So, I will leave it at, thank you for trusting me with this project and for your guidance throughout my graduate journey. I am forever thankful for the opportunities you provided me that led to discovering my passion for providing services to adult consumers with IDD. I am the clinician, researcher, and woman I am today in large part because of you. To my committee members, thank you for providing guidance on the current project, your feedback has enhanced this project immensely. To my lab mates and fellow graduate students, thank you for your hours of data collection and analysis and for providing the encouragement I needed throughout my tenue. To my family and friends, thank yall for the endless love and support. Finally, to my husband turned lab mate, Ky, and our daughter, Macklyn, thank you for being my rocks.

## Table of Contents


Abstract ..... iii

Acknowledgments ..... v

Introduction ..... 1

Study 1 Method: PDC-HS ..... 11

- Participants, Setting, and Materials ..... 11
- Response Measurement and Interobserver Agreement ..... 13

Procedures ..... 17

- Initial PDC-HS Interview ..... 17
- Company Record Review Verification ..... 17
- Follow-up Role Play ..... 18
- PDC-HS validation ..... 19

Study 1 Results ..... 20

Study 2 Methods: Staff Intervention Package ..... 30

- Participants, Setting, and Materials ..... 30
- Response Measurement, Data Analysis, Interobserver Agreement (IOA), and Procedural Integrity ..... 33

Procedures ..... 37

- Baseline Observations ..... 38
- Schedule Building Workshop ..... 40
- Staff Training ..... 42
- Post-Training Observations and Feedback ..... 45
- Social Validity Questionnaire ..... 47

Study 2 Results ..... 47

Discussion ..... 56

References ..... 66

Tables

- Table 1: Scoring Guide for HBP Role Plays ..... 77
- Table 2: Scoring Guide for HBP Observations ..... 80
- Table 3: Domains Indicated for Intervention Across All Practices ..... 83
- Table 4: Study 2 Pre- Post-Training Questionnaire Results ..... 84
- Table 5: Study 2 Additional Treatment Data ..... 85
- Table 6: Study 2 Social Validity Questionnaire Results ..... 86

Figures

Figure 1: PDC-HS Positive Interaction Results ....87
Figure 2: PDC-HS Activity Engagement Results....88
Figure 3: PDC-HS Effective Instructions Results ....89
Figure 4: PDC-HS Responding to Problem Behavior Results ....90
Figure 5: Results of Role Play for All Participants Across All Homes....91
Figure 6: Tasks Reported to Impede Healthy Behavioral Practices as They Must Be Completed First ....92
Figure 7: Tasks Reported to Take Priority Over the Implementation of Healthy Behavioral Practices....93
Figure 8: Percent Always, Sometimes, and Never Across All Practices ....94
Figure 9: Percent Always, Sometimes, and Never for Positive Interactions....95
Figure 10: Percent Always, Sometimes, and Never for Activity Engagement ....96
Figure 11: Percent Always, Sometimes, and Never for Effective Instructions....97
Figure 12: Percent Always, Sometimes, and Never for Responding to Problem Behavior....98
Figure 13: Individual Staff Analysis ....99

Appendices

Appendix A: Institutional Review Board Approval ....100
Appendix B: PDC-HS ....101
Appendix C: Healthy Behavioral Practices Role Play Script....103
Appendix D: HBP Competency Check ....106
Appendix E: Staff Consent Form ....108
Appendix F: Group Home Schedule Builder ....112
Appendix G: Group Home Schedule Builder: Example ....114
Appendix H: Healthy Behavioral Practices PowerPoint ....116
Appendix I: HBP Job Aid....127
Appendix J: Healthy Behavioral Practices Ha ....128
Appendix K: Schedule Building Workshop Procedural Integrity Checklist....129
Appendix L: Staff Training Procedural Integrity Checklist ....130
Appendix M: On-The-Job Feedback Procedural Integrity Checklist....131
Appendix N: Example Feedback Email ....132
Appendix O: Healthy Behavioral Practices (HBP) Study Social validity Questionnaire ....133

**Assessing and Enhancing the Maintenance and Generalization of Staff Implementation of Healthy Behavioral Practices using the Performance Diagnostic Checklist—Human Services**

Population-level research suggests a high prevalence of adults with intellectual and developmental disabilities (IDD) engage in problem behavior (e.g., Bowring et al., 2016; Jones et al., 2008; Lundqvist, 2013). Some common problem behaviors include physical aggression, inappropriate verbal behavior (e.g., yelling or using profanity), self-injurious behavior, and property destruction. The occurrence of problem behavior can lead to negative outcomes for the individual (e.g., injury or even death; Hyman et al., 1990; Kahng et al., 2002) and can pose various barriers to service delivery. For example, individuals who engage in problem behavior often require a higher level of support in activities of daily living (ADLs; e.g., eating, getting dressed, toileting; Emerson et al., 2001), which contributes to a decrease in independence. Additionally, the occurrence of problem behavior may pose barriers to creating friendships, gaining meaningful employment, and being included in preferred communities (Bowring et al., 2019; Cooper et al., 2009; DiGennaro Reed et al., 2011; Hagopian et al., 2013). Furthermore, problem behavior may impact service delivery leading to an increased use of psychotropic medication (Bowring et al., 2017; Deb & Unwin, 2007) and other restrictive procedures like seclusion or restraint (Fitton & Jones, 2018). In addition to the noted impacts that problem behavior may have, individuals who live in congregate care settings (i.e., staffed group homes serving multiples individuals, often adults, with IDD) and engage in problem behavior may experience additional barriers. For example, staff providing services in these settings may be more likely to experience caregiver stress as a result of the enhanced supervision and supports

required (Hagopian et al., 2013; Kahng et al., 2002; Luiselli, 2012), which may lead to an increased prevalence of abuse or neglect (Emerson et al., 2001; Singh et al., 2016).

Research on the function of challenging behavior suggests that individuals often engage in problem behavior maintained by social variables (i.e., social positive reinforcement [access to attention/tangibles] or social negative reinforcement [escape]) at high levels (Beavers et al., 2013). Therefore, it is important to train caregivers and service providers how to adequately prevent and respond to problem behavior to decrease the future occurrence of the behavior. Function-based interventions for socially maintained behaviors often involve modifications to the evocative antecedent event (e.g., noncontingent reinforcement; NCR; Carr et al., 2000), elimination of the response-reinforcer relationship (i.e., extinction; Iwata et al., 1994), the delivery of the maintaining variable for appropriate alternative behaviors (e.g., Lennox et al., 1988), or some combination of these procedures. Staff in congregate care settings, or group home environments, often provide services to multiple individuals with IDD at the same time and have various other responsibilities to complete in the home (e.g., completion of household chores, cooking, and providing supports to others in the home). Thus, it is important to determine procedures that not only prevent or decrease behaviors maintained by various social variables but are also feasible to implement in a group home setting.

Kamana et al. (in preparation) created an intervention package based on the function-based treatment literature (e.g., Beaver et al., 2013) and the literature on providing active treatment in adult service settings (e.g., Cooper & Browder, 2001; Fleming & Sulzer-Azaroff, 1992; Jones et al., 1999; Parsons et al.,1989; Parsons & Reid, 1993; Parsons et al., 2004; Realon et al., 2002; Reid et al., 2001; Repp et al., 1981; Weinberg et al., 2000) that included four skills, collectively termed Healthy Behavioral Practices (HBP). HBP was then trained as a Tier 1

intervention (i.e., primary procedures to be implemented across all homes/programs with all consumers; Horner et al., 2010) at a large residential and day service program for adults with IDD. These HBPs included (a) providing *positive interactions* (e.g., conversation, compliments, praise, statements of care, appropriate physical interactions) once every five minutes to consumer(s) in the area, (b) delivering *effective instructions* when placing demands (i.e., simple instruction, "do" rather than "don't" request, follow through [tell-show prompting], and provide help as needed), (c) ensuring consumer *activity engagement* (i.e., providing consumers with access to preferred items/activities across the day and prompting engagement), and (d) following procedures for *correct responses to problem behavior* (redirect minor behavior and minimize attention/access to tangibles contingent on severe problem behavior). *Positive interactions* and *activity engagement* aimed to prevent problem behavior maintained by social positive reinforcement (i.e., access to staff attention or tangibles), *effective instructions* aimed to prevent problem behavior maintained by social negative reinforcement (i.e., escape from demands), and *responding to problem behavior* provided baseline procedures for staff to engage in that would minimize problem behavior being shaped or maintained by social contingencies.

To train staff how to implement HBPs, Kamana et al. (in preparation) conducted behavioral skills training (BST; Himle et al., 2004) with all staff in the target homes or programs. That is, experimenters met with staff individually and reviewed a PowerPoint presentation with embedded video exemplars of each practice, modeled each practice, and then required the participant to practice the skill with feedback from the experimenter. Following the implementation of BST, experimenters conducted in-person, post-training observations and delivered on-the-job feedback (Krumhus & Malott, 1980), which involved reviewing the competency check data sheet (i.e., a review of participant responding in the observation),

providing praise for correct responding, and delivering corrective feedback for incorrect responding. Overall, results suggested BST and on-the-job feedback were effective for increasing staff implementation of HBP across the target homes and programs.

Results of this evaluation are promising given the importance of active treatment in adult residential locations and for preventing the occurrence of problem behavior in these settings; however, the degree to which group home staff continued to implement HBP across the day in the natural environment is unknown. In fact, at the conclusion of the initial HBP evaluation (i.e., Kamana et al., in preparation), the organization in which the evaluation was conducted adopted the HBP intervention package and training procedures for initial staff training; however, since the wide-scale adoption of HBP, our behavioral consultation team at the organization has observed a lack of maintenance and generalization of HBP in some programs. That is, staff demonstrate competency of HBP during training and often when the consultants observe staff in person at the homes; however, the skills are not consistently implemented across the homes and programs when staff are observed via the company remote-video system (i.e., when staff are unaware of the observation).

This is not a problem unique to our consultation team; in fact, a lack of maintenance of staff performance following staff training evaluations has been discussed in the literature (e.g., Liberman, 1983; Reid et al., 2012). However, despite the discussion on the need to prioritize the promotion of maintenance and generalization of staff performance following the conclusion of a study (e.g., Carr et al., 2013), there has been relatively little research on the maintenance of staff skills as compared to studies evaluating how to initially change staff behavior (e.g., Downs et al., 2008). The maintenance of staff performance is equally, if not more, important than demonstrating the efficacy of a staff training procedure given that implementation of the skills

over time is the ultimate goal. Available data on maintaining staff performance suggests the potential efficacy of long-term results when some aspect of the original procedure is left in place (e.g., Reid et al., 2017); however, this may be difficult when supervisors and consultants are not always available to provide supervision (e.g., training and on-the-job feedback [as was done in Kamana et al., in preparation]).

Furthermore, reactivity, behavior change as a result of an observational procedure (Kazdin, 1979), is a commonly cited problem in various human service settings (Johnson & Bolstad, 1975). That is, improvement and maintenance of staff performance may, in some circumstances, only occur in the presence of a supervisor or data collector (e.g., Bassett & Blanchard, 1977; Brackett et al., 2007; Gresham et al., 1993). Mowery et al. (2010) trained direct support staff members from four group homes to implement positive interactions (i.e., a positive comment, praise, physical contact, other comments, and interacting with individuals in the home during leisure activities) and attempted to promote maintenance of the skill by introducing tactile prompts (i.e., staff wore a MotivAider to prompt interactions) and a self-monitoring procedure (i.e., staff logged positive interactions). However, similar to what our consultation team has observed, participants demonstrated competency in implementing the skill but did not engage in positive interactions at an adequate level following intervention unless a supervisor was present.

In a similar evaluation, Ruby and DiGennaro Reed (2021) evaluated the efficacy of a self-monitoring procedure for increasing direct support staffs' implementation of positive interactions. Experimenters conducted their evaluation at the same organization in which our team consults; thus, the expectation for positive interactions was the same as in Kamana et al. (in preparation; i.e., delivery of a positive interaction once every 5 min to each consumer). Experimenters taught three participants how to use a technology-based, self-monitoring

procedure in which participants were trained to record the occurrence or nonoccurrence of a positive interaction during self-monitoring sessions. Self-monitoring alone increased participants' implementation of positive interactions; however, the addition of feedback was required to increase 2 of the 3 participants' delivery of positive interactions to a satisfactory level (i.e., at least once every 5 min). Although experimenters collected data on participants' implementation of positive interactions via the organizations remote video viewing software (i.e., data collectors were not present for observations), participants were made aware of the observation ahead of time; thus, the increases in responding may have been in part due to reactivity. Additionally, maintenance and generalization were not assessed in the evaluation; therefore, similar to our teams' observations, it is possible that the increase in positive interactions did not maintain or did not continue to occur following the conclusion of the study.

Given the research that suggests a lack of active treatment in adult service settings (e.g., Chan & Yau, 2002; Parsons et al., 2004; Kamana et al., in preparation), coupled with the anecdotal evidence suggesting a lack of HBP consistent implementation, it is imperative to determine the extent to which the implementation of HBP maintains in the natural setting and determine the barriers that may prohibit the consistent implementation of these procedures. Performance diagnostics is a function-based approach to identify variables that influence inadequate employee performance of various skills on the job (Austin, 2000). A commonly used tool for identifying these barriers is the Performance Diagnostic Checklist (PDC; Austin, 2000), which is an indirect assessment designed to identify barriers to adequate employee performance in various business and industry work environments (e.g., in restaurants [Rodriguez et al., 2006], medical clinics [Gravina et al., 2008], retail stores [Eikenhout & Austin, 2004], and with landscaping crews [Martinez-Onstott et al., 2016]). The PDC includes 20 questions across four

domains (i.e., *Antecedents*, *Equipment and Processes*, *Knowledge and Skills*, and *Consequences*) and was designed to be conducted by a behavior analyst with an employee's supervisor. Results from the PDC interview highlight variables that impede an employee's performance and can be used to derive an intervention. For example, if responses from the interview reveal a lack of knowledge or skill in the specific job task, results suggest the need for training. Research has demonstrated the utility of the PDC for identifying relevant barriers impeding employee performance and for deriving effective treatments for various work-related skills across business and industry work environments (e.g., closing tasks for restaurant employees, Austin et al., 2005; customer service for department store, Eikenhout & Austin, 2005; delivery of promotional items for restaurant employees, Rodriquez et al., 2006).

Carr et al. (2013) adapted the PDC to be more applicable in human service settings (e.g., residential programs for individuals with IDD, early intensive behavioral intervention [EIBI] clinics for children with IDD). That is, the authors created the Performance Diagnostic Checklist-Human Services (PDC-HS; Appendix B) and modified the questions from the original PDC so they were relevant for a clinical service delivery environment. Like the PDC, the PDC-HS is an informant-based indirect assessment designed to identify barriers to employee performance across various domains. In addition to modifications to the questions, the PDC-HS contains several other differences from the original PDC. First, the domains in the PDC-HS were changed to *Training*; *Task Clarification and Prompting*; *Resources, Materials, and Processes*; and *Performance Consequences, Effort, and Competition*. Second, direct observation components were added for various questions in the PDC-HS. For example, determining if the employee can accurately describe the task or observing if the task can be completed by the employee in a timely manner was added to the *Training* domain. Third, scoring and a section for

indicated interventions was added to the PDC-HS. That is, following the completion of the interview, the interviewer can use the "intervention planning" chart to identify interventions that are indicated based on the questions scored as "No" on the interview. For example, if the *Training* domain was an area indicated for intervention (i.e., informants often answered "No" to questions in this domain), BST and improved personnel selection are provided as sample interventions, along with several citations for relevant literature on these interventions.

The PDC-HS has been shown to accurately identify barriers to human service employee implementation of various required skills and have been used to derive effective interventions for addressing the identified barriers. In their primary paper, Carr et al. (2013) used the PDC-HS to identify variables contributing to the inadequate implementation of classroom cleaning procedures in a center-based autism program. Experimenters compared an indicated intervention (i.e., the intervention derived from the results of the PDC-HS; training and graphed feedback) to a nonindicated intervention (i.e., an intervention from a domain not identified as an area for intervention; increased availability of cleaning materials). Results of the evaluation demonstrated that increasing the availability of cleaning materials (i.e., nonindicated intervention) alone did not increase participant adherence to the cleaning procedures; rather, the implementation of training and graphed feedback (i.e., the indicated intervention) was required to improve performance.

Since the publication of the initial PDC-HS, the interview has been used to inform interventions for improving the implementation of various skills in human service settings. For example, interventions derived from the outcome of the PDC-HS have been used to improve implementation of error correction procedures by paraprofessionals (Bowe & Sellars, 2018), improve the implementation of classroom security procedures by EIBI therapists, (Ditzian et al.,

2015), and decrease tardiness by school staff members (Merritt et al., 2019). However, the majority of PDC-HS evaluations have been conducted in settings that serve children with IDD (Wilder et al., 2020), with the exception of one study that conducted the PDC-HS at a vocational site wherein the supervisors and employees included in the evaluation were adults with IDD (Smith & Wilder, 2018). Thus, the utility of the PDC-HS in staffed residential settings that serve adults with IDD is relatively unknown.

Additionally, there is currently no formal method for determining which domains indicated on the PDC-HS require intervention. Currently, the recommended practice is to implement an intervention for the domains in which the informants' answers indicate a barrier (e.g., multiple "No" responses to questions in a domain); however, it is often the case that several, or all, domains include some questions with answers indicating a barrier. In some evaluations, researchers have selected the domain with the highest number of answers indicating a barrier and in other cases researchers have implemented multiple interventions based on the results (Wilder et al., 2020). More research is warranted to develop a method for determining which domains warrant target for intervention or how PDC-HS users should prioritize indicated domains.

Further, in the majority of evaluations, interviews have been conducted with the employees' managers or supervisors (Wilder et al., 2020) with the exception of one study that interviewed both the employees and the employees' supervisors (Merritt et al., 2019). By excluding the employees in the assessment, and only relying on the report of the supervisor, valuable information may be lost as the managers or supervisors are not always present when employees are performing the tasks. On a similar note, the majority of studies using the PDC-HS interview a supervisor and subsequently implement an intervention for improving an employee's

performance (e.g., Carr et al., 2013; Ditzian et al., 2015; Bowe & Sellars, 2018; Wilder et al, 2018). Implementing an intervention only with the employees who directly implement the target skill may impact the maintenance of the skill over time, particularly with the high turnover rates in human service settings (LeBlanc et al., 2009). Thus, it is important to not only target improvement in the skills of the employees implementing the skills, but to target the behavior of managers and supervisors as well (Gravina et al., 2018; Mathot et al., 1996).

The assessment and treatment of consumer maladaptive behavior using a functional approach is standard practice; however, research reveals the same approach is often not taken for improving employee performance (Gravina et al., 2018). Although the PDC-HS provides a useful tool for assessing employee performance and subsequently deriving a function-based intervention for improving their performance, use of the interview is still not commonplace (Gravina et al., 2018). Thus, the continued evaluation of various methods for assessing the function of employee performance is warranted.

Further, research on the prevalence of reactivity, coupled with our consultation observations of reactive responding at the organization in which we consult, suggests the need for additional research on improving staff performance in the absence of data collectors, consultants, or supervisors. Similarly, given our observations suggesting a lack of maintenance and generalization of HBP in the group homes following initial staff training, more research is necessary on improving the long-term performance of skills for the prevention of problem behavior with group home staff.

The purpose of the current evaluation is to assess the maintenance and generalization of a company-wide prevention and intervention package, HBP, and use the results of the PDC-HS to derive and implement an intervention to address barriers to staff implementation of the

procedures. In Study 1, we conducted PDC-HS interviews for each of the four HBP with managers and staff in three target group homes to assess current barriers for staff implementation of each practice. In Study 2, we evaluated the efficacy of a packaged intervention derived from the results of the Study 1 PDC-HS interviews, which included the development of a home schedule and implementation of a staff intervention package (i.e., booster training [including a discussion on how to implement HBP in conjunction with other tasks], introduction of two job aids, and on-the-job feedback) to increase staff implementation of HBP across the day in the absence of in-person observations.

## Study 1 Method: PDC-HS

### Participants, Setting, and Materials

Participants in Study 1 included three different types of staff at a local residential and day service program for adults with IDD: direct support professionals (DSP), team leaders (TL), and home coaches (HC). DSPs are individuals 18-years or older with at least high school diploma or General Equivalence Diploma (GED) that provide direct care to the adults with IDD served in the residential homes or day programs. DSPs provide support in the form of companionship (e.g., providing attention and activities for engagement), assistance with personal care needs (e.g., assisting with showering, toileting, brushing teeth, changing briefs), assistance in cooking, completion of household chores in the residence, and provide transportation for the individuals in a home. TLs, or DSP managers, are individuals 18-years or older with at least high school diploma or GED who provide direct support similar to DSPs (i.e., work directly with consumers served in the residence), as well as provide ongoing training and feedback to DSPs in a home. HCs are individuals 18-years or older with at least a bachelor's degree who manage various residential homes. HCs provide feedback and support for DSPs and TLs; assist in the

development of individual service plans for consumers in a home; oversee the budget for the homes they supervise; and often work directly with the consumers served in the programs they manage.

Three residential group homes (i.e., E1 house, T1 house, and C1 house) were selected for the current evaluation. As part of our ongoing consultative relationship with the organization in which the evaluation was conducted, HBP competency checks are regularly conducted in residential group homes and day service programs. The homes selected for the current evaluation were homes in which observations suggested low levels of staff implementation of HBP across the day during both in person and remote observations (i.e., regardless of whether staff knew they were being observed). Each of the three group homes served seven adult consumers with IDD, and consumers across all three homes had a history of engaging in various problem behavior including physical aggression, self-injurious behavior, inappropriate sexual behavior, property destruction, and inappropriate verbal behavior. Participants in Study 1 were staff and managers employed in the three target group homes at the time of the evaluation. Across the three homes, 17 DSPs, 6 TLs, and 4 HCs were included in Study 1. Given that Study 1 was an evaluation within the context of our consultative role at the organization, Institutional Review Board (IRB) approval was obtained retroactively. See Appendix A for Study 1 approval.

Experimenters used the PDC-HS (Appendix B) to conduct a performance analysis (Austin, 2000) of participants' (i.e., DSPs, TLs, HCs) implementation of HBP and used either a pen and paper or a laptop computer to record participant answers to the interview questions. PDC-HS interviews were held either in-person in the group home or were held remotely via secure video conferencing software. If the interviews were held in the participant's assigned group home, the experimenter prompted the participant to go to a private location in the home

away from other staff and consumers. Examples of private locations in the group homes were the office (i.e., a separate enclosed space which contained a desk, seating, and office materials), the medication administration room (i.e., a room containing the medication cart [i.e., locked rolling cart containing consumers medication] and data collection materials), or outside (i.e., in the fenced in backyard that contained areas for sitting and outdoor activities for the consumers [e.g., swing sets, outdoor games, sand pits]).

As a follow-up to the initial PDC-HS interview, role plays were conducted with eight participants who were still employed in the target homes at the time (i.e., three DSPs, three TLs, and two HCs [one participant was an HC for two homes]) to assess participant implementation of each HBP. Role plays were either conducted at the participant's assigned group home (i.e., five participants [three staff, one HC, one TL]) in a private location (i.e., same private locations listed above) or were conducted in a conference room (which contained one large table, approximately 10 seats, and a television) at the organization (i.e., three participants [one HC and two TLs]). Role plays were conducted in a neutral location (i.e., not within the context of the typical group home schedule) to assess performance outside of the competing contingencies present in the natural environment (e.g., chores, cooking, consumers requiring assistance for ADLs). During the role plays, materials included leisure materials commonly found in group homes (e.g., a word search, a puzzles, several magazines) and materials required for an instruction (e.g., if the instruction was, "I want you to deliver effective instructions to get me to open this water bottle," the experimenter provided a water bottle with a screw on lid). Additionally, experimenters used the same role play script for all participants (Appendix C).

**Response Measurement and Interobserver Agreement**

During the PDC-HS initial interviews, interviews were conducted with the HC, TL, and two or three DSPs in each home for each of the four practices. Interviews were conducted with participants independently (i.e., not in a group format) for each HBP. During the interviews, data were collected on the participant's answers to each question on the assessment. Experimenters scored a "Yes," "No," or "Not applicable (N/A)" for each close-ended question based on how the participant responded and included additional narrative information provided by participants on open-ended follow-up questions. That is, for all questions, a "Yes," "No," or "N/A" was recorded based on how the participant responded; on 10 of the questions (i.e., Questions 1 and 2 in *Training*; Question 2 in *Task Clarification and Prompting*; Questions 2, 5, and 6 in *Resources, Materials, and Processes*; and Questions 1, 2, 3, and 5 in *Performance Consequences, Effort, and Competition*), the experimenter asked the included follow-up question and recorded the participant's response in narrative form. For example, on Question 1 in *Training* ("Has the employee received formal training on this task?"), if the participant indicated they had been trained, the experimenter asked if their training included instructions, demonstration, rehearsal, or some combination of these methods; on Question 2 in *Training* ("Can the employee accurately describe the target task and when it should be performed?"), the experimenter wrote down exactly how the participant described how the target task should be performed; and on Question 5 in *Resources, Materials, and Processes* ("Is performance suffering from other tasks not being completed first? If so, please indicate those tasks."), experimenters wrote down specific tasks staff reported to impede their implementation of the specific practice.

Across all homes and practices, a second observer was present for at least 37% of interviews and independently collected data on how the participant responded to the close-ended questions (i.e., recorded if the participant said "Yes," "No," or N/A). Interobserver agreement

(IOA) was calculated using total count IOA (i.e., total agreements / total agreements + disagreements). An agreement was any instance in which both the primary and secondary observer recorded the same participant response (i.e., a "Yes," "No," or N/A), and a disagreement was any instance in which the observers did not record the same response. For positive interactions, IOA was calculated for 50% of interviews, and mean IOA was 97% (range, 93%-100%). For activity engagement, IOA was calculated for 44% of interviews, and mean IOA was 98% (range, 94%-100%). For effective instructions, IOA was calculated for 56% of interviews, and mean IOA was 98% (range, 93%-100%). For responding to problem behavior, IOA was calculated for 32% of interviews, and mean IOA was 99% (range, 93%-100%).

Following the initial interviews, experimenters observed inconsistencies between participant responses and experimenter experiences as consultants in the respective group homes. That is, a lack of training and feedback was often reported; however, the experimenters were aware of previous trainings and instances in which feedback had been provided to participants on their implementation of HBP. Thus, experimenters went through company records to verify whether a training on HBP had occurred and whether the participant had received feedback on their implementation of HBP. If company records indicated training had occurred or feedback had been provided, the corresponding questions (i.e., Question 1 in *Training* and Question 2 in *Performance Consequences, Effort, and Competition*) were scored as a "Yes." If no company records were found indicating training had occurred or feedback was provided, the answer the participant provided during the initial interview was used in the data summary.

To assess actual implementation of each skill, experimenters conducted follow-up role plays with available participants. During the follow-up role plays, data were collected on the implementation of specific skills required for each of the four HBPs. Within each HBP, various

skills were scored as *correct, partially correct,* or *incorrect* based on the skill in each practice. For example, for positive interactions, data collectors observed whether a participant's interactions included (1) eye contact and a pleasant facial expression and (2) a positive interaction (e.g., a compliment, greeting, expression of care, conversation, appropriate physical interaction, or descriptive praise) to the confederate. For Skill 1 in positive interactions (i.e., eye contact and pleasant expression), the participant's behavior was scored *correct* if all interactions during the session included eye contact and a pleasant facial expression; *partially correct* if some, but not all, of the interactions included eye contact and a pleasant facial expression; and *incorrect* if none of the interactions included eye contact and a pleasant facial expression. To assess two of the skills for activity engagement (i.e., the variety of items present and the number of consumers in the home engaged), experimenters observed the participant in the natural environment. That is, experimenters went to the group home in which the participant worked and, as soon as the experimenter entered the home, they scanned the environment to observe whether items or activities were available to the consumers (scored as *correct* if so and *incorrect* if not) and whether the consumers present at the time were engaged (scored as *correct* if all consumers were engaged and *incorrect* if not). Given these skills needed to be observed in the natural environment, these skills were not assessed for the three participants for whom role plays were conducted in a conference room. See Table 1 for definitions of *correct, partially correct,* and *incorrect* responses across all practices during the role play. A second observer independently collected data on participant responding (i.e., scored *correct, partially correct,* or *incorrect* on all relevant behaviors across HBPs during the role play sessions) during 44% of sessions. IOA was calculated using total count IOA (i.e., total agreements / total agreements + disagreements), and mean IOA was 98% (range, 91%-100%).

## Procedures

### Initial PDC-HS Interview

Experimenters used procedures described by Carr et al. (2013) to administer the PDC-HS (Appendix B) interview with a few modifications. Carr et al. only scored 13 questions based on informant report and scored the remaining seven questions based on direct observation. In the current evaluation, experimenters directly asked participants each of the applicable questions (e.g., if materials were not required for the HBP [positive interactions, effective instructions, responding to problem behavior], the experimenters skipped questions relevant to availability of materials [Questions 2-4 in *Resources, Materials, and Processes*]), except Questions 3 and 4 in *Training*, during the initial interviews. A Company Record Review Verification and follow-up role plays (described below) were included for the questions requiring direct observation. This allowed for a comparison between what the informants initially reported and results of the verification procedures.

For all applicable questions, the experimenter prompted the participant to answer with a "Yes," "No," or "N/A," response; on 10 of the questions (i.e., Questions 1 and 2 in ; Question 2 in *Task Clarification and Prompting*; Questions 2, 5, and 6 in *Resources, Materials, and Processes*; and Questions 1, 2, 3, and 5 in *Performance Consequences, Effort, and Competition*), the experimenter asked the included follow-up question(s) and recorded exactly what the participant stated. Interviews lasted approximately 15 min.

### Company Record Review Verification

Following the initial interview, experimenters searched company records for documentation (e.g., in-service documents, confirmed calendar events for specific trainings, competency check forms) of previous trainings and feedback provided for each participant's

implementation of the HBPs. As stated, experimenters observed inconsistencies between participant responses in the initial PDC-HS interviews and experimenter experiences in the target group homes. That is, a lack of training and feedback was reported by participants; however, experimenters were aware of various trainings and instances of feedback provided. Thus, experimenters looked for documented instances of training (with BST) for the specific HBP skills and instances of formal feedback for the specific HBP skills. To ensure the trainings and instances of feedback included in the verification were consistent with best-practice procedures and actually occurred, experimenters only looked for HBP trainings and feedback sessions they themselves had conducted. That is, a training with BST was scored "Yes" if the experimenter had a recorded instance in which they conducted a training with the participant. For instances of feedback, feedback for the skill was scored as "Yes" if the experimenters had delivered the feedback using procedures consistent with the On-The-Job Feedback Protocol (back of Appendix D).

**Follow-up Role Play**

Following the initial interviews and record reviews, experimenters conducted role plays to evaluate participant implementation of each HBP outside of the natural environment. That is, they assessed whether participants could accurately engage in each HBP when distractions and competing contingencies in the natural environment (e.g., requirements to assist with other group home tasks) were removed. These data were used to complete the direct observation portion of the PDC-HS interview (i.e., Questions 2 and 3 in *Training*; however, we merged these questions into one in the current evaluation). There was a brief period of time between the initial PDC-HS interview and the follow-up role plays; thus, role plays were conducted with the eight participants who were still employed with the company following the brief period of time after

the interviews. These remaining participants included two HCs (the HC for E1 and T1 were the same person), three TLs, and three DSPs.

During the role play, the experimenter played the role of a confederate consumer, and the participant was instructed to play themselves as a staff member. Each role play session included four different trials (i.e., an opportunity to demonstrate each of the four HBP skills). Following a brief introduction thanking the participant for being a part of the role play, the participant was told that they would be participating in a role play and that they should demonstrate HBP to the best of their ability. Each session included four trials (i.e., a positive interaction, effective instruction, activity engagement, and responding to problem behavior trial), and each trial began with a brief introduction of what skill would be demonstrated. For example, during the positive-interaction trial, the experimenter said, "First, we will be role playing positive interactions. I will play the role of a consumer and you will play the role of yourself as a staff member. During this time, you should engage in positive interactions as you have been trained to the best of your ability." Following the introduction, the experimenter began to act as a confederate consumer and allowed the participant a brief amount of time to engage in the target skill. That is, the confederate consumer began to quietly engage with a leisure item independently; however, if the participant initiated a positive interaction, they responded with a reciprocal interaction (e.g., engaged in conversation, thanked them if they gave a compliment). If the participant did not engage in any response for 30 s, the experimenter terminated the trial and moved to the next trial. Experimenters followed the same role play script for each participant (Appendix C). No feedback was provided for participant responding during the role plays.

**PDC-HS validation**

Given the amount of time that passed between the data collected in Study 1 and the start of Study 2, experimenters conducted a brief PDC-HS validation by interviewing one additional staff from each of the three homes prior to starting Study 2. That is, experimenters selected one new staff member who was not included in the initial Study 1 interviews to conduct the PDC-HS (with record review) to ensure the results of the PDC-HS remained consistent given the passage of time and the change in staffing. The PDC-HS verification was conducted via telehealth; thus, experimenters did not conduct a role play with the additional staff.

## Study 1 Results

Table 3 depicts the indicated domains for intervention based on the outcomes of the PDC-HS. That is, Table 3 depicts the percentage of questions from each domain (i.e., *Training*; *Task Clarification and Prompting*; *Resources, Materials, and Processes*; and *Performance Consequences, Effort, and Competition*) on which participant responses indicated a barrier for the implementation of HBPs. These percentages are aggregated across all four practices. Based on the initial PDC-HS interviews, the *Resources, Materials, and Processes* domain was the most indicated domain for intervention (43%), followed by *Task Clarification and Prompting* (41%), *Training* (36%), and then *Performance Consequences, Effort, and Competition* (32%). As depicted, responses in the initial PDC-HS interviews suggested there were barriers, and areas of opportunity for intervention, in all four domains across the four practices. However, during the interviews, the experimenters noted many participants who had been trained or received feedback on their implementation of the four skills misreported this information (i.e., answered "No" on Questions 1 in the *Training* domain and Question 2 in the "Performance, Consequences, Effort, and Competition" domain). Therefore, the experimenters conducted a company record review verification and modified the results of the PDC-HS to match the record review.

Following the company record review verification, percentages remained the same in the *Resources, Materials, and Processes* (43%) and *Task Clarification and Prompting* (41%) domains; however, the percentage of questions that indicated barriers in the *Training* and *Performance Consequences, Effort, and Competition* domains decreased. Specifically, the *Training* domain percentage decreased to 17% and the *Performance Consequences, Effort, and Competition* domain percentage decreased to 27%.

Figures 1-4 depict participant responding on each question in the initial PDC-HS interviews (left panels) and the adjusted responses following the company record review verification (right panels) across each practice. In each figure, sections with blue bolded outlines denote the sections that were adjusted following the record review verification. Green squares denote questions in which the participant's answers did not suggest a barrier to implementation and red squares denote questions in which the participant's answer suggested a barrier and an opportunity for intervention. Gray boxes denote questions that were not applicable. For example, on Question 6 in *Resources, Materials, and Processes* (i.e., "Are other employees responsible for completing any of the earlier tasks in the process? If so, indicate the employees below."), participants would only answer the question if they had responded "Yes" to Question 5 (i.e., "Is performance suffering from other tasks not being completed first?"). Role play data are depicted as correct (green squares) if the participant correctly performed all required skills and incorrect (red squares) if they performed any skill incorrect or partially correct. Detailed role play data are displayed in Figure 5 and discussed in detail below.

Figure 1 depicts the results for the 13 participants included in the PDC-HS interviews for positive interactions. Three participants from T1 house (i.e., the HC, TL, and one DSP), five participants from E1 house (i.e., the HC, two TLs, and two DSPs), and five from C1 house

participants (i.e., two HCs, one TL, and two DSPs) were included in the interviews for this practice. Six of these participants (T1 TL, E1 HC, E1 TL, E1 DSP, C1 HC, and a C1 DSP) were included in the follow-up role play. In the *Training* domain, 3 of 13 participants indicated they had not been trained with BST (record review revealed 12 of 13 participants had been trained with BST) and 10 of 13 did not provide an accurate description of the practice. However, all six participants included in the follow-up role play correctly performed the practice with a confederate. In the *Task Clarification and Prompting* domain, all participants indicated being informed of the expectation to engage in positive interactions and all indicated the environment was well suited for delivering positive interaction. However, 7 of 13 participants were unable to state the purpose of the practice, 11 of 13 indicated there was no job aid, and 5 of 13 indicated they were never reminded to engage in positive interactions. In the *Resources, Materials, and Processes* domain, 6 of 13 participants indicated there was not a sufficient number of staff trained in the home, 9 of 13 indicated their performance suffered because other tasks must be completed first (the most reported task to impede was household chores), and 4 of these 9 participants indicated another staff person should be completing the impeding task. In the *Performance Consequences, Effort, and Competition* domain, all participants indicated seeing the benefits of engaging in positive interactions. However, 1 of 13 participants indicated they were never monitored by their supervisor, 4 of 13 indicated they never received feedback (record review revealed 12 of 13 had received feedback), 5 of 13 indicated delivering positive interactions was effortful or difficult, and 10 of 13 indicated there were more important tasks to complete during the day (responding to problem behavior and assisting with ADLs were the most reported tasks to take precedent).

Figure 2 depicts the results for the 11 participants included in the PDC-HS interviews for activity engagement. Three participants from T1 house (the HC, TL, and one DSP), four participants from E1 house (the HC, TL, and two DSPs), and four participants from C1 (i.e., the HC, TL, and two DSPs) were included in the interviews for this practice. Five of these participants (T1 HC, T1 TL, E1 HC, E1 TL, C1 HC) were included in the follow-up role play. In the *Training* domain, 3 of 11 participants indicated they had not been trained with BST (record review revealed all 11 participants had been trained with BST) and 3 of 11 participants did not provide an accurate description of the practice. Of the five participants included in the role play, one did not correctly perform the practice with a confederate. In the *Task Clarification and Prompting* domain, all participants indicated being informed of the expectation to implement activity engagement. However, 5 of 11 were unable to state the purpose of the practice, 11 of 11 indicated there was no job aid, 4 of 11 indicated they were never reminded to implement activity engagement, and 2 of 11 indicated the environment was not well suited for implementing activity engagement. In the *Resources, Materials, and Processes* domain, all participants indicated items for activity engagement were readily available in the home. However, 5 of 11 indicated there was an insufficient number of staff trained to implement activity engagement, 2 of 11 indicated the materials available were not well designed, 1 of 11 indicated the materials were not well organized, 7 of 11 indicated their performance suffered because other tasks must be completed first (the most reported task to impede was household chores), and 2 of these 7 participants indicated another staff person should be completing the impeding task. In the *Performance Consequences, Effort, and Competition* domain, 1 of 11 participants indicated they were never monitored by a supervisor, 5 of 11 indicated they never received feedback (record review revealed all had received feedback), 2 of 11 indicated they did not see the benefits of activity

engagement, 6 of 11 found the practice effortful or difficult, and 10 of 11 indicated there were more important tasks to complete during the day (assisting with ADLs was the most reported task to take precedent).

Figure 3 depicts the results for the 11 participants included in the PDC-HS interviews for effective instructions. Three participants from T1 house (the HC, TL, and one DSP), four participants from E1 house (the HC, two TLs, and one DSPs), and four participants from C1 (i.e., the HC, two TLs, and one DSPs) were included in the interviews for this practice. Eight of these participants (T1 HC, T1 TL, E1 HC, both E1 TLs, C1 HC, C1 TL, one C1 DSP) were included in the follow-up role play. In the *Training* domain, 7 of 11 participants indicated not being trained with BST (record review revealed all participants had been trained with BST) and 10 of 11 participants did not provide an accurate description of the practice. Of the eight participants included in the role play, three did not correctly perform the practice with a confederate. In the *Task Clarification and Prompting* domain, 2 of 11 participants indicated they had not been informed of the expectation to deliver effective instructions, 10 of 11 were unable to state the purpose of the practice, 11 of 11 indicated there was no job aid, 4 of 11 indicated they were never reminded to deliver effective instructions, and 1 of 11 indicated the environment was not well suited for delivering effective instructions. In the *Resources, Materials, and Processes* domain, 4 of 11 indicated there was not a sufficient number of staff trained to deliver effective instructions, 6 of 11 indicated their performance suffered because other tasks must be completed first (the most reported task to impede was responding to problem behavior), and 5 of these 6 participants indicated another staff person should be completing the impeding task. In the *Performance Consequences, Effort, and Competition* domain, all staff indicated seeing the benefits of delivering effective instructions. However, 3 of 11 participants indicated they were

never monitored by a supervisor, 2 of 11 indicated they never received feedback (record review revealed all had received feedback), 4 of 11 found the practice effortful or difficult, and 5 of 11 indicated there were more important tasks to complete during the day (responding to problem behavior was the most reported task to take precedent).

Figure 4 depicts the results for the 11 participants included in the PDC-HS interviews for correct responding to problem behavior. Three participants from T1 house (the HC, TL, and one DSP), four participants from E1 house (the HC, two TLs, and one DSPs), and four participants from C1 (i.e., the HC, TL, and two DSPs) were included in the interviews for this practice. Seven of these participants were included in the follow-up role play. In the *Training* domain, 3 of 11 participants indicated they had not been trained with BST (record review revealed all participants had been trained with BST) and 7 of 11 did not provide an accurate description of the practice. Of the seven participants included in the role play, five did not correctly perform the practice with a confederate. In the *Task Clarification and Prompting* domain, all participants indicated they were informed of the expectation to correctly respond to problem behavior and indicated they found the environment to be well suited for implementing this practice. However, 6 of 11 were unable to state the purpose of the practice, 11 of 11 indicated there was no job aid, and 5 of 11 indicated they were never reminded to implement the practice. In the *Resources, Materials, and Processes* domain, 5 of 11 indicated there was not a sufficient number of staff trained to respond to problem behavior, 5 of 11 indicated their performance suffered because other tasks must be completed first (the most reported task to impede was responding to problem behavior of other consumers), and 4 of these 5 participants indicated another staff person should be completing the impeding task. In the *Performance Consequences, Effort, and Competition* domain, 4 of 11 participants indicated they were never monitored by a supervisor, 3 of 11

indicated they never received feedback (record review revealed all had received feedback), 1 of 11 indicated they did not see the benefits of correctly responding to problem behavior, 4 of 11 found the practice effortful or difficult, and 4 of 11 indicated there were more important tasks to complete during the day (assisting with ADLs, completing household chores, and responding to other problem behaviors were the most reported task to take precedent).

Given the passage of time between the initial PDC-HS interviews and the implementation of the intervention, we conducted additional PDC-HS interviews for each of the four practices with three new staff (i.e., one DSP from each of the three target homes who was not interviewed initially) to validate the outcomes of the initial PDC-HS interviews. Results of the validation interviews were similar to those obtained in the initial interviews across all four practices. That is, across all four practices, at least one participant inaccurately described each practice and the majority of participants reported other tasks impeded or took priority over their implementation of each practice. These results were consistent with results of the initial PDC-HS interviews and highlighted similar barriers that required intervention.

As noted, Figures 1-4 depict whether participants included in the follow-up role plays correctly engaged in a practice with a confederate consumer. Figure 5 depicts a more detailed analysis of these follow-up role plays. That is, Figure 5 depicts correct, partially correct, or incorrect implementation of various required skills within each HBP. Green squares denote skills participants implemented correctly, yellow squares denote skills participants implemented partially correct, and red squares denote skills participants implemented incorrectly. Gray squares denote the skills that were not assessed in the role play. That is, for three participants (i.e., E1 HC, E1 TL, T1 HC), role plays were conducted in a conference room and not in a group home; thus, data were not collected on whether there were a variety of items available or if

consumers were engaged in the home. The top panel depicts results from the positive interaction portion of the role play. Results demonstrate that all participants (8 of 8) correctly engaged in positive interactions with the confederate. The second panel depicts results from the effective instructions portion of the role play. Results demonstrate that all participants (8 of 8) correctly delivered instructions in a "do" rather than "don't" format; however, 3 of the 8 participants provided instructions that were not simple and clear, and 4 of the 8 participants provided an incorrect prompt following noncompliance by the confederate. The third panel depicts results from the activity engagement portion of the role play. Results demonstrate that all participants included in this portion (5 of 5) provided a variety of items and consumers in the environment for the observation were engaged (5 of 5). All but one participant (7 of 8) provided a correct prompt to the confederate when they were not engaged. The fourth panel depicts results from the responding to problem behavior portion of the role play. Results demonstrate that 3 of the 8 participants did not refrain from commenting on minor problem behavior and 6 of the 8 participants did not withhold attention and tangibles for the correct amount of time following severe problem behavior with the confederate.

Figure 6 depicts the tasks reported to impede the implementation of HBPs. That is, when staff answered "Yes" to Question 5 in *Resources, Materials, and Processes* (i.e., "Is performance suffering from other tasks not being completed first?"), these were the tasks reported by participants. The top three tasks reported were the completion of household chores, responding to problem behavior in the home, and assisting other consumers with ADLs. Figure 7 depicts the tasks reported to take priority over the implementation of HBP. That is, when staff answered "Yes" to Question 5 in *Performance Consequences, Effort, and Competition* (i.e., "Do other tasks appear to take precedence over the target tasks?"), these were the tasks reported by

participants. The same top three answers were reported as taking priority over HBP: assisting with ADLs, responding to problem behavior, and the completion of household chores.

In addition to analyzing PDC-HS responses across homes, we were also interested in comparing responses across the staffing levels (i.e., between managers [TLs and HCs] and DSPs). Across the four practices, 32 interviews were conducted with managers and 34 interviews were conducted DSPs. It is important to note that some participants were managers in multiple programs. Of the 32 interviews conducted with managers, an inaccurate description of the practice (18 of 32) or an inaccurate description of the purpose of the practice (19 of 32) was reported the majority of the time. Of the 34 interviews conducted with DSPs, an inaccurate description of the practice (18 of 34) or an inaccurate description of the purpose of the practice (17 of 34) was also reported often. Given that ensuring adequate training and implementation of HBP is part of a home managers job responsibilities, coupled with the majority of managers reporting a lack of sufficiently trained staff in their home (17 of 32), these data suggest a barrier in training in the target programs. Furthermore, the majority of managers reported other tasks to impede the implementation of HBP (20 of 30) or reported other tasks that took precedence over the implementation of HBP (20 of 32); thus, it is not surprising that the majority of DSPs reported similar results (i.e., 21 of 34 DSPs reported impeding tasks and 20 of 34 DSPs reported tasks that took precedence over HBP).

Overall, results of the Study 1 PDC-HS interviews and follow-up analyses (i.e., record review and role play) indicated barriers to the implementation of HBP across each group home in all four domains (i.e., *Training*, *Task Clarification and Prompting*; *Resources, Materials, and Processes*; and *Performance Consequences, Effort, and Competition*); however, there are two major barriers that were consistently noted across practices. Interestingly, across all practices, the

majority of participants (i.e., 45 of 46 participants) had been trained on how to engage in each of the practices; however, most participants interviewed (i.e., 30 of 46 participants) were unable to describe the target task accurately. Further, all participants included in the role-play evaluation correctly engaged in positive interactions and activity engagement; however, most participants incorrectly engaged in effective instructions (i.e., 4 of 8 participants) and responded inappropriately to the confederate's problem behavior (i.e., 7 of 8 participants). These results suggest a skill deficit across practices despite training. Similarly, nearly all participants (45 of 46) pointed out the lack of a job aid in the home for HBP which may serve as a simple reminder of the skills required for each practice.

Additionally, across all practices, the majority of participants (i.e., 27 of 46 participants) reported at least one other task in the home that impeded their ability to engage in the target HBP. Household chores was the most noted task to impede HBP followed by responding to problem behavior and assisting with ADLs respectively. Similarly, the majority of participants (i.e., 29 of 46 participants) indicated that there were other tasks in the home that took precedence over the implementation of the practice. The same three tasks were noted; however, responding to problem behavior was reported most often followed by assisting with ADLs and completing household chores, respectively. Of the four HBPs, participants reported other tasks taking priority over the implementation of positive interactions and activity engagement more often than the other two practices (i.e., 10 of 13 participants reported other tasks taking precedence over positive interactions and 10 of 11 reported other tasks taking precedence over ensuring activity engagement). These data suggest this barrier (i.e., competing tasks/responsibilities) is an important barrier to address given that positive interactions can, and should, be implemented in conjunction with almost all other tasks across the day and activity engagement is a low response

effort strategy for providing an enriched environment and preventing problem behavior should the participant need to complete another task in the home (e.g., household chores or assist with another consumers ADLs).

## Study 2 Methods: Staff Intervention Package

The purpose of Study 2 was to evaluate the efficacy of an intervention package based on the results of the PDC-HS for increasing staff implementation of HBP in the natural environment (i.e., group home). Collective results of the PDC-HS across respondents and practices (Study 1) suggested several areas of opportunity for intervention within various domains. Therefore, in Study 2, our intervention package focused on (a) participant skill deficits (i.e., participants unable to accurately describe or engage in all HBPs) and (b) competing responsibilities in the home (e.g., assisting with household chores, cooking, and ADLs) that participants reported impeded their ability to consistently engage in HBPs. We developed a packaged intervention that included a Schedule Building Workshop to determine a home schedule of staff responsibilities, as well as a staff training that included (a) a brief booster training on the HBPs and how to engage in the practices while completing other required tasks in the home, (b) training on the implementation of the home schedule developed in the schedule building workshop, and (c) introduction of two job aids (Appendices I and J) to serve as reminders of the skills required for each practice. Additionally, experimenters conducted observations via secure remote video software (described in detail below) and provided immediate on-the-job feedback to participants on their implementation of HBPs.

### Participants, Setting, and Materials

Participants in Study 2 included the DSPs, TLs, and HCs from the same three target group homes as in Study 1 (i.e., E1 house, T1 house, C1 house). Since the conclusion of Study 1,

there were various staffing changes in the three target group homes; however, the same three levels of staff were included from each home. That is, the HC, TLs, and DSPs employed in each of the three homes at the time of the study were included as participants in Study 2. Across all three homes, 19 participants were included (i.e., 6 in E1, 6 in T1, and 7 in C1). Ten of the 19 participants were included in both baseline and post-training observations. Five of the 19 participants were only included in baseline observations (i.e., were moved, fired, or left the company before training), and four participants were only included in post-training observations (i.e., were hired after baseline was completed). Fifteen participants completed the booster training, but only 14 were included in post-training observations.

As part of our ongoing consultation with the company, all individuals currently working in the target group homes were included in the procedures outlined in Study 2; however, data were only included in the current study for those staff who provided informed consent for their use. All staff employed at the time of the evaluation in the three homes consented to be included in data collection for the study. The staff consent form approved by the Human Research Protection Program that was used in the current evaluation is included in Appendix E.

All aspects of Study 2 (i.e., observations [baseline and post training], the Schedule Building Workshop, and staff training) were conducted remotely. The Schedule Building Workshop was conducted with the HC for each home in a 1:1 format via a secure video conferencing software. The staff training was conducted with all participants in a target home (i.e., the HC, TLs, and all current DSPs) in a group format via a secure video conferencing software. Baseline and post-training observations were conducted via a secure remote video viewing software called iLink that is installed in each of the three target homes. The company-owned iLink technology included video cameras in the common areas of the home that live

streamed video to a remote pod outside of the home (i.e., in a local office building). That is, an observer could sit in a pod and view live video in the common areas of the group home. The technology also had the ability to retroactively view video footage from a home in the pod. For baseline and post-training observations, an experimenter conducted observations from the pod at a local office, which had a computer, large monitor, chair, and desk. Any participants who were working in the target home at the time of the observation who had received the staff training, except for a HC, were included in the observation (data from the observations were only used in the current study if the participant provided informed consent).

Materials for the Schedule Building Workshop included the Group Home Schedule Builder (Appendix F), which was provided to the HC prior to the workshop and guided the schedule creation for each home. The Group Home Schedule Builder included a place for the HC to list all regularly scheduled tasks that must be completed in the homes each day. These tasks were broken into "Day-Staff Tasks" (i.e., to be completed by DSPs working from 8 am-8 pm) and "Night-Staff Tasks" (i.e., to be completed by DSPs working from 8 pm-8 am). Further, the daytime tasks were broken into categories of tasks that could occur at any time (e.g., selecting activities for the following day) and tasks that must occur at a specific time (e.g., medication administration). This information was used to complete the Daily Schedule on the back page of the Group Home Schedule Builder. Materials for the staff training included a PowerPoint Presentation (Appendix H) that the experimenter used during the training. Finally, following the staff training, a HBP job aid (Appendix I) was posted in each of the three target group homes in a common area of the home (i.e., easily visible for staff) chosen by the experimenter and house HC (i.e., posted on a wall in the living room and on the refrigerator in T1; on the house memo board in the living room and two refrigerators in E1; and on two refrigerators and the living room wall

in C1). Additionally, experimenters provided multiple copies of the HBP handout (Appendix J) in each home. These handouts were made available to participants as loose-leaf handouts (i.e., participants may carry them with them if they prefer) and were kept in an area easily accessible to staff (e.g., in the home's office and in the consumer binders [i.e., a binder containing pertinent information on a consumer's programming]). When experimenters called to provide feedback after post-training sessions, the experimenter asked the staff if any additional HBP handouts were needed and provided more copies when the homes ran out.

**Response Measurement, Data Analysis, Interobserver Agreement (IOA), and Procedural Integrity**

During baseline and post-training observations, data were collected on various participant behaviors. Data were collected on the implementation of specific skills required for each of the four HBPs using a competency check data sheet (Appendix D). For example, for positive interactions, data collectors observed whether (1) interactions included eye contact and a pleasant facial expression and (2) whether the participant provided a positive interaction (e.g., compliment, greeting, expression of care, conversation, appropriate physical interaction, descriptive praise) to consumers present during the observation once every five minutes. For Skill 1 (i.e., interactions including eye contact and a pleasant facial expression), the participant's behavior was scored as *always* if all interactions the participant had with the consumers present included eye contact (or orientation toward the consumer) and a pleasant facial expression; *sometimes* if some, but not all, of the staff's interactions with the consumers present included eye contact and a pleasant facial expression; and *never* if no interactions included eye contact and a pleasant facial expression. See Table 2 for definitions of *always, sometimes*, and *never* scoring for all practices. Data were analyzed and displayed as a percentage of skills scored as *always,*

*sometimes*, and *never* across skills for all four practices. That is, the number of skills scored as either *always, sometimes*, or *never* were divided by the total number of skills scored during the session and multiplied by 100 (i.e., [total scored *always*/total skills scored]*100; [total scored *sometimes*/total skills scored]*100; [total scored *never*/total skills scored]*100).

In addition to analyzing data as an aggregate across all four HBPs, we also analyzed data within each practice. That is, a percentage of skills scored *always, sometimes*, or *never* within each practice were determined using the same method (i.e., [total scored *always*/total skills scored within the practice]*100; [total scored *sometimes*/total skills scored within the practice]*100; [total scored *never*/total skills scored within the practice]*100 ). For example, data collectors scored two skills for positive interactions (i.e., (1) interactions included eye contact and a pleasant facial expression and (2) whether the participant provided a positive interaction to all consumers present during the observation once every five minutes); if a participant *always* delivered positive interactions with eye contact and a pleasant facial expression but only delivered interactions to some consumers (i.e., skill scored as *sometimes*), the session would have been scored as 50% *always*, 50% *sometimes*, and 0% *never* for positive interactions. Finally, data were analyzed on an individual basis across phases (i.e., baseline and training). That is, for participants who participated in both baseline and training, we conducted a pre-post comparison of the percentage of skills scored as *always* across their baseline and post-training observations.

During post-training observations, data were also collected on whether the schedule developed in the Schedule Building Workshop for a particular home was implemented at the time of the observation. Data collectors conducted two brief, 1-min observations of participants in the home prior to and following each observation. That is, for 1-min prior to the start of the

observation, data collectors observed participants in the house and scored whether they were following the home schedule at any point during the 1-min block. Data collectors scored "Yes" if participants in the home implemented the activities scheduled for the corresponding time block according to the daily schedule at any point. Data collectors scored "No" if participants in the home never engaged in the tasks scheduled during the corresponding time block. For example, if the schedule stipulated that during the observation time block one staff should be preparing dinner and the other staff should be prepping the dining space for dinner, "Yes" would have been scored if staff were engaging in those behaviors during any point in time during the 1-min observation period; however, if staff were engaging in other behaviors (e.g., texting, watching TV, sitting in the common areas) for the entire observation, this would have been scored as "No" for schedule implementation. Similarly, for 1 min following an observation, data collectors observed participants in the house and scored whether they were following the home's schedule using the same method. This recording system was selected for ease of data collection and to allow for some flexibility in following the schedule. Although staff were expected to implement the activities on the schedule during the specified time blocks, it was likely that events would come up that could alter the schedule slightly during the day (e.g., a consumer waking up earlier than normal and requesting assistance in the shower before the scheduled shower routine time or a consumer requesting a snack before the scheduled snack time). Staff were expected to engage in the tasks listed on the daily schedule for the home while also implementing HBP, which was discussed in the staff training.

A second independent data collector collected data during 41% of baseline observations and 34% of post-training observations across the three homes. IOA was calculated using total count IOA (i.e., total agreements / total agreements + disagreements). For HBP skills, an

agreement was scored as any instance in which both the primary and secondary observers recorded the same score for participant behavior (i.e., *always, sometimes,* or *never*) and a disagreement was scored as any instance in which the observers did not record the same score. For adherence to the schedule, an agreement was scored if both the primary and secondary data collectors recorded the same answer for staff adherence to the schedule (i.e., "Yes" or "No").

For baseline observations in E1 house, IOA was calculated for 44% of sessions, and mean IOA was 90% (range, 55%-100%). For post-training observations in E1 house, IOA was calculated for 32% of sessions, and mean IOA was 92% (range, 77%-110%). For baseline observations in T1 house, IOA was calculated for 44% of sessions, and mean IOA was 91% (range, 73%-100%). For post-training observations in T1 house, IOA was calculated for 36% of sessions, and mean IOA was 91% (range, 46%-100%). For baseline observations in C1 house, IOA was calculated for 33% of sessions, and mean IOA was 91% (range, 73%-100%). For post-training observations in C1 house, IOA was calculated for 33% of sessions, and mean IOA was 92% (range, 77%-100%). Following sessions in which IOA was below 90%, the primary experimenter retrained the data collector and conducted at least one practice observation together. During this time, definitions were reviewed to determine if definitions needed to be clarified.

Additionally, a secondary data collector scored whether the experimenter implemented the major aspects of each procedure. A procedural integrity score was determined by dividing the number of questions scored "Yes (i.e., the experimenter engaged in the task)" over the total number of questions scored during the observation (i.e., [total scored "Yes"/ "Yes" + "No"]*100). Procedural integrity data were collected during 67% of Schedule Building Workshops (i.e., 2 of 3) using the Schedule Building Workshop Procedural Integrity Checklist

(Appendix K), and the mean score was 90% (range, 80%-100%). In the first workshop, the primary experimenter and HC decided to determine a location to post the schedule when the HC was in the home the following day (i.e., the HC asked to look around to determine the best location); thus, a location for the schedule developed was not determined resulting in an 80% procedural integrity score. Procedural integrity data were collected during 50% of initial staff trainings using the Staff Training Procedural Integrity Checklist (Appendix L), and the mean score was 100%. Finally, procedural integrity data were collected on 31% of feedback sessions (i.e., feedback delivered following post-training observations) using the On-The-Job Feedback Procedural Integrity Checklist (Appendix M), and the mean score was 98% (range, 83%-100%).

**Procedures**

A nonconcurrent multiple baseline design (Watson & Workman, 1981) was used to evaluate the effects of the packaged intervention (i.e., implementation of home schedule, booster training [including how to implement practice in conjunction with other tasks], introduction of the job aids [Appendices I and J], and on-the-job feedback) on participant implementation of the four HBPs. First, experimenters conducted the Schedule Building Workshop with the HC in each home. The purpose of the workshop was to develop a schedule for DSPs to follow each day that ensured imperative tasks were completed (e.g., medications passed at appropriate times, consumers assisted with necessary ADLs, and household chores completed), but not at the expense of the implementation of HBP that should be occurring throughout the day regardless of the task. Second, following the workshop, experimenters conducted a group staff training (i.e., with all DSPs, TLs, and the HC in a home) in each home. The purpose of the staff training was to (a) provide a booster training on HBPs, (b) train staff how to implement each practice in conjunction with the other tasks and responsibilities in the home, (c) show staff the new HBP job

aid (Appendix I) and where it would be located, (d) show staff the new HBP handout (Appendix J) and where they could access copies in their home, and (e) introduce the new home schedule developed in the Schedule Building Workshop. Third, following training, experimenters conducted observations via iLink. The purpose of the post-training observations was to evaluate the effects of the packaged intervention on participant responding and to provide on-the-job feedback to participants.

**Baseline Observations**

The three target group homes scheduled staff for a "front-half shift" or a "back-half shift." Staff scheduled for a "front-half shift" worked Sunday-Wednesday; staff scheduled for a "back-half shift" worked Thursday-Saturday. Experimenters conducted several observation blocks each week from each shift to ensure a representative sample of participants in each home. Each week, the experimenters worked with the home's manager to determine which days and times during each shift was best for scheduling an observation (i.e., a time in which staff and consumers were home). The HC in each home was not included in observations given that the HCs were involved in feedback and training (i.e., feedback was sent to HCs following each observation). If the HC was working in the home at the time of the observation (e.g., if the house was short staffed), they were excluded from data collection. Participants were not told in advance about the observations; however, participants were notified at the start of the study that observations would be taking place via iLink at various times (this is standard company practice). The experimenter notified the home's HC, TLs, and DSPs that their house was included in an evaluation for determining the maintenance of HBP in the homes and that various observations and trainings were to be conducted.

During each of the observation blocks, experimenters conducted several consecutive 10-min sessions of participants in a home when possible (i.e., when more than one participant was working and in the common areas of the home). To determine the order in which participants were observed when multiple participants were present, the primary data collector selected a staff person for the observation in a quasi-random order. That is, prior to the first observation, the data collector wrote each staff person's initials on an individual piece of paper, put the pieces of paper in a cup, and selected each name to determine the order of observations. The order in which present participant names were chosen from the cup was the order in which 10-min observations of each staff were conducted.

Participants must have been in the common area of the home and in frame on the iLink video (i.e., visible to data collectors) for at least 6 min to be included in data collection for the observation. Although it did not occur, if participants had not been present for an observation block (i.e., not in the home during the scheduled observation), the experimenter planned to observe for 5 min. If during the 5 min, the participants and consumers came home, the experimenter would begin the observation. If participants and consumers did not come home within the 5 min, the experimenter would have logged out and logged back in 1 hr later. If the participants and consumers were present when the experimenter logged back in, experimenters would start the observation. If participants and consumers were not present after 1 hr, experimenters would have observed for 5 min. If participants and consumers did not come home within the 5 min, the experimenter would have logged out and notified the home's manager that the participants were not present for the day's observation block. However, as noted, these procedures were not implemented as participants and consumers were present for all observations.

Following baseline observations, no feedback was provided to participants on their performance. Further, HCs did not receive feedback on staff performance in baseline. However, there were two instances in baseline that the experimenter made an abuse and neglect report based on responding observed in the session; thus, the HC and TL in the home were made aware that observations had taken place.

**Schedule Building Workshop**

Following baseline observations, experimenters conducted a Schedule Building Workshop with the HCs in each of the three target homes. To prepare for the workshop, HCs were asked to fill out Page 1 of the Group Home Schedule Builder (Appendix F) in which they specified the required tasks for day- and night-shift DSPs and the specific time blocks in which tasks must occur (e.g., medication for Consumers A, B, and C must be passed between 9:00 am and 10:00 am). The information from this worksheet was used during the Schedule Building Workshop to derive a schedule for the specific target group home.

During the workshop, the lead experimenter met with each HC in a 1:1 format via remote video conferencing software. At the beginning of the workshop, the experimenter summarized the results of the Study 1 PDC-HS interviews for the respective home and why the creation of a schedule may address some of the noted barriers. That is, the experimenter briefly reviewed each of the four domains in the PDC-HS (i.e., *Training, Task Clarification and Prompting; Resources, Materials, and Processes; and Performance Consequences, Effort, and Competition*) and stated the major indicated areas of opportunity for intervention and barriers that had been reported to impede the implementation of HBP. The experimenter then explained that the Schedule Building Workshop was the first intervention in the intervention package and was intended to address the tasks impeding staff implementation of HBP by creating a set schedule for staff to follow during

the day that ensured the necessary tasks (i.e., tasks reported to impede HBP) were done along with consistent implementation of HBP across the day.

Following the brief lecture, the experimenter provided 1:1 support to the HC in the creation of a house schedule. That is, using the front page of the schedule template that was filled out prior to the workshop, the HC and experimenter worked together to fill out the back side of the template (i.e., the daily staff schedule). The template was structured such that each of the DSPs in the home could be assigned tasks at specific times during the day (e.g., "from 9:00 am-10:00 am, Staff A makes and serves breakfast; Staff B sets up an engagement activity and interacts with consumers as they finish breakfast; and Staff C passes medication to consumers A, B, and C"). The template included a column for the number of staff required for the homes staffing ratio. For example, E1 house requires a 3:7 staff to consumer ratio; thus, the Daily Schedule template included three columns labeled "Staff A," "Staff B," and "Staff C." The staff names were not included in the schedule template; rather, once the schedule had been implemented (i.e., following the staff training), staff names were added to the schedule using a dry erase marker each day by the TL on shift. The workshop took approximately 55 min in T1 house, 60 min in E1 house, and 90 min in C1 house.

During the workshop, the experimenter prompted the HC to add tasks that needed to be completed at a specific time to the template. Next, tasks that were required to occur but did not have a specific time in which they must be completed (e.g., laundry) were added to the schedule. Once all required tasks had been added, any blank times (i.e., times in which there are no scheduled activities) were filled in with programming for consumers in the home or "activity engagement." An example of a completed Group Home Schedule Builder and subsequent group home schedule are included in Appendix G. The schedules developed for the three target homes

include confidential information regarding consumer programming; thus, are not shared in the current manuscript. Following the development of the schedule, the HC and experimenter determined where the schedule should be posted in the home such that it was easily accessible to staff.

**Staff Training**

Following the Schedule Building Workshop, experimenters conducted a training with the staff employed in each of the three target homes (i.e., trainings were separate for each home). Trainings were conducted in a group format with all-day DSPs (i.e., DSPs who work the day shift), TLs, and the HC for each home and were conducted remotely via secure video conferencing software based on the home's schedule. That is, meetings took place whenever the house was able to arrange for other staff to cover supervision such that the house DSPs, TLs, and HC could attend the training. For T1 house, the trainings occurred during the lunch time hour (i.e., when consumers in the home were eating lunch) as this was a time two additional staff were able to go to the house and provide support. Trainings for E1 and C1 took place at night after participants had completed their shift. Night-DSPs (i.e., DSPs who work from 8 pm- 8 am) were not included in the current evaluation. Although it is important for HBP to be conducted across the day, it is not recommended during nighttime hours that DSPs prompt consumer engagement, place demands, or interact with the consumers extensively.

Prior to the start of the training, the experimenter prompted participants to complete a pre-training HBP questionnaire via Google Forms. The pre-training questions included nine questions, which included (1) "How often should you deliver a positive interaction to the consumers in the home?," (2) "What should you do if a consumer in the home is not currently engaged in an activity?," (3) "List one important component of an effective instruction," (4)

"When a consumer engages in minor problem behavior [e.g., inappropriate verbal behavior], how should you respond?," (5) "When a consumer engages in severe problem behavior [e.g., physical aggression], how should you respond?," (6) "Rate your comfortability from 1 (not comfortable) to 5 (extremely comfortable) with the implementation of positive interactions," (7) "Rate your comfortability from 1 (not comfortable) to 5 (extremely comfortable) with the implementation of activity engagement," (8) "Rate your comfortability from 1 (not comfortable) to 5 (extremely comfortable) with the implementation of effective instructions," and (9) "Rate your comfortability from 1 (not comfortable) to 5 (extremely comfortable) with responding to problem behavior").

Following the completion of the quiz, the experimenter began the staff training and used a PowerPoint presentation to guide the training (Appendix H). First, the experimenter provided a booster training of HBP (i.e., brief description and model of each practice). Second, the experimenter introduced the two HBP job aids (i.e., Appendices I and J) and noted where the materials would be located in the homes following training. Third, the experimenter reviewed the specific barriers to HBP implementation as reported in the PDC-HS outcomes. The experimenter noted each of the tasks reported to impede staff implementation of HBP and provided examples of how staff could implement HBP in conjunction with the reported tasks (e.g., when cooking dinner, ensure to prompt consumer engagement before starting the task, involve consumers in the task, provide brief positive interactions while cooking, and continue to provide instructions effectively). Third, the experimenter introduced the new home schedule developed in the Schedule Building Workshop. Finally, the experimenter notified the participants that observations via iLink and feedback would take place following training. Initial staff trainings

took on average 40 min to complete (i.e., approximately 55 min in T1, 35 min in E1, and 30 min in C1).

At the conclusion of the presentation, the experimenter prompted participants to complete a post-training HBP questionnaire that was identical to the pre-training questionnaire. All 15 participants who participated in the training completed the pre-training questionnaire; however, only 11 of these participants completed the post-training questionnaire. The experimenter waited to begin the presentation until everyone had completed the pre-questionnaire; thus, the experimenter was able to verify and prompt everyone to complete the questionnaire. However, the links for the post-training questionnaire were sent following the training; thus, it was more difficult for the experimenter to prompt the completion of the questionnaire. One of the four participants who did not complete the post-training questionnaire left the company shortly after the staff training and the remaining three participants received an email prompt to complete the questionnaire the following morning but did not respond.

Following training, the experimenter posted copies of the HBP job aid posters (Appendix I) in the common areas of each group home (i.e., posted on a wall in the living room and on the refrigerator in T1; on the house memo board in the living room and two refrigerators in E1; and on two refrigerators and the living room wall in C1) and left copies of the HBP job aid hand outs (Appendix J) in various other locations in each home (e.g., a stack in the house office, post on memo board above medication cart, and adhered to the refrigerator with a magnet).

Only staff who had received training were included in the post-training observations (below). Experimenters offered an identical training once a week for all new staff (i.e., new HCs, TLs, and DSPs) or substitute staff in a home; however, no additional trainings took place as there were no new staff throughout Study 2.

**Post-Training Observations and Feedback**

Following staff training, experimenters conducted post-training observations. Post-training observations were conducted identical to baseline; however, only participants who had received the staff training described above were included in data collection for the observation and experimenters provided feedback on staff performance following the observation. Experimenters used the HBP competency check (Appendix D) to collect data during the observation and as a guide for feedback. To provide feedback, experimenters called the group home and asked to speak with the target participant. Participants answered the phone after each observation; however, if no one answered the house phone, the experimenter would have called back one more time. If no one answered the second call, the experimenter would have used the house intercom system and requested a staff answer the house phone. If there was still no answer, when the experimenter sent feedback to house management (described below), they would have denoted in the email that staff did not answer the phone, and thus, the participant did not receive feedback on their performance.

When providing feedback, experimenters used the on-the-job feedback protocol located on the back of the competency check (Appendix D). The experimenter reviewed the competency check outcome with the participant, provided behavior-specific praise for correct responding, and provided corrective feedback for incorrect responding (i.e., skills scored as *sometimes* or *never*). For instances of corrective feedback, the experimenter also provided an example of how staff could have implemented the practice within the context of the ongoing day. For example, if staff cooked for the duration of the observation and did not provide positive interactions to the consumers present, the experimenter might have suggested the participant include the consumers in the cooking process (e.g., "You could invite X consumer into the kitchen with you and talk

about the steps of the recipe as you complete them!") or provided examples of brief interactions that could have been done while the participant cooked (e.g., "Every 5 min you could pop around the corner to say 'hi' to everyone, check if anyone needs anything, and make a brief comment about the activity they are engaging in!"). Additionally, the experimenter asked the participant if the house schedule (i.e., developed in the Schedule Building Workshop) was posted in a location accessible to the participants in the home, whether the TL on shift assigned individuals to staff roles on the schedule that day, if the HBP job aid (Appendix I) was still posted in an accessible area, and if there were HBP handouts available (Appendix J; i.e., loose-leaf prints available in the office). The experimenter recorded the participant's responses on the data card for the session (Appendix D). If a job aid or schedule had been removed or destroyed, the experimenter provided a new one to the home. If the home had run out of HBP handouts, the experimenter provided more to the home. During observation blocks in which more than one participant was observed, feedback was provided following all sessions in the block such that staff in the home were not made aware that observations were taking place. Feedback on the participant's performance was sent to the house HC via email. The email contained a copy of the competency check with a brief description of the DSP or TLs performance during the observation (see Appendix N for an example).

At the conclusion of the evaluation (i.e., once data collection stopped in each home), the primary experimenter met with the HC and behavior analyst assigned in each home to review data and discuss the procedures found to be effective in each home. During this meeting, the primary experimenter showed the graphs for the home and explained the results. Next, the investigator provided the HC and behavior analyst with the training materials (i.e., HBP booster training PowerPoint), trained the individuals on the observation and feedback procedures

implemented during the study, and discussed the impetus for keeping the schedules developed in the Schedule Building Workshop in place following the study to promote maintenance of the behavior change observed.

**Social Validity Questionnaire**

Once participants completed the study, the experimenter administered an experimenter-created social validity questionnaire (Appendix O) to each participant (i.e., all HCs, TLs, and DSPs) still employed at the organization (i.e., 14 participants). Social validity questionnaires were created using the Google Forms software and were sent electronically via email. Participant names were kept anonymous. Six participants responded to the questionnaire.

The questionnaire included questions about the acceptability of the procedures, the participant's preference for the procedures, and the acceptability of the remote training and feedback modality. Questions were scored on a scale from 0 (strongly disagree) to 4 (strongly agree); thus, lower scores indicated dissatisfaction and higher scores indicated participant satisfaction with the procedures in the evaluation.

## Study 2 Results

Figures 8-13 depict the results of Study 2 for each home. In each observation, observers collected data on a single participant; thus, the data displayed for one observation represents a single participant's responding. Figure 8 depicts responding aggregated for all practices across the three homes. That is, for each observation, the percentage of skills scored as always (closed black circles), sometimes (closed black squares), and never (open white circles) across all four HBPs for a single participant are displayed. The top panel displays overall responding for participants employed at T1 house. During baseline, the percentage of skills scored as always occurring was low, the percentage of skills scored as sometimes occurring was low to moderate,

and the percentage of skills scored as never occurring was high. Following the staff intervention package, the percentage of skills scored as always occurring across the four HBPs increased to high levels, the skills scored as sometimes occurring decreased to low to moderate levels, and the skills scored as never occurring decreased to near-zero levels. Following initial treatment effects, a brief breakdown in treatment was observed (i.e., across three sessions). These sessions were conducted with the same two staff and were observed by the same data collector. Upon investigation, it was discovered that IOA during these sessions was low and there was a potential lapse in treatment integrity. The data collector scoring these sessions had been trained to conducted post-training observation procedures; however, this data collector had not shadowed the primary experimenter prior to conducting this bout of sessions. Following these sessions, the data collector was retrained on the post-training observation procedures and shadowed the primary experimenter across several sessions prior to conducting any additional sessions. Following this bout of sessions, skills scored as always occurring returned to high levels and skills scored as sometimes or never occurring decreased. Additionally, the two participants observed during this bout of sessions were observed on subsequent days, and their results revealed increases in responding. However, it is of note that one of the two participants, P10 (TL at T1), had lower responding as compared to other participants in the study (discussed in detail below).

The middle panel displays overall responding for participants in C1 house. During baseline, participant responding was variable. That is, the percentage of skills scored as always, sometimes, and never was not consistent across sessions. However, during most sessions, several skills were scored as never occurring or sometimes occurring, and the percentage of skills scored as always occurring was generally low. Following training, the percentage of skills scored as

always occurring increased to high levels, the skills scored as sometimes occurring decreased to low to moderate levels, and the skills scored as never occurring decreased to zero across all sessions. The bottom panel displays overall responding for participants in E1 house. Similar to C1, responding in baseline was variable. Following training, the percentage of skills scored as always occurring across the four HBPs increased to high levels, the skills scored as sometimes occurring decreased to low levels, and the skills scored as never occurring decreased to near zero levels.

Figures 9-12 depict responding separated by practice. That is, for each observation, the percentage of skills scored as always (closed black circles), sometimes (closed black squares), and never (open white circles) within the specified practices for a single participant are displayed. Figure 9 displays the percentage of positive interaction skills (i.e., two skills) scored always, sometimes, and never. Across all three homes, during baseline, the percentage of positive interaction skills scored as always or sometimes occurring was low and the percentage of skills scored as never occurring was high. Following the staff intervention package, the percentage of skills scored as always occurring increased to high levels, skills scored as sometimes occurring occurred at low to moderate levels, and skills scored as never occurring decreased to low levels.

Figure 10 displays the percentage of activity engagement skills (i.e., three skills) scored as always, sometimes, and never. The top panel displays results for participants employed at T1. During baseline, the percentage of skills scored as always occurring was low, the percentage of skills scored as sometimes occurring was moderate, and the percentage of skills scored as never occurring was high. Following the staff intervention package, the percentage of skills scored as always occurring increased to high levels, and the percentage of skills scored as sometimes or

never occurring decreased to low levels. The middle panel displays results for participants employed at C1. During baseline, responding was variable; however, various skills were scored as sometimes or never occurring during observations. Following the staff intervention package, the percentage of skills scored as always occurring increased to 100% across nearly all sessions. The bottom panel displays results for participants employed at E1. Similar to C1, responding was variable; however, skills were consistently scored as sometimes or never occurring in baseline. Following the staff intervention package, the percentage of skills scored as always occurring increased to high levels, the percentage of skills scored as sometimes occurring decreased to low levels, and skills scored as never occurring decreased to zero.

Figure 11 displays the percentage of effective instructions skills (i.e., three skills) scored as always, sometimes, and never. These skills were only scored during sessions in which a participant delivered at least one instruction to a consumer in the home; thus, there are various sessions across baseline and post-training observations in which there are no data (denoted by an asterisk on the graph). The top panel displays results for participants employed at T1. During baseline, the percentage of skills scored as always occurring was low, the percentage of skills scored as sometimes occurring was moderate, and the percentage of skills scored as never occurring was low. Following the staff intervention package, the percentage of skills scored as always occurring increased to high levels and the percentage of skills scored as sometimes or never occurring decreased to low levels. The middle panel displays results for participants at C1. During baseline, participant responding was variable; however, following the implementation of the staff intervention package, the percentage of skills scored as always occurring increased to 100% and the percentage of skills scored as sometimes or never occurring decreased to zero. The bottom panel displays results for participants in E1. During baseline, the percentage of skills

scored as always occurring was moderate, the percentage of skills scored as sometimes occurring was low, and the percentage of skills scored as never occurring was moderate. Following the staff intervention package, similar to C1, the percentage of skills scored as always occurring increased to 100% and the percentage of skills scored as sometimes or never occurring decreased to zero.

In addition to an increase in the percentage of skills scored as always occurring, across all three homes we observed an increase in sessions in which instructions were delivered. That is, in T1 house, participants delivered instructions in 22% of baseline sessions and 40% of post-training observations. In C1 house, participants delivered instructions in 50% of baseline sessions and 83% of post-training observations. In E1 house, participants delivered instructions in 28% of baseline sessions and in 52% of post-training observations. Although increasing instruction delivery was not a target of the intervention, it is possible training on how to effectively deliver instructions made instructions easier, or potentially less aversive, for participants to deliver.

Figure 12 displays the percentage of responding to problem behavior skills (i.e., two skills) scored as always, sometimes, and never. These skills were only scored during sessions in which a consumer in the homes engaged in problem behavior; thus, there are various sessions across baseline and post-training observations in which there are no data (denoted by an asterisk on the graph). The top panel displays results for participants employed at T1. During baseline, the percentage of skills scored as always occurring was zero (i.e., participants did not respond appropriately to any instance of problem behavior observed in baseline), the percentage of skills scored as sometimes occurring was low, and the percentage of skills scored as never occurring was high. Following the staff intervention package, the percentage of skills scored as always

occurring increased to high levels, the percentage of skills scored as sometimes occurring decreased to low levels, and the percentage of skills scored as never occurring decreased to zero. The middle panel displays results for participants employed at C1 and the bottom panel displays results for participants employed at E1. Patterns of responding were similar across the two homes. That is, during baseline, the percentage of skills scored as always occurring was high, the percentage of skills scored as sometimes occurring was low, and the percentage of skills scored as never occurring was zero. Following the staff intervention package, the percentage of skills scored as always occurring increased to 100%, skills scored as sometimes occurring decreased to zero, and skills scored as never occurring remained at zero.

Figure 13 depicts results for the pre-post individual staff analysis. That is, the graph displays the mean percentage of skills scored as always occurring in baseline (closed black circles) and post training (closed black triangles) across all four HBPs. Across the three homes, 11 participants were included in both baseline and post-training observations. One TL from E1, four DSPs from E1, two TLs from T1, two DSPs from T1, and two DSPs from C1. Overall, these data show an increase in the percentage of skills scored as always occurring across the four practices for all 11 participants included in the analysis. In fact, across the 11 participants, the average percentage of skills scored as always occurring increased from 20% in baseline sessions to 86% in post-training observations. For 10 of 11 participants, post-training scores increased to at or above 80%; however, for one participant, P10 (TL in T1), the average percentage of skills scored as always occurring in post-training increased from zero to 25%. As discussed above, this participant was included in the bout of observations in T1 with low scores that may have been a result of inadequate data collection or poor treatment integrity. The percentage of skills scored as always occurring for P10 during the two observations within this bout of observations was zero.

A third observation was conducted with P10 several days following this bout of observations and the percentage of skills scored as always occurring in this subsequent observation was 75%. Although this participant continued to engage in a relatively low level of skills scored as always occurring, there was an increase in their final post-training observation.

During staff training in each of the three homes, the primary experimenter administered a pre- and post-training questionnaire to assess participant knowledge and comfortability with HBP prior to and following training. Table 4 summarizes the results of these questionnaires. All 15 participants who attending staff training completed the pre-training questionnaire; however, only 11 of these 15 participants completed the post-training questionnaire. Prior to training, 47% of participants (7 of 15) correctly tacted how often positive interactions should be delivered, which increased to 82% of participants (9 of 11) following training. Prior to training, 80% of participants (12 of 15) correctly tacted what to do when a consumer was not engaged, which increased to 91% of participants (10 of 11) following training. Prior to training, 60% of participants (9 of 15) listed a correct component of an effective instruction, which increased to 91% of participants (10 of 11) following training. Prior to training, 40% of participant (6 of 15) correctly described how to respond to minor problem behavior, which increased to 100% of participants (11 of 11) following training. Prior to training, 13% of participants (2 of 15) correctly described how to respond to severe problem behavior, which increased to 64% of participants (7 of 11) following training. It is of note that during the first staff training in T1, the HBP job aid poster and HBP handouts were accidently left on the table in view of the participants completing the pre-training questionnaires. It is unknown whether the participants viewed the materials during their questionnaire, but this may have influenced the results. Further, a second training was conducted at T1 to accommodate the second shift staff. During this

training, the HBP job aid poster and HBP handouts had already been posted in the home and were in view of participants when they competed the questionnaire. In addition to questions about HBPs, participants were asked to rate their comfortability with implementation of each practice on a scale of 1 (not comfortable) to 5 (very comfortable). Prior to training, the average rating for implementation of positive interactions was 4.5, which increased to 5 following training. Prior to training, the average rating for implementation of activity engagement was 4, which increased to 4.6 following training. Prior to training, the average rating for implementation of effective instructions was 4.5, which increased to 4.9 following training. Prior to training, the average rating for responding to problem behavior was 4.4, which increased to 4.8 following training.

During post-training observations, data were collected on several additional variables which are summarized in Table 5. For 1 min prior and 1 min following each session, data collectors scored whether the schedule developed in the Schedule Building Workshop was followed. In T1, the schedule was being followed prior to 18 of 25 post-training observations and following 21 of 25 post-training observations. In C1, the schedule was being followed prior to 12 of 12 post-training observations and following 12 of 12 post-training observations. In E1, the schedule was being followed prior to 18 of 19 post-training observations and following 18 of 19 post-training observations. Following each post-training observation, the data collector called the home to provide feedback, and participants answered the phone following each observation. Following the delivery of feedback, the data collector asked each participant if the HBP job aid was still posted, whether HBP handouts were still available, whether the schedule was still posted, and whether the schedule was reviewed with the participant that day. In T1 house the HBP job aid, HBP handouts, and the schedule were still available and posted in the common

areas across all post-training observations (i.e., 25 of 25) and the schedule was reviewed with the participant in 21 of 25 post-training observations. In C1, the HBP job aid, HBP handouts, and schedule were still available and posted in 10 of 12 post-training observations and the schedule was reviewed with the participants in all post-training observations (i.e., 12 of 12). In C1 house, the HBP job aid, HBP handouts, and the schedule were still available and posted in the common areas across all post-training observations (i.e., 19 of 19) and the schedule was reviewed with the participant in 18 of 19 post-training observations.

Following the conclusion of the study, the primary experimenter administered a social validity questionnaire (Appendix O) to the participants who were still employed with the organization. Six of 14 participants responded and their results are summarized in Table 6. Participants scored each question on a scale from 0 (strongly disagree) to 4 (strongly agree); thus, lower scores indicated dissatisfaction and higher scores indicated participant satisfaction with the procedures in the evaluation. Across all questions, results of the survey suggested high levels of satisfaction. Specifically, when asked if the participant found the procedures to be an acceptable way to increase implementation of HBP, the average score was 3.2 (range, 2-4). When asked if the participant enjoyed the intervention, the average score was 3.5 (range, 3-4). When asked if the participant found the intervention package to be effective in increasing their implementation of HBP, the average score was 3.5 (range, 3-4). When asked if the participant found the home schedule feasible, the average score was 2.5 (range, 1-4). When asked if the participant found the schedule and HBP to be easy to implement, the average score was 3 (range, 2-4). When asked if the participant found Google Meet coaching and feedback over the found to be an acceptable procedure, the average score was 3.3 (range, 2-4). When asked if the participant would continue remote coaching for other procedures, the average score was 3.3 (range, 2-4).

When asked if the participant would recommend the implementation of the intervention package, the average score was 3.5 (range, 3-4). Finally, when asked about the participant satisfaction with the procedures, the average score was 3.5 (range, 3-4).

## Discussion

Overall, results of the Study 1 PDC-HS interviews suggested that there were several variables influencing participant implementation of the company-wide, prevention and intervention package (HBP). That is, all four PDC-HS domains were identified as areas of opportunity for intervention based on the initial interview with participants. However, following the execution of a company record review verification and follow-up role play with available participants, the results of the PDC-HS were clarified. That is, following these two additional measures, the areas of training and feedback were deemphasized as areas for intervention (i.e., across all participants and practices, only one participant had not received BST and one had not received feedback). However, despite the large number of participants who had received training and feedback, most staff were unable to provide an accurate description of positive interactions, effective instructions, or how to respond to problem behavior. Additionally, in the follow-up role plays, many staff were not able to accurately demonstrate effective instructions or how to respond to problem behavior. Further, across all practices, the majority of participants reported that another task in the home (e.g., household chores, assisting with ADLs, cooking, responding to other consumers problem behavior) impeded their ability to implement HBPs consistently. Thus, intervention, in addition to simply re-training with feedback (i.e., the standard procedures at the organization), was required to increase adherence to HBP in the group homes. In Study 2, we evaluated the efficacy of a packaged intervention (i.e., booster training [including a discussion on how to implement the practices within the context of the ongoing day], job aids,

schedule, and on-the-job feedback) in the three target group homes in an attempt to address these two major barriers across practices (i.e., participant skill deficits and impeding tasks) for increasing implementation of HBP during the day. Additionally, we evaluated the efficacy of this package when implemented remotely (i.e., the Schedule Building Workshop, booster training, observations, and delivery of feedback done via telehealth technologies). Results of the Study 2 evaluation demonstrated the efficacy of the packaged intervention for increasing participant implementation of the four practices across all three target homes. Participants in each home demonstrated a large increase in the consistency of HBP skills scored as always occurring during post-training observations as compared to baseline observations.

Study 1 and Study 2 had various procedural and methodological strengths. Across both studies, a large number of participants were included in the evaluation. In Study 1, interviews were conducted with more participants than is typical for PDC-HS studies (e.g., three informants, Ditzian et al., 2015; two informants, Smith & Wilder, 2018; six informants, Merritt et al., 2019) and interviews were conducted with informants of various employee level. That is, interviews were conducted with staff who worked directly with consumers in group homes everyday (DSPs), DSP floor managers (TLs), and with the individuals who managed the group homes (HCs). Broadening the number and type of employees interviewed allowed for a more in-depth analysis and for the examination of barriers at each staffing level. For example, across all practices, at least one manager (many in some cases) noted that there were other tasks that took precedent over the implementation of HBP (e.g., chores, assisting with ADLs) even though the implementation of HBP can be done simultaneously with many of the reported barrier tasks. When an HC indicates that there are tasks more important than HBP across the day, it is likely that the staff who report to these managers will engage in the other tasks and not implement HBP

consistently. Similarly, the intervention was evaluated across a relatively large number of participants (i.e., 14 participants included in the Study 2 intervention) across three staffing levels and was found to be successful for increasing HBP implementation; thus, demonstrating the generality of the effects across a large group of participants with varying skill sets.

The efficacy of the intervention package evaluated in Study 2 adds to the performance management literature in several ways. The behavior change observed in Study 2 adds to the literature on enhancing maintenance of HBP (i.e., providing active treatment and preventing problem behavior) by addressing the barriers preventing participants from engaging in the practices across the day. Kamana et al. (in preparation) demonstrated the efficacy of BST and on-the-job feedback for increasing participant implementation of HBP across a large number of homes and programs; however, the maintenance of HBP implementation was unknown and our consultation experience suggested low levels of HBP in some homes. In the current evaluation, we used the PDC-HS to derive a function-based intervention to address maintenance staff implementation of HBP specifically in the absence of an observer. This adds to the literature on the utility of the PDC-HS in adult service settings (e.g., Blackman et al., 2022) and the literature on enhancing maintenance of staff performance in the absence of an observer.

Furthermore, research has demonstrated that staff often engage in different behaviors when they are not being observed (e.g., Brackett et al., 2007). Reactivity (i.e., the influence of an observer on an organism's behavior; Kazdin, 1979) is problematic in the workplace, particularly when the staff person cannot always be observed. In the current evaluation, the intervention package was shown to be effective for increasing participant implementation of HBP without the observer present and without the participants being notified when an observation was taking place. This provides direction for clinicians on improving performance even when direct

supervision cannot be provided. On a similar note, the current intervention package was implemented completely remote which adds to the growing literature on the efficacy of videoconferencing and other training methods delivered via telehealth (Tomlinson et al., 2018).

Although the results of the current evaluation are promising, there are several limitations of note. Given that Study 1 started as a clinical evaluation, no procedural integrity data were collected on the experimenters implementation of the PDC-HS interviews. Additionally, although average IOA in Study 2 across homes was above 90%, there were several sessions with low agreement (e.g., below 50%). Data collectors were retrained and definitions were reviewed to determine if clarifications were necessary following each session with low IOA; however, given the nature of the data collection procedures, there were multiple variables that contributed to low agreement in some observations. In particular, the four skills for effective instructions were only scored when an instruction was observed to be delivered by a participant. The sound quality on the video-viewing software was inconsistent across certain homes and particular areas in homes (e.g., the sound may be poor when participants stood in one area of a room); thus, there were several instances in which one data collector heard an instruction and the other did not. This resulted in only one data collector scoring the four effective instruction skills (i.e., automatically lowering IOA to 63%). Additionally, several of the definitions for HBP skills were subjective (e.g., "pleasant tone" or "pleasant facial expression"). As mentioned, average IOA was high overall in Study 2, but the lower scores are of note.

Further, experimenters relied on participant report for the additional treatment data gathered in Study 2. That is, during the phone-call feedback session, the experimenter asked the participant to report whether the job aid was posted, if HBP handouts were available, if the schedule was still posted, and whether the schedule was reviewed at the start of their shift. Given

there were no validation procedures in place (e.g., checking for posters in the home), it is possible not all of these data are accurate. For the majority of the homes, the HBP job aid poster and schedules were posted in locations visible on camera (i.e., experimenters could see these items); however, handouts were often kept in locations outside of view of cameras and experimenters did not observe transition meetings at the beginning of shifts (i.e., when the schedule would be reviewed).

Across both studies, turnover in staff in the target homes created barriers in the evaluation. Specifically, not all participants in Study 1 were included in the role play evaluation because of turnover in staff in the target homes (i.e., not all participants remained employed in the homes). Although results of the role play evaluation were fairly consistent (i.e., all participants correctly engaged in positive interactions and activity engagement and the majority of participants incorrectly engaged in effective instructions and responding to problem behavior), it is possible these results would have been less consistent if more participants were included. Similarly, in Study 2, not all participants included in baseline observations were also included post-training observations as a result of turnover or position changes. This limits conclusions that can be drawn from the pre- and post-training results. Further, in C1 house, there was a turnover in staff following baseline that resulted in the home only being staffed with three permanent DSPs (i.e., no HC, no TLs, and four openings for DSPs). As a result, experimenters were limited in the observations that could be conducted; thus, the treatment phase for C1 was shorter than the other homes.

On a similar note, the treatment phase in the current evaluation across homes was relatively short. Observations post-training were conducted across approximately two weeks in each home. Although behavior change was observed, it is important to determine the long-term

maintenance of these effects. At the conclusion of the evaluation, the primary experimenter conducted exit meetings and trained relevant team members in each home to conduct the procedures found to be effective to promote maintenance; however, research is warranted to determine necessary procedures to maintain consistent implementation of HBP across a longer period of time.

As is the case with most research on the PDC-HS (Wilder et al., 2020), a behavior analyst conducted the PDC-HS with participants in the current evaluation. Further, behavior analysts used the results of the interviews to derive an intervention to address the noted barriers. Future research should evaluate the efficacy of supervisors or managers in congregate care environments conducting the assessment and subsequently deriving an intervention to address the noted barriers based on the results. This would equip managers in similar settings with an additional tool for providing support to staff in their homes or programs when there are barriers to job performance.

Similarly, a behavior analyst conducted all aspects of Study 2 (i.e., the Schedule Building Workshop, staff booster training, and all observations with feedback). The conduct of these procedures, particularly the observations and delivery of feedback, required a response effort that might not be feasible long term for a behavior analyst with various other responsibilities in a congregate care environment (e.g., writing and maintaining behavior support plan programming; providing training on skill acquisition programming and other behavior support procedures). Given the robust results following the implementation of the Study 2 intervention package, determining procedural modifications that may increase long-term feasibility is an important direction for future research. One potential solution would be to train various members of a congregate care team (e.g., HCs, regional directors, or remote coaches [i.e., staff monitoring the

remote video viewing software 24 hrs a day]) on the observation and feedback procedures to decrease response effort for a single person. That is, if multiple members of a team conducted intermittent HBP observations via iLink, this would ensure regular observations with feedback are conducted and it would disperse responsibility to multiple individuals. In addition to increasing feasibility, this modification may also enhance maintenance and generalization of staff implementation of HBP. Another potential solution is to fade the schedule of observations. In the current evaluation, experimenters conducted observations nearly every day. It is possible the high frequency of observations with feedback resulted in the behavior change; however, it is also possible that a leaner schedule of feedback, or fading to a leaner schedule, may be sufficient to observe similar effects. Future research should evaluate the efficacy of the current procedures when observations are conducted on a less frequent basis or systematically faded over time.

For many of the questions in the Study 1 PDC-HS interview, there was consensus among participants; however, there were cases in which different answers were reported both within and across staffing levels. All domains in the PDC-HS were indicted for intervention in the current evaluation and the lack of agreement among informants may be a variable that contributed to these results. That is, informants within and across staffing levels noted different barriers to their implementation of HBP, which resulted in all domains being flagged for intervention. It is possible that all areas do require intervention; however, it is also possible that only one or two areas require intervention and the lack of consensus among informants lead to an inflation of the results. Future research may examine consensus of PDC-HS answers between informants and determine variables that lead to increased, or a lack of, agreement among informants.

Further, when more than one area is indicated for intervention on the PDC-HS, experimenters and practitioners often implement a packaged intervention (e.g., Carr et al., 2013;

Wilder et al., 2018; Merritt et al., 2019), as we did in our evaluation. Currently, the PDC and PDC-HS suggest implementing interventions in the noted domains of opportunity (i.e., those scored with "No"); however, in the case of the current evaluation, several areas were indicated as areas of opportunity. Thus, we implemented a packaged intervention consisting of multiple components (i.e., booster training [including a discussion on how to implement the practices within the context of the ongoing day], job aids, schedule, and on-the-job feedback) to address the major indicated barriers (i.e., skill deficits and impeding tasks). There is emerging research on decision-making models to identify interventions from PDC-HS outcomes (Vance et al., 2022); however, more research is necessary to determine a formal method for determining indicated interventions based on the results of the PDC-HS and what components of packaged interventions are required when more than one domain is indicated. Additionally, given we implemented an intervention with multiple components in Study 2, it is unknown which components were necessary for the behavior change observed.

One potential variable, outside of the programmed treatment components (i.e., intervention package), that may have resulted in participant behavior change was the delivery of feedback following observations to HCs. That is, following each observation, the experimenter emailed the competency check and a brief overview of the observation to the HC. Although HCs were not instructed to provide DSPs or TLs with additional feedback from their observations (i.e., in addition to the feedback provided by experimenters), it is likely HCs did discuss observations with TLs and DSPs on some occasions. In fact, all three HCs mentioned having discussions with participants regarding certain behaviors observed in observations (e.g., notes suggesting staff were on their phone, positive interactions scored as "never"). More research is

required to determine the components responsible for behavior change and what components are necessary to demonstrate similar effects.

Although only six participants responded to the social validity questionnaire administered at the conclusion of Study 2, limiting conclusions that may be drawn, results overall suggested high levels of participant satisfaction with the procedures implemented. The average scores for all but one question was above 3. The question with the lowest average score (i.e., 2.5) asked participants about the feasibility of the home schedule. Four of six participants agreed the schedule was feasible (i.e., scored 3), one participant was neutral (i.e., scored 2), and one participant disagreed (i.e., scored 1) with the feasibility of the schedule. Although participants were implementing the schedule in the majority of post-training observations and we observed an increase in HBP skills following the implementation of the schedule, the social validity of this component of the intervention package is important to address. Future research should evaluate ways to modify homes schedules, potentially in conjunction with DSPs, to be more feasible and still maintain efficacy (i.e., ensure all necessary tasks are completed each day).

An additional measure of social validly that is an important avenue for future research is the acceptability of the current procedures by outside stakeholders (e.g., consumers, guardians, members of upper administration). Across baseline and post-training observations in Study 2, we observed major environmental and behavioral changes that likely had impact on the quality of life for the consumers living in the three target homes (e.g., an increase in activities present, an increase in interactions between staff and consumers, an increase in effective instructions delivered, minimized attention to problem behaviors); however, it is important to determine if other stakeholders involved in the settings also find the changes to be meaningful. Researchers in the future should assess the extent to which outside observers (i.e., individuals not involved in

the day-to-day activities in the target group homes) rate the quality of target group home's environment pre- and post- training.

Finally, an imperative extension of the current evaluation is to determine impacts of consistent implementation of HBP on consumer outcomes. In the current evaluation, and in the original HBP study (Kamana et al., in preparation), the purpose was to increase staff adherence to the HBP package as a first step in improving outcomes in congregate care settings. The next important step is to determine whether this staff behavior change (i.e., implementation of HBP) results in an improvement in consumer behavior (e.g., a decrease in problem behavior or an increase in appropriate replacement behaviors) or consumer affect; thus, researchers should include data collection on problem behaviors and indices of happiness (e.g., consumer affect) to evaluate the effects of consistent HBP implementation on consumer behavior.

Overall, results of the current evaluation are encouraging and provide direction for clinicians aiming to enhance the maintenance of staff performance in congregate care settings, or other settings in which direct supervision may not be available or reactivity may be an issue. Results of Study 1 PDC-HS interviews revealed various barriers to participant implementation of an organization-wide Tier 1 intervention package for preventing and responding to problem behavior (i.e., HBPs). For the purposes of this project, we focused on participant skill deficits and competing responsibilities to address in the Study 2 intervention package. Results of Study 2 demonstrated the efficacy of this function-based intervention package (i.e., HBP booster training, implementation of a home schedule, introduction of HBP job aids, observations and on-the-job feedback) for increasing staff implementation of HBPs in the group home setting without an observer present.

## References


Austin, J. (2000). Performance analysis and performance diagnostics. In J. Austin & J. E. Carr (Eds.), *Handbook of Applied Behavior Analysis* (pp. 321–349). Reno, NV: Context Press.

Austin, Weatherly, N. L., & Gravina, N. E. (2005). Using task clarification, graphic feedback, and verbal feedback to increase closing-task completion in a privately owned restaurant. *Journal of Applied Behavior Analysis, 38*(1), 117–120. https://doi.org/10.1901/jaba.2005.159-03

Baer, D. M., Wolf, M. M., & Risley, T. R. (1968). Some current dimensions of applied behavior analysis. *Journal of Applied Behavior Analysis*, *1*(1), 91–97. https://doi.org/10.1901/jaba.1968.1-91

Beavers, G. A., Iwata, B. A., & Lerman, D. C. (2013). Thirty years of research on the functional analysis of problem behavior. *Journal of Applied Behavior Analysis*, *46*(1), 1–21. https://doi.org/10.1002/jaba.30

Blackman, A. L., Ruby, S. A., Bartle, G., DiGennaro Reed, F. D., Strouse, M., Erath, T. G., & Leon-Barajas, M. (2022). Effects of a systems-level intervention to improve trainer integrity in a behavioral healthcare organization. *Advances in Neurodevelopmental Disorders*.

Bowe, M., & Sellers, T. P. (2018). Evaluating the Performance Diagnostic Checklist-Human Services to assess incorrect error-correction procedures by preschool paraprofessionals. *Journal of Applied Behavior Analysis, 51*(1), 166–176. https://doi.org/10.1002/jaba.428.

Bowring, D. L., Painter, J., & Hastings, R. P. (2019). Prevalence of challenging behaviour in adults with intellectual disabilities, correlates, and associate with mental health. *Current*

*Developmental Disorders Reports, 6*(1), 173-181. https://doi.org/10.1007/s40474-019-00175-9

Bowring, D. L., Totsika, V., Hastings, R. P., Toogood, S., & Griffith, G. M. (2017). Challenging behaviours in adults with an intellectual disability: A total population study and exploration of risk indices. *The British Journal of Clinical Psychology*, *56*(1), 16–32. https://doi.org/10.1111/bjc.12118

Bowring, D. L., Totsika, V., Hastings, R. P., Toogood, S., & McMahon, M. (2017). Prevalence of psychotropic medication use and association with challenging behaviour in adults with an intellectual disability. A total population study. *Journal of Intellectual Disability Research, 61*(6), 604-617. https://doi.org/10.1111/jir.12359

Brackett, L., Reid, D. H., & Green, C. W. (2007). Effects of reactivity to observations on staff performance. *Journal of Applied Behavior Analysis, 40*(1), 191-195. https://doi.org/10.1901/jaba.2007.112-05

Carr, J. E., Coriaty, S., Wilder, D. A., Gaunt, B. T., Dozier, C. L., Britton, L. N., Avina, C., & Reed, C. L. (2000). A review of "noncontingent" reinforcement as treatment for the aberrant behavior of individuals with developmental disabilities. *Research in Developmental Disabilities, 21*(1), 377 391. Hhttps://doi.org/10.1016/S0891-4222(00)00050-0

Carr, J. E., Wilder, D. A., Majdalany, L., Mathisen, D., & Strain, L. A. (2013). An assessment-based solution to a human-service employee performance problem. *Behavior Analysis in Practice, 6*(1), 16–32. https://doi.org/10.1007/ bf03391789.

Chan, J. S., & Yau, M. K. (2002). A study on the nature of interactions between direct-care staff and persons with developmental disabilities in institutional care. *The British Journal of Development Disabilities*, *48*(94), 39–51. https://doi.org/10.1179/096979502799104274

Cooper, K. J., & Browder, D. M. (2001). Preparing staff to enhance active participation of adults with severe disabilities by offering choice and prompting performance during a community purchasing activity. *Research in Developmental Disabilities*, *22*(1), 1–20. https://doi.org/10.1016/s0891-4222(00)00065-2

Cooper, S. A., Smiley, E., Jackson, A., Finlayson, J., Allan, L., Mantry, D., & Morrison, J. (2009). Adults with intellectual disabilities: prevalence, incidence and remission of aggressive behaviour and related factors. *Journal of Intellectual Disability Research, 53*(3), 217–232. *https:*//doi.org/10.1111/j.1365-2788.2008.01127.x

Deb, S., & Unwin, G. L. (2007). Psychotropic medication for behaviour problems in people with intellectual disability: a review of the current literature. *Current Opinion in Psychiatry*, *20*(5), 461–466. https://doi.org/10.1097/YCO.0b013e3282ab9952

DiGennaro Reed, F.D., McIntyre, L.L., Dusek, J. *et al*. Preliminary assessment of friendship, problem behavior, and social adjustment in children with disabilities in an inclusive education setting. *Journal of Developmental and Physical Disabilities, 23*(1), 477–489 (2011). https://doi.org/10.1007/s10882-011-9236-2

Ditzian, K., Wilder, D. A., King, A., & Tanz, J. (2015). An evaluation of the Performance Diagnostic Checklist-Human Services to assess an employee performance problem in a center-based autism treatment facility. *Journal of Applied Behavior Analysis, 48*(1), 199–203. https://doi.org/10.1002/jaba.171.

Downs, A., Dwns, R. C., & Rau, LK. (2008). Effects of training and feedback on discrete trial teaching skills and student performance. *Research in Developmental Disabilities, 29*(3), 235-246. https://doi.org/10.1016/j.ridd.2007.05.001

Eikenhout N., & Austin, J. (2005). Using goals, feedback, reinforcement, and a performance matrix to improve customer service in a large department store. *Journal of Organizational Behavior Management, 24(3)*, 27–64. https://doi.org/10.1300/J075v24n03_02

Emerson, E., Kiernan, C., Alborz, A., Reeves, D., Mason, H., Swarbrick, R., Mason, L., & Hatton, C. (2001). The prevalence of challenging behaviors: A total population study. *Research in Developmental Disabilities, 22*(1), 77–93. https://doi.org/10.1016/S0891-4222(00)00061-5

Fitton, L., & Jones, D. R. (2020). Restraint of adults with intellectual disabilities: A critical review of the prevalence and characteristics associated with its use. *Journal of Intellectual Disabilities, 24*(2), 268–283. https://doi.org/10.1177/1744629518778695

Fleming, R., & Sulzer-Azaroff, B. (1992). Reciprocal peer management: Improving staff instruction in a vocational training program. *Journal of Applied Behavior Analysis*, *25*(3), 611–620. https://doi.org/10.1901/jaba.1992.25-611

Flood. (2018). De-prescribing of psychotropic medications in the adult population with intellectual disabilities: A commentary. *Pharmacy, 6*(2), 28. https://doi.org/10.3390/pharmacy6020028

Gravina, N., Villacorta, J., Albert, K., Clark, R., Curry, S. & Wilder, D. (2018). A literature review of organizational behavior management interventions in human service settings

from 1990 to 2016. *Journal of Organizational Behavior Management, 38*(2), 191-224. https://doi.org/10.1080/01608061.2018.1454872

Gravina, N.E., Vanwagner, M., & Austin, J. (2008). Increasing physical therapy equipment preparation using task clarification, feedback and environmental manipulations. *Journal of Organizational Behavior Management, 28*(1), 110 - 122. https://doi.org/10.1080/01608060802100931

Gresham, F. M., Gansle, K. A., & Noell, G. H. (1993). Treatment integrity in applied behavior analysis with children. *Journal of Applied Behavior Analysis, 26*(2), 257-263. https://doi.org/10.1901/jaba.1993.26-257

Hagopian, L. P., Dozier, C. L., Rooker, G., & Jones, B. A. (2013). Assessing and treating severe problem behavior. In G. J. Madden (Ed.), *APA Handbook of Behavior Analysis*. Washington, DC: American Psychological Association.

Himle, Miltenberger, R. G., Gatheridge, B. J., & Flessner, C. A. (2004). An evaluation of two procedures for training skills to prevent gun play in children. *Pediatrics (Evanston), 113*(1), 70–77. https://doi.org/10.1542/peds.113.1.70

Horner, R. D. (1980). The effects of an environmental "enrichment" program on the behavior of institutionalized profoundly retarded children. *Journal of Applied Behavior Analysis*, *13*(3), 473–491. https://doi.org/10.1901/jaba.1980.13-473

Hyman, S. L., Fisher, W., Mercugliano, M., & Cataldo, M. F. (1990). Children with self-injurious behavior. *Pediatrics*, *85I(1)*, 437-441.

Iwata, B. A., Pace, G. M., Cowdery, G. E., & Miltenberger, R. G. (1994). What makes extinction work: An analysis of procedural form and function. *Journal of Applied Behavior Analysis, 27*(1), 131–144. https://doi.org/10.1901/jaba.1994.27-131

Johnson S. M. & Bolstad O. D. (1975). Reactivity to home observations: A comparison of audio recorded behaviors with observers present or absent. *Journal of Applied Behavior Analysis, 8I*(2), 181-185. https://doi.org/10.1901/jaba.1975.8-181

Jones, E., Perry, J., Lowe, K., Felce, D., Toogood, S., Dunstan, F., Allen, D., & Pagler, J. (1999). Opportunity and the promotion of activity among adults with severe intellectual disability living in community residences: The impact of training staff in active support. *Journal of Intellectual Disability Research*, *43*(3), 164–178. https://doi.org/10.1046/j.1365-2788.1999.00177.x

Jones, S., Cooper, S. A., Smiley, E., Allan, L., Williamson, A., & Morrison, J. (2008). Prevalence of, and factors associated with, problem behaviors in adults with intellectual disabilities. *The Journal of Nervous and Mental Disease*, *196*(9), 678–686. https://doi.org/10.1097/NMD.0b013e318183f85c

Kahng, S., Iwata, B. A., & Lewin, A. B. (2002). Behavioral treatment of self-Injury, 1964 to 2000. *American Journal on Mental Retardation, 107*, 212-221. doi:10.1352/0895-8017(2002)107<0212:BTOSIT>2.0.CO;2

Kamana, B. U., Dozier, C. L., Kanaman, N. A., DiGennaro Reed, F., Glaze, S. M., Markowitz, A. M., Hangen, M. M., Harrison, K. L., Bernstein, A. M., Jess, R. L., & Erath, T. (In preparation). Increasing staff healthy behavioral practices in programs for adults with intellectual and developmental disabilities.

Kazdin, A. E. (1979). Unobtrusive measures in behavioral assessment. *Journal of Applied Behavior Analysis, 12*(4), 713-724. https://doi.org/10.1901/jaba.1979.12-713

Krumhus, K. M., & Malott, R. W. (1980). The effects of modeling and immediate and delayed feedback in staff training. *Journal of Organizational Behavior Management, 2*(4), 279–293. https://doi.org/10.1300/J075v02n04_05

Leblanc, L. A., Gravina, N., & Carr, J. E. (2009). Training issues unique to autism spectrum disorder. In J. Matson (Ed.), *Practitioner's Guide to Applied Behavior Analysis for Children with Autism Spectrum Disorders* (pp. 225–235). New York, NY: Springer.

Lennox, D. B., Miltenberger, R. G., Spengler, P., & Erfanian, N. (1988). Decelerative treatment practices with persons who have mental retardation: a review of five years of the literature. *American Journal of Mental Retardation* , *92*(6), 492–501.

Liberman, R. P. (1983). Guest editor's preface. *Analysis and Intervention in Developmental Disabilities, 3,* iii-iv.

Lowe, K., Allen, D., Jones, E., Brophy, S., Moore, K., & James, W. (2007). Challenging behaviours: Prevalence and topographies. *Journal of Intellectual Disability Research*, *51*(8), 625–636. https://doi.org/10.1111/j.1365-2788.2006.00948.x

Luiselli, J. K. (2012). *The Handbook of High-Risk Challenging Behaviors in People with Intellectual And Developmental Disabilities*. Baltimore, MD: Paul H. Brookes Publishing.

Lundqvist L. O. (2013). Prevalence and risk markers of behavior problems among adults with intellectual disabilities: A total population study in Örebro County, Sweden. *Research in Developmental Disabilities*, *34*(4), 1346–1356. https://doi.org/10.1016/j.ridd.2013.01.010

Martinez-Onstott, B., Wilder, D., & Sigurdsson, S. (2016). Identifying the variables contributing to at-risk performance: Initial evaluation of the performance diagnostic checklist-safety

(PDC-Safety). *Journal of Organizational Behavior Management, 36*(1), 80-93. https://doi.org/10.1080/01608061.2016.1152209

Merritt, T. A., DiGennaro Reed, F. D., & Martinez, C. E. (2019). Using the Performance Diagnostic Checklist-Human Services to identify an indicated intervention to decrease employee tardiness. *Journal of Applied Behavior Analysis, 52*(4), 1034–1048 https://doi.org/10.1002/jaba.643.

Methot, L. L., Williams, W. L., Cummings, A., & Bradshaw, B. (1996). Measuring the effects of a manager-supervisor training program through the generalized performance of managers, supervisors, front-line staff and clients in a human service setting. *Journal of Organizational Behavior Management, 16*(1), 3–34. doi:10.1300/J075v16n02_02

Mowery J. M., Miltenberger, R. G., & Weil, T. M. (2010). Evaluation the effects of reactivity to supervisor presence on staff response to tactile prompts and self-monitoring in a group home setting. *Behavioral Interventions, 25*(1), 21-35. https://doi.org/10.1002/bin.296

Parsons, M. B., & Reid, D. H. (1993). Evaluating and improving residential treatment during group leisure situations: A program replication and refinement. *Research in Developmental Disabilities*, *14*(1), 67–85. https://doi.org/10.1016/0891-4222(93)90006-6

Parsons, M. B., Cash, V. B., & Reid, D. H. (1989). Improving residential treatment services: Implementation and norm-referenced evaluation of a comprehensive management system. *Journal of Applied Behavior Analysis*, *22*(2), 143–156. https://doi.org/10.1901/jaba.1989.22-143

Parsons, M. B., Rollyson, J. H., & Reid, D. H. (2004). Improving day-treatment services for adults with severe disabilities: A norm-referenced application of outcome management.

*Journal of Applied Behavior Analysis*, *37*(3), 365–377. https://doi.org/10.1901/jaba.2004.37-365

Realon, R. E., Bligen, R. A., La Force, A., Helsel, W. J., & Goldman, V. (2002). The effects of the positive environment program (PEP) on the behaviors of adults with profound cognitive and physical disabilities. *Behavioral Interventions*, *17*(1), 1–13. https://doi.org/10.1002/bin.102

Reid, D. H., Parson, M. B., & Jensen, J. M. (2017). Maintaining staff performance following a training intervention: Suggestions from a 30-year case example. *Behavior Analysis in Practice*, *10*(1), 12-21. Reid, D. H., Parsons, M. B., & Jensen, J. M. (2015). Maintaining Staff Performance Following a Training Intervention: Suggestions from a 30-Year Case Example. *Behavior analysis in practice*, *10*(1), 12–21. https://doi.org/10.1007/s40617-015-0101-0

Reid, D. H., Parsons, M. B., & Green, C. W. (2001). Evaluating the functional utility of congregate day treatment activities for adults with severe disabilities. *American Journal of Mental Retardation, 106*(5), 460–469. https://doi.org/10.1352/0895-8017(2001)1062.0.CO;2

Repp, A. C., Barton, L. E., & Brulle, A. R. (1981). Correspondence between effectiveness and staff use of instructions for severely retarded persons. *Applied Research in Mental Retardation*, *2*(3), 237–245. https://doi.org/10.1016/0270-3092(81)90017-5

Rodriguez, M., Wilder, D. A., Therrien, K., Wine, B., Miranti, R., Daratany, K., Salume, G., Baranovsky, G., & Rodriguez, M. (2006). Use of the performance diagnostic checklist to select an intervention designed to increase the offering of promotional stamps at two sites

of a restaurant franchise. *Journal of Organizational Behavior Management, 25*(3), 17-35. http://dx.doi.org/10.1300/J075v25n03_02

Ruby, S. A. & DiGennaro Reed, F. D. (2021). Evaluating the effects of technology-based self-monitoring on positive staff-consumer interactions in group homes (Advance online first). *Behavior Analysis in Practice*. https://doi.org/10.1007/s40617-021-00651-y

Singh, N. N., Lancioni, G. E., Karazsia, B. T., & Myers, R. E. (2016). Caregiver training in mindfulness-based positive behavior supports (MBPBS): Effects on caregivers and adults with intellectual and developmental disabilities. *Frontiers in psychology*, *7*, 98. doi:10.3389/fpsyg.2016.00098

Smith, M., & Wilder, D. A. (2018). The Use of the Performance Diagnostic Checklist-Human Services to Assess and Improve the Job Performance of Individuals with Intellectual Disabilities. *Behavior Analysis in Practice*, *11*(2), 148–153. https://doi.org/10.1007/s40617-018-0213-4

Tomlinson, S.R.L., Gore, N. & McGill, P. Training Individuals to Implement Applied Behavior Analytic Procedures via Telehealth: A Systematic Review of the Literature. *J Behavioral Education, 27*(1), 172–222. https://doi.org/10.1007/s10864-018-9292-0

Vance, H., Saini, V., & Guertin, E. L. (2022). A preliminary investigation of procedural refinements to the performance diagnostic checklist-human services. *Journal of Organizational Behavior Management,* 1-27. https://doi.org/10.1080/01608061.2022.2043218

Weinberg, M., Parenti, K., & Powell, S. (2000). Relationship building as a best practices approach in treatment planning. *The Behavior Analyst Today*, *1*(2), 39–40. https://doi.org/10.1037/h0099872

Wilder, D. A., Cymbal, D., & Villacorta, J. (2020). The Performance Diagnostic Checklist-Human Services: A brief review. *Journal of Applied Behavior Analysis*, *53*(2), 1170–1176. https://doi.org/10.1002/jaba.676

Wilder, D. A., Lipschultz, J., & Gehrman, C. (2018). An evaluation of the Performance Diagnostic Checklist- Human Services (PDC-HS) across domains. *Behavior Analysis in Practice, 11*(1), 129–138. https://doi.org/10. 1007/s40617-018-0243-y.

**Table 1**

Scoring Guide for HBP Role Plays

| Practice | Skill | Scoring |
|---|---|---|
| Positive interactions | Staff interactions included eye contact and pleasant facial expression (smiling and nodding). | Correct = all interactions the staff had with the confederate include eye contact (or orienting to the confederate) and a pleasant facial expression<br><br>Partially correct = Some, but not all, of the staffs interactions with the confederate included eye contact and a pleasant facial expression<br><br>Incorrect = no interactions included eye contact and a pleasant facial expression<br><br>Score N/A if the staff member does not engage in any interactions with the confederate during the role play |
| | Staff provided a positive interaction (compliment, greeting, expression of care, conversation, appropriate physical interaction, descriptive praise) to the confederate | Correct = staff engaged in a positive interaction with the confederate<br><br>Incorrect = staff engaged in an interaction other than a positive interaction (e.g., prompts activity engagement) or did not interact with the confederate at all during the role play |
| Effective Instructions | Instructions provided w/ pleasant voice tone & facial expression. | Correct = all instructions and prompts staff provided during the role play were done so with a pleasant tone and facial expression<br><br>Partially correct = some instructions, or some prompts, were delivered with a pleasant tone or facial expression; however, not all instructions and prompts provided during role play were delivered with a pleasant tone or facial expression<br><br>Incorrect = none of the staff instructions and prompts were delivered with a pleasant tone or facial expression<br><br>Score N/A if the staff did not provide any instructions during the trial |
| | Instructions were simple and clear. | Correct = all instructions and prompts staff provided during the role play were simple and clear<br><br>Partially correct = some instructions, or some prompts, the staff provided were simple and clear; however, not all instructions and prompts provided during role play were simple and clear<br><br>Incorrect = none of the staff instructions and prompts were delivered in a simple and clear way<br><br>Score N/A if the staff did not provide any instructions during the trial |

| | | |
|---|---|---|
| | Instructions provided using DO rather than DON'T requests | Correct = all instructions and prompts the staff provided were delivered using a DO request<br><br>Partially correct = some, but not all, instructions and prompts the staff provided were delivered using a DO request<br><br>Incorrect = no instructions or prompts were delivered using a DO request<br><br>Score N/A if the staff did not provide any instructions during the trial |
| | Staff used TELL/SHOW (i.e., modeled/prompted completing task) when confederate does not comply | Correct = all prompts provided by the staff following noncompliance included an appropriate tell/show prompt or the staff offered help to the confederate in completing the task<br><br>Incorrect = none of the prompts provided by the staff following noncompliance were correct. That is, the staff person either (a) did not provide any further prompting or assistance or (b) provided an incorrect prompt (i.e., a second verbal prompt).<br><br>Score N/A if the staff does not provide any instructions during the trial. |
| Activity Engagement | A variety of high-quality items/activities (i.e., in good condition and preferred by consumers) in common areas and easily accessible by consumers | Correct = there were various preferred items accessible in the home<br><br>Partially correct = there were some items accessible in the home; however, there were either (a) not enough for everyone to engage with or (b) items are broken<br><br>Incorrect = there were no items accessible in the home |
| | All consumers appropriately engaged (i.e., attending to/looking at item/activity or manipulating object/material in way intended) | Correct = all consumers in the common areas were engaged with activities during observation<br><br>Partially correct = some, but not all, consumers were engaged with activities during observation<br><br>Incorrect = no consumers were engaged with activities during observation |
| | When confederate is not engaged, staff attempted to get them engaged by prompting engagement or providing choices of available activities | Correct = staff prompted the confederate consumer to select an available activity or presented the options to the confederate (e.g., "We have this and this to play with, let's play!"; "There's a word search and magazine, pick one!"; "Wow cool book, look we can read it")<br><br>Partially correct = staff attempted to have the confederate engage with the items; however, did not provide a prompt or state the options to the confederate (e.g., staff interacts with the items alone to model appropriate play)<br><br>Incorrect = staff did not prompt confederate to engage during role play in any way |

| | | |
|---|---|---|
| Responding to Problem Behavior | Staff refrained from commenting on minor disruptive behavior (IVB and other behavior that could not cause harm to self, others, property).<br><br>Staff refrained from delivering attention (except physical procedures to ensure safety) and preferred items/activities following severe problem behavior (i.e., until at least 10 s without severe problem behavior). | Correct = staff did not comment on any problem behavior during the role play<br><br>Incorrect = staff commented on confederate problem behavior<br>Correct = staff refrained from delivering attention and items following severe problem behavior (i.e., until at least 10 s without severe problem behavior)<br><br>Partially correct = staff refrained from delivering attention and items immediately (i.e., within 5 s of the behavior) following severe problem behavior; however, did not withhold attention/items for the full 10 s.<br><br>Incorrect = staff delivered attention or access to items/activities immediately (i.e., within 5 s of the behavior) following the occurrence of severe problem behavior. |

**Table 2**

Scoring Guide for HBP Observations

| Practice | Skill | Scoring |
|---|---|---|
| Positive interactions | Staff interactions included eye contact and pleasant facial expression (smiling and nodding). | Always = all interactions the staff had with the consumers present included eye contact (or orienting to the confederate) and a pleasant facial expression<br><br>Sometimes = Some, but not all, of the staffs interactions with the consumers present included eye contact and a pleasant facial expression<br><br>Never = no interactions included eye contact and a pleasant facial expression<br><br>Score N/A if the staff member did not engage in any interactions with the consumers present during the observation |
| | Staff provided a positive interaction (compliment, greeting, expression of care, conversation, appropriate physical interaction, descriptive praise) to consumers at least once every 5 minutes | Always = staff engaged in a positive interactions with all consumers present at least once every 5 min during the entire observation<br><br>Sometimes = staff engaged in some positive interactions with consumers present; however, did not engage with each participant during all 5 min intervals<br><br>Never = staff did not engage in any positive interactions with consumers present throughout the duration of the observation |
| Effective Instructions | Instructions provided w/ pleasant voice tone & facial expression. | Always = all instructions and prompts staff provided during the observation were done so with a pleasant tone and facial expression<br><br>Sometimes = some instructions, or some prompts, were delivered with a pleasant tone or facial expression; however, not all instructions and prompts provided during the observation were delivered with a pleasant tone or facial expression<br><br>Never = no instructions and prompts were delivered with a pleasant tone or facial expression<br><br>Score N/A if the staff does not provide any instructions during the observation |

| | | |
|---|---|---|
| | Instructions were simple and clear. | Always = all instructions and prompts staff provided during the observation were simple and clear<br><br>Sometimes = some instructions, or some prompts, were simple and clear; however, not all instructions and prompts provided during the observation were simple and clear<br><br>Never = no instructions or prompts were delivered in a simple and clear way<br><br>Score N/A if the staff did not provide any instructions during the observation |
| | Instructions provided using DO rather than DON'T requests. | Always = all instructions and prompts were delivered using a DO request<br><br>Sometimes = some, but not all, instructions and prompts were delivered using a DO request<br><br>Never = no instructions or prompts were delivered using a DO request<br><br>Score N/A if the staff does not provide any instructions during the observation |
| | Staff used TELL/SHOW (i.e., modeled/prompted completing task) when confederate does not comply | Always = all prompts provided by the staff following noncompliance included an appropriate tell/show prompt or the staff offered help to the consumer in completing the task<br><br>Sometimes = some prompts provided by the staff following consumer noncompliance included an appropriate tell/show prompt or the staff offered help to the consumer in completing the task; however, in one or more instance, following a consumer not complying with an initial instruction, the staff person either (a) did not provide any further prompting or assistance or (b) provided an incorrect prompt (i.e., a second verbal prompt)<br><br>Never = none of the prompts provided by the staff following the consumer noncompliance were correct. That is, the staff person either (a) did not provide any further prompting or assistance or (b) provided an incorrect prompt (i.e., a second verbal prompt).<br><br>Score N/A if no instructions were delivered or if there were no opportunities to provide a prompt (i.e., consumers complied with all instructions provided during observation) |
| Activity Engagement | A variety of high-quality items/activities (i.e., in good condition and preferred by consumers) are in common areas and easily accessible by consumers. | Always = there were various preferred items accessible in the common areas throughout the observation<br><br>Sometimes = there were some items accessible in the common areas; however, there were either (a) not enough for everyone to engage with or (b) items were |

| | | |
|---|---|---|
| | | broken. Or there were items available for a portion of the observation; however, not the entire time.<br><br>Never = there were no items accessible in the common areas |
| | When a consumer is not engaged, staff attempted to get them engaged by prompting engagement or providing choices of available activities. | Always = staff prompted the consumers to select an available activity or presents the options to the consumer when they are not engaged (e.g., "We have this and this to engage with, let's play!"; "There's a word search and magazine, pick one!"; "Wow cool book! We can read it.")<br><br>Sometimes = staff attempted to have the consumers engage with items; however, did not provide a prompt or state the options to the consumer (e.g., staff interacts with the items alone to model appropriate play)<br><br>Never = staff did not prompt the consumer to engage during the observation in any way<br><br>Score N/A if all consumers are engaged throughout the observation (i.e., no prompts for engagement are required) |
| Responding to Problem Behavior | Staff refrained from commenting on minor disruptive behavior (IVB and other behavior that could not cause harm to self, others, property). | Always = staff refrained from commenting on problem behavior during the entire observation<br><br>Sometimes = staff refrained from commenting on some instances of problem behavior; however, in at least one instance, staff commented on consumer problem behavior<br><br>Never = staff commented on all instances of consumer problem behavior during the observation<br><br>Score N/A if no problem behavior occurred during the observation |
| | Staff refrained from delivering attention (except physical procedures to ensure safety) and preferred items/activities following severe problem behavior (i.e., until at least 10 s without severe problem behavior). | Always = staff refrained from delivering attention and items following severe problem behavior (i.e., until at least 10 s without severe problem behavior)<br><br>Sometimes = staff refrained from delivering attention and items following severe problem behavior in some instances; however, at least once, staff provided attention or items immediately following severe problem behavior<br><br>Never = staff delivered attention or access to items/activities immediately (i.e., within 10 s of the behavior) following the occurrence of all severe problem behavior during the observation<br><br>Score N/A if no severe problem behavior occurring during the observation. |

**Table 3**

Domains Indicated for Intervention Across All Practices

| Indicated Domains for Intervention Across all Four HBPs | | | | |
|---|---|---|---|---|
| | Training | Task Clarification and Prompting | Resources, Materials, and Processes | Performance Consequences, Effort, and Competition |
| Based on Initial Interview | 36% | 41% | 43% | 32% |
| Following Company Record Review Verification | **17%** | 41% | 43% | **27%** |

*Note*. Percentages were derived from results of the PDC-HS interviews pre- and post-record review (questions indicated as areas for intervention/total number of questions in the domain across all practices * 100)

**Table 4**

Pre- Post-Training Questionnaire Results

| | Correct Pre-Training | Correct Post-Training |
|---|---|---|
| How often should you deliver positive interactions to consumers in the home? | 47% (7/15) | 82% (9/11) |
| What should you do if a consumer in the home is not currently engaged in an activity? | 80% (12/15) | 91% (10/11) |
| List one important component of an effective instruction. | 60% (9/15) | 91% (10/11) |
| When a consumer engages in minor problem behavior (e.g., inappropriate verbal behavior), how should you respond? | 40% (6/15) | 100% (11/11) |
| If a consumer engages in severe problem behavior (e.g., physical aggression), how should you respond? | 13% (2/15) | 64% (7/11) |
| | Average Rating | |
| Rate your comfortability with the implementation of positive interactions. | 4.5/5 | 5/5 |
| Rate your comfortability with the implementation of activity engagement. | 4/5 | 4.6/5 |
| Rate your comfortability with the implementation of effective instructions. | 4.5/5 | 4.9/5 |
| Rate your comfortability with responding to problem behavior. | 4.4/5 | 4.8/5 |

*Note*. 15 participants competed the pre-training questionnaire and 11 of these 15 participants completed the post-training questionnaire. For the last four rating questions, the rating scale was 1 (not comfortable) to 5 (very comfortable); thus, lower scores indicated dissatisfaction and higher scores indicated participant satisfaction with the procedures in the evaluation.

**Table 5**

Additional Treatment Data

| | Schedule Followed Before Session | Schedule Followed After Session | Answered Phone | HBP Job Aid Still Posted in Common Area | HBP Handouts Still Available | Schedule Posted in Common Area | Schedule Reviewed |
|---|---|---|---|---|---|---|---|
| T1 House | 18/25 | 21/25 | 25/25 | 25/25 | 25/25 | 25/25 | 21/25 |
| C1 House | 12/12 | 12/12 | 12/12 | 10/12 | 10/12 | 10/12 | 12/12 |
| E1 House | 18/19 | 18/19 | 19/19 | 19/19 | 19/19 | 19/19 | 18/19 |

*Note*. These data were only collected during the post-training observation feedback phone calls.

**Table 6**

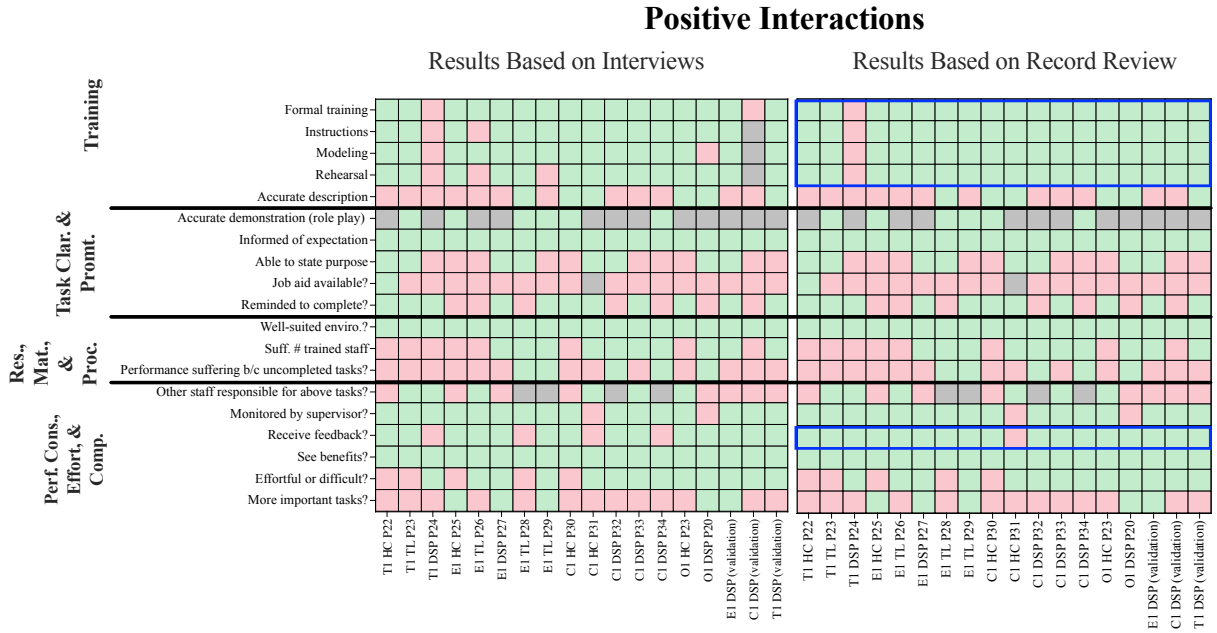
Social Validity Questionnaire Results

| | Average Score |
|---|---|
| I found the intervention used in the current study (i.e., the home schedule, staff training, job aid, and feedback) to be an acceptable way to increase staff implementation of HBP (positive interactions, activity engagement, effective instructions, appropriately responding to problem behavior) across the day. | 3.2 (range, 2-4) |
| Overall, I enjoyed the intervention implemented during this study. | 3.5 (range, 3-4) |
| I feel the implementation of the home schedule, staff training, job aid, and feedback increased my ability to engage in HBP across the day. | 3.5 (range, 3-4) |
| I feel the implementation of the home schedule is feasible. | 2.5 (range, 1-4) |
| Overall, the home schedule and HBP is easy to implement. | 3 (range, 2-4) |
| I found Google Meet coaching and feedback over the phone to be an acceptive approach. | 3.3 (range, 2-4) |
| If possible, I would like to continue to use remote coaching to implement other procedures | 3.3 (range, 2-4) |
| I would recommend the implementation of a home schedule, staff training, job aid, and feedback to other homes. | 3.5 (range, 3-4) |
| I am satisfied with the results of the intervention. | 3.5 (range, 3-4) |

*Note*. Participants scored on a scale from 0 (strongly disagree) to 4 (strongly agree); thus, lower scores indicated dissatisfaction and higher scores indicated participant satisfaction with the procedures in the evaluation.

**Figure 1**

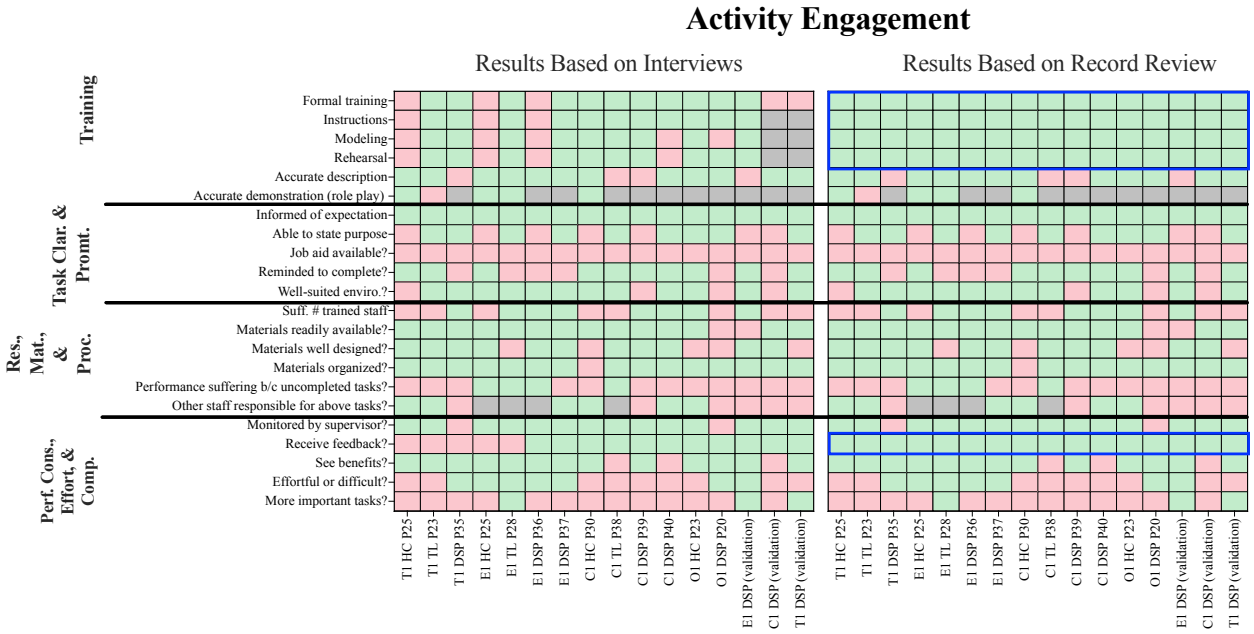
PDC-HS Positive Interaction Results




*Note*. Green squares denote questions in which the informant answered favorably (i.e., not an indicated area for intervention), red squares denote barriers or areas of opportunity for intervention, gray squares denote questions not answered. The outlined sections in "Results Based on Record Review" denote answers that may have changed based on the results of the Company Record Review Verification.

**Figure 2**

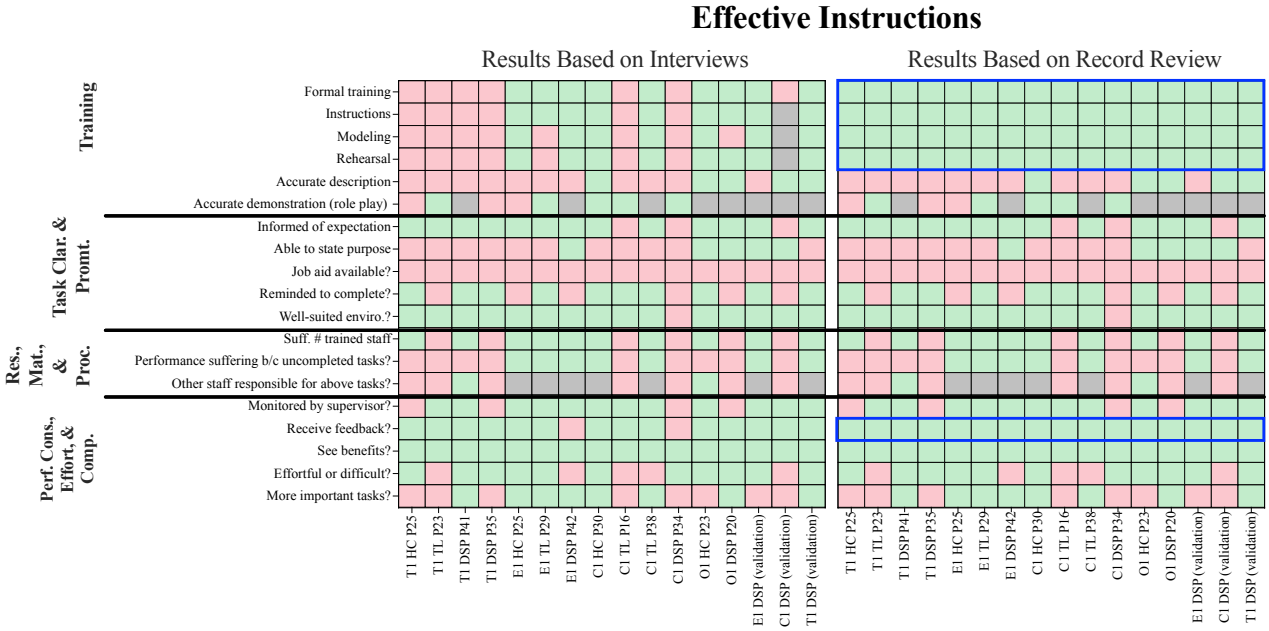
PDC-HS Activity Engagement Results




*Note*. Green squares denote questions in which the informant answered favorably (i.e., not an indicated area for intervention), red squares denote barriers or areas of opportunity for intervention, gray squares denote questions not answered. The outlined sections in "Results Based on Record Review" denote answers that may have changed based on the results of the Company Record Review Verification

**Figure 3**

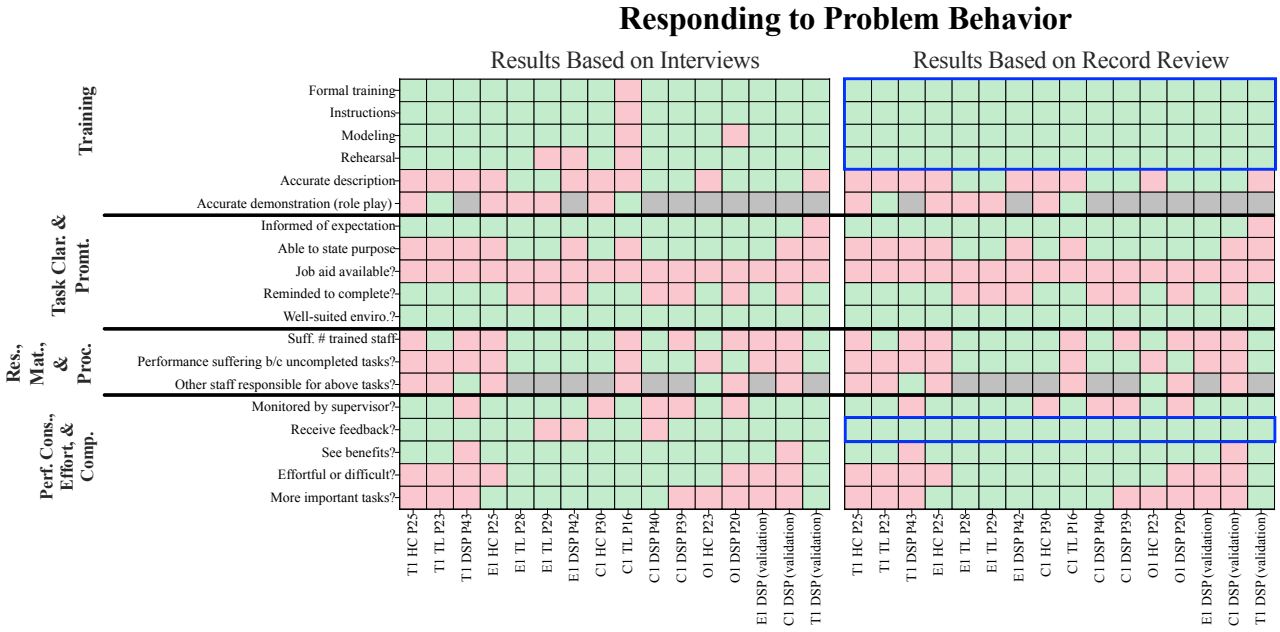
PDC-HS Effective Instructions Results




*Note*. Green squares denote questions in which the informant answered favorably (i.e., not an indicated area for intervention), red squares denote barriers or areas of opportunity for intervention, gray squares denote questions not answered. The outlined sections in "Results Based on Record Review" denote answers that may have changed based on the results of the Company Record Review Verification.

**Figure 4**

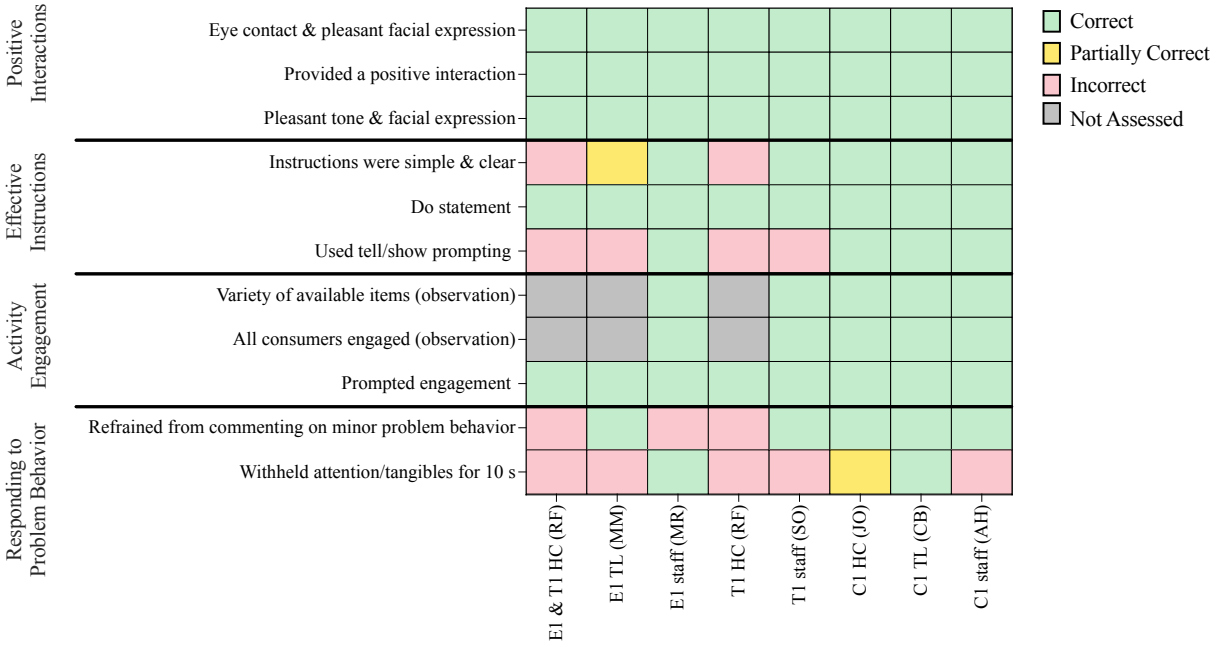
PDC-HS Responding to Problem Behavior Results




*Note*. Green squares denote questions in which the informant answered favorably (i.e., not an indicated area for intervention), red squares denote barriers or areas of opportunity for intervention, gray squares denote questions not answered. The outlined sections in "Results Based on Record Review" denote answers that may have changed based on the results of the Company Record Review Verification.

**Figure 5**

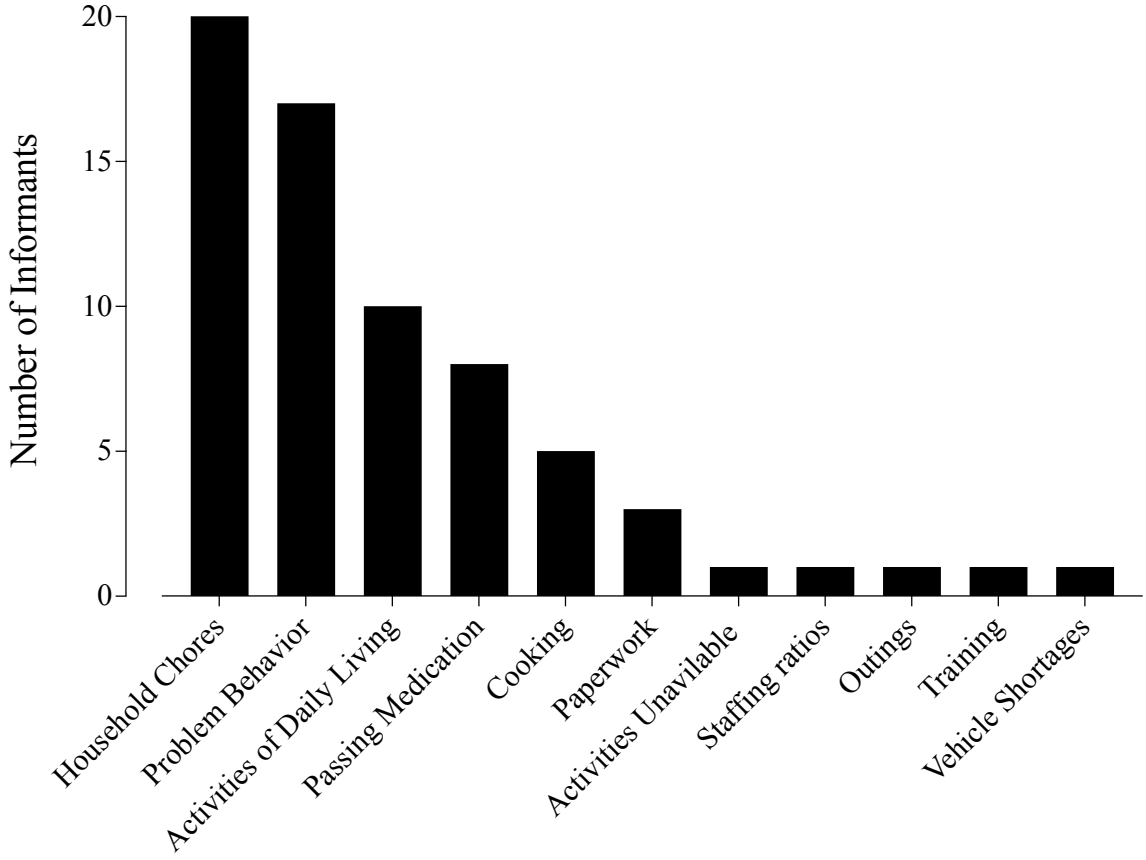
Results of Role Play for All Participants Across All Homes




*Note*. Green squares denote skills the participant performed correctly, yellow squares denote skills the participant performed partially correct, and red squares denote skills participant performed incorrectly. Gray squares denote questions that there was not an opportunity to assess.

**Figure 6**

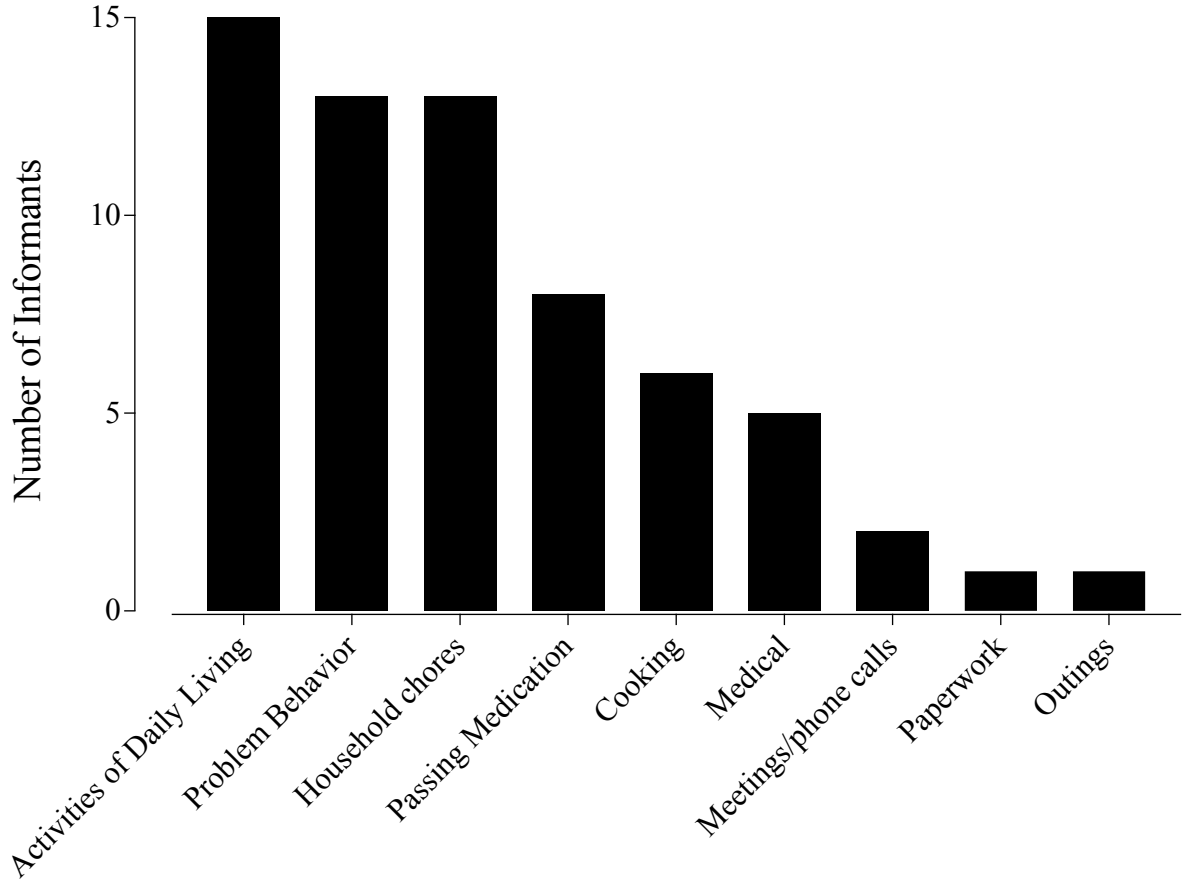
Tasks Reported to Impede Healthy Behavioral Practices as They Must Be Completed First




*Note*. Bars denote the number of informants that reported each of the tasks to impede the implementation of HBPs as they must be completed first.

**Figure 7**

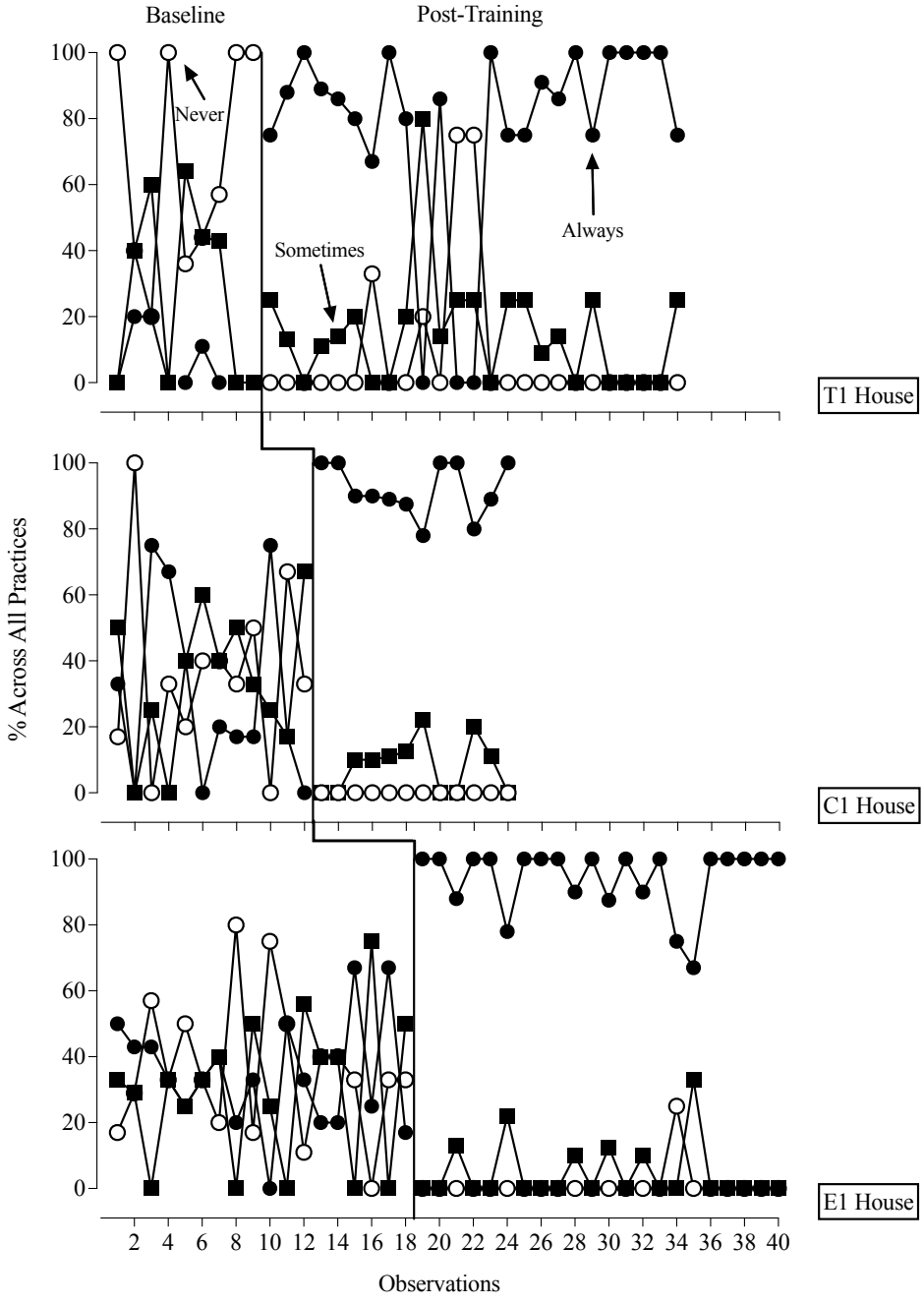
Tasks Reported to Take Priority Over the Implementation of Healthy Behavioral Practices




*Note*. Bars denote the number of informants that reported each of the tasks to take priority over the implementation of HBP

**Figure 8**

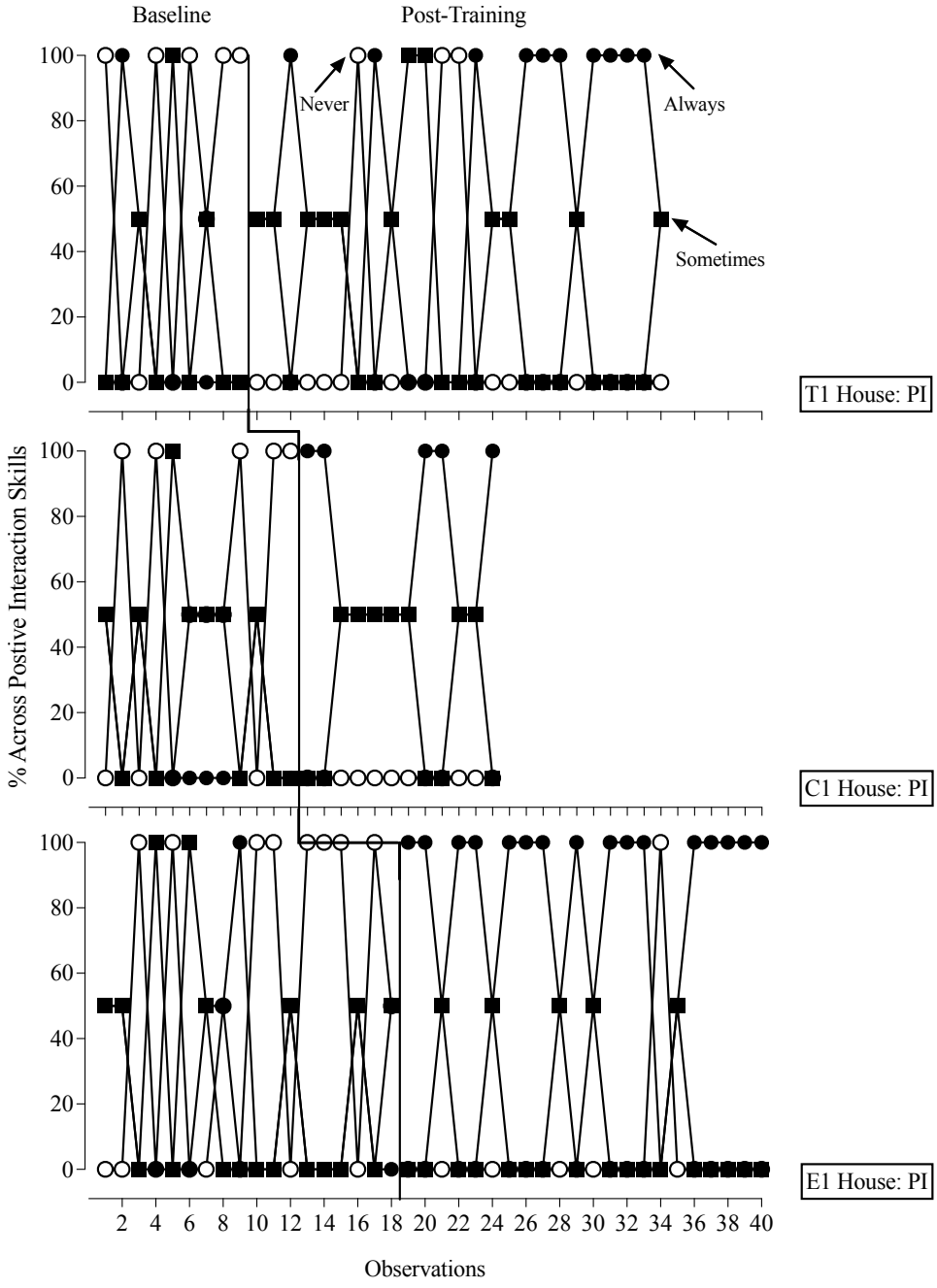
Treatment Evaluation Results: Percent Always, Sometimes, and Never Across All Practices




*Note*. These are data from the Study 2 treatment evaluation. Closed black circles denoted the percentage of skills scored "always," the closed black squares denote the percentage of skills scored "sometimes," and the open circle denote skills scored "never."

**Figure 9**

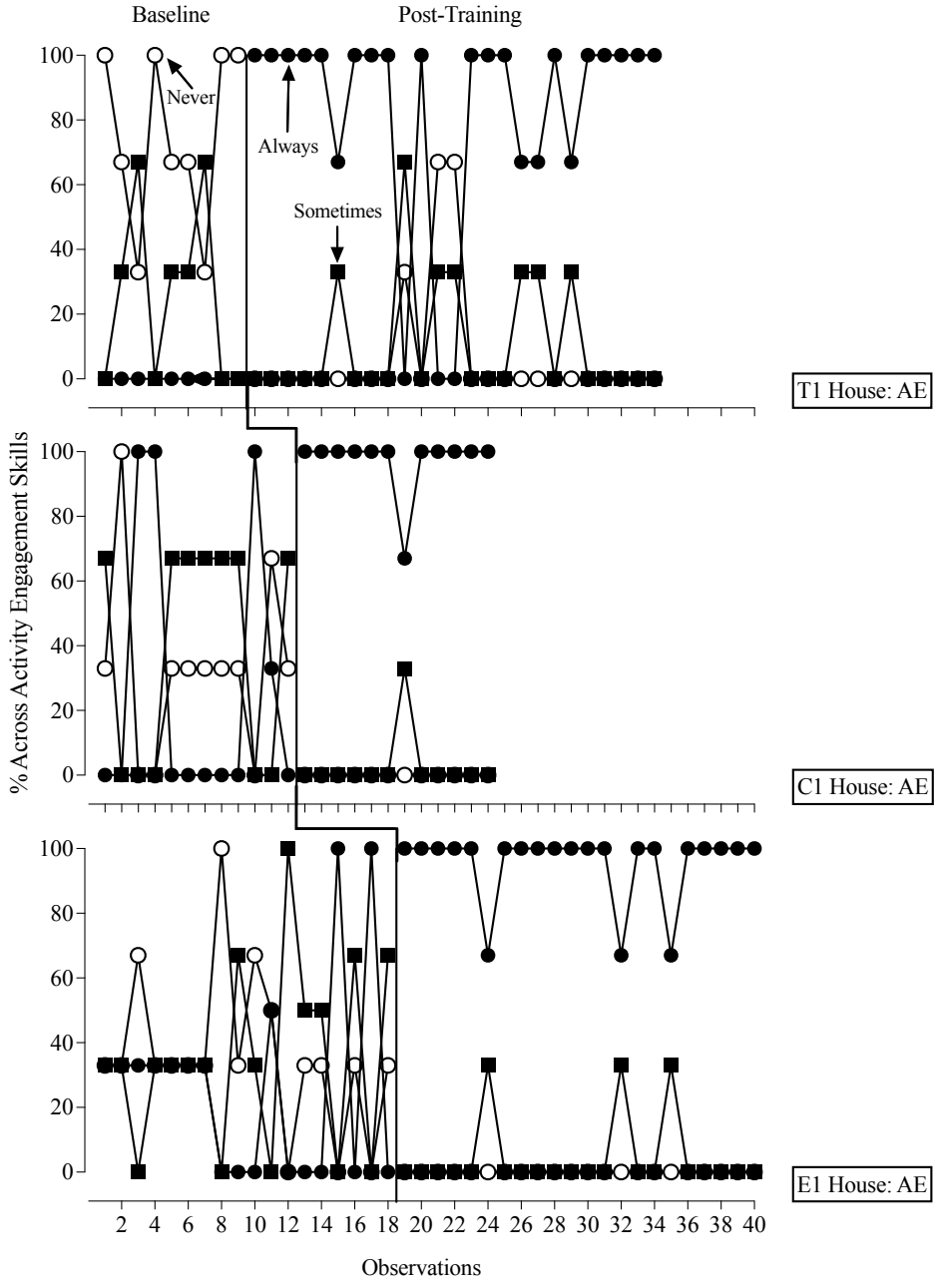
Treatment Evaluation Results: Percent Always, Sometimes, and Never for Positive Interactions




*Note*. These are data from the Study 2 treatment evaluation. Closed black circles denoted the percentage of skills scored "always," the closed black squares denote the percentage of skills scored "sometimes," and the open circle denote skills scored "never.

**Figure 10**

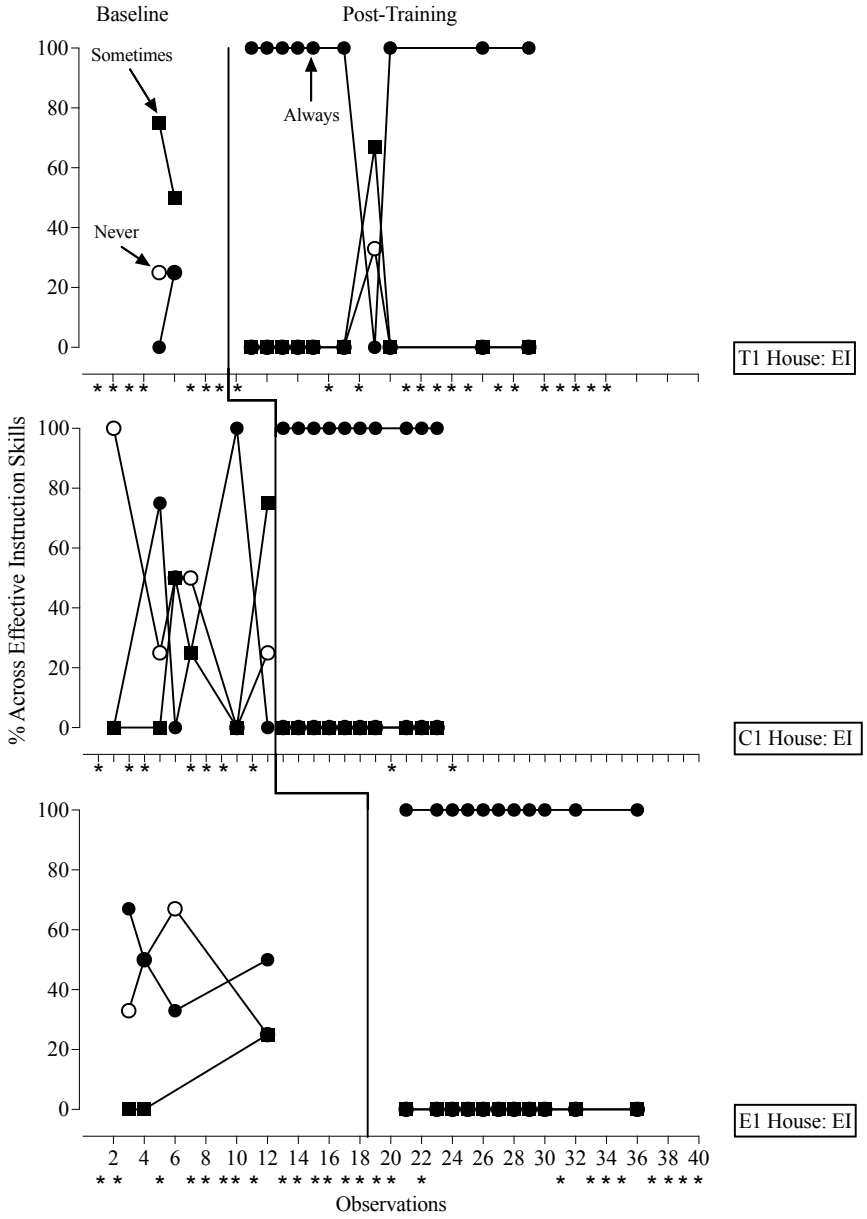
Treatment Evaluation Results: Percent Always, Sometimes, and Never for Activity Engagement




*Note*. These are data from the Study 2 treatment evaluation. Closed black circles denoted the percentage of skills scored "always," the closed black squares denote the percentage of skills scored "sometimes," and the open circle denote skills scored "never.

**Figure 11**

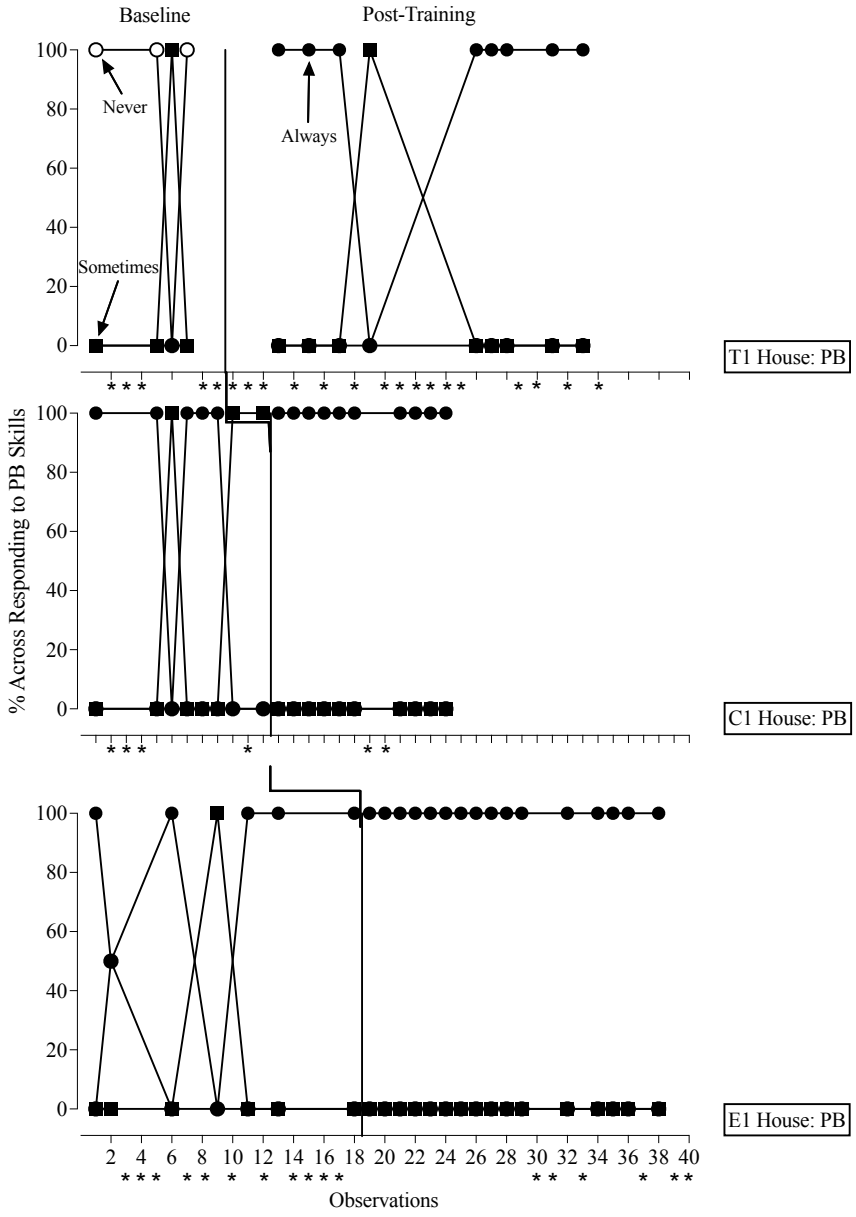
Treatment Evaluation Results: Percent Always, Sometimes, and Never for Effective Instructions




*Note*. These are data from the Study 2 treatment evaluation. Closed black circles denoted the percentage of skills scored "always," the closed black squares denote the percentage of skills scored "sometimes," and the open circle denote skills scored "never." Asterix denote sessions in which no instructions were delivered.

**Figure 12**

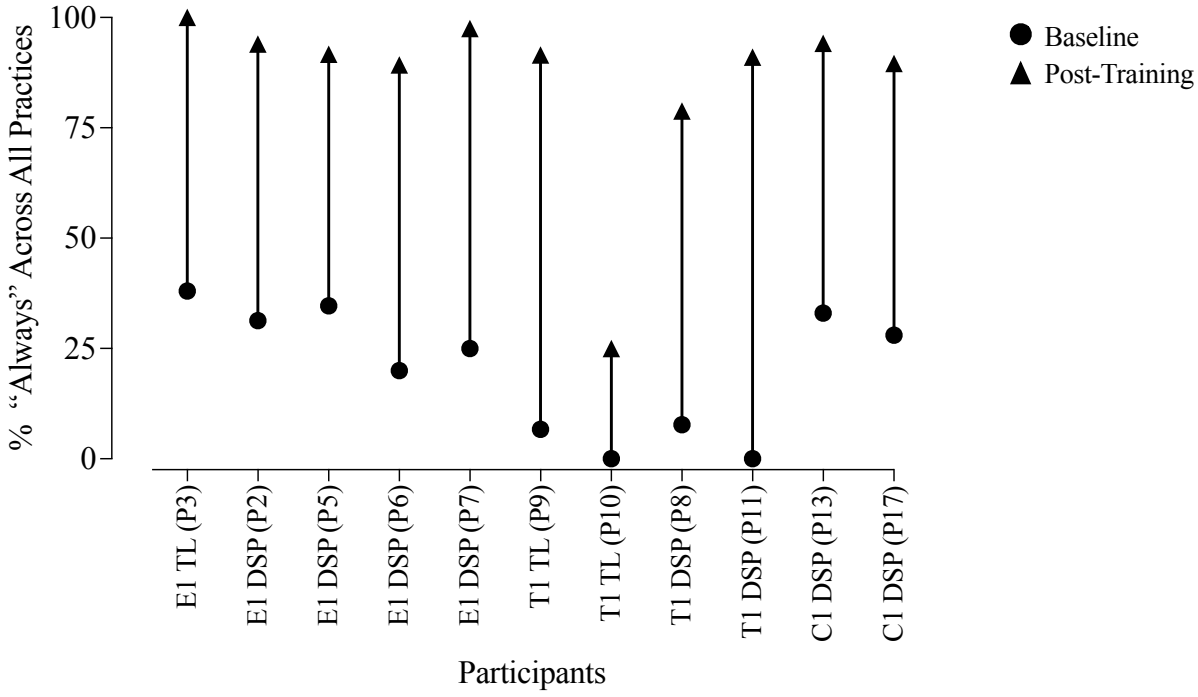
Treatment Evaluation Results: Percent Always, Sometimes, and Never for Responding to Problem Behavior




*Note*. These are data from the Study 2 treatment evaluation. Closed black circles denoted the percentage of skills scored "always," the closed black squares denote the percentage of skills scored "sometimes," and the open circle denote skills scored "never." Asterisks denote sessions in which problem behavior did not occur.

**Figure 13**

Treatment Evaluation Results: Individual Staff Analysis




*Note*. These are pre- and post-training data from the Study 2 evaluation. Closed circles denote the average percentage of skills scored as "always" in baseline and closed triangles denote the average percentage of skills scored as "always" post-training for a single participant. Only participants who were included in both baseline and post-training observations are included in this analysis.

# Appendix A

## Institutional Review Board Approval

THE UNIVERSITY OF KANSAS Research

Date: December 20, 2021

TO: Claudia Dozier, (cdozier@ku.edu)

FROM: Alyssa Haase, IRB Administrator (785-864-7385, irb@ku.edu)

RE: **Approval of Initial Study**

**As you are aware, due to COVID-19, as of March 23, 2020, the University has halted all non-essential in-person research activities. Moving forward with in-person research activities prior to receiving written confirmation from HRPP indicating it is safe to move forward will result in the project being paused and an investigation being launched.**

The IRB reviewed the submission referenced below on 12/20/2021. Approval expires on n/a.

| **IRB Action: APPROVED** | **Effective date: 12/20/2021** | **Expiration Date : n/a** |
|---|---|---|

| STUDY DETAILS | |
|---|---|
| Investigator: | Claudia Dozier |
| IRB ID: | STUDY00148107 |
| Title of Study: | Assessing the Maintenance and Generalization of Staff Implementation of Healthy Behavioral Practices using the Performance Diagnostic Checklist—Human Services |
| Funding ID: | Name: Community Living Opportunities, Grant Office ID: 00066769, Funding Source ID: 22597 |
| REVIEW INFORMATION | |
| Review Type: | Initial Study |
| Review Date: | 12/20/2021 |
| Documents Reviewed: | • KU_GoodLife Contract - signed_AY2020.pdf,<br>• PDC HRPP_ updated_12.15.21.docx,<br>• Waiver of Consent Process_12.15.21.docx |
| Expedited Category(ies): | • (5) Data, documents, records, or specimens |
| Special Determinations: | • Waiver/alteration of the consent process |
| Additional Information: | |

**KEY PROCEDURES AND GUIDELINES**. Consult our website for additional information.

1. **Approved Consent Form:** You must use the final, watermarked version of the consent form, available under the "Documents" tab, "Final" column, in eCompliance. Participants must be given a copy of the form.
2. **Continuing Review and Study Closure:** Submit a Continuing Review request and required attachments at least 4 weeks in advance of the expiration date. If Continuing Review is not approved before , the study approval will expire on that date and all human subjects research activities must stop. Please close your study to IRB oversight once your study meets the first 4 milestones, as outlined in the Closing a Study guidance.
3. **Modifications:** Prior to making any significant changes to the project, a Modification request must be submitted *and* approved.
4. **Add Study Team Member:** Complete a study team modification if you need to add investigators not named in original application. Note that new investigators must take the online tutorial prior to being approved to work on the project.

Human Research Protection Program
Youngberg Hall | 2385 Irving Hill Rd | Lawrence, KS 66045 | (785) 864-7429 | research.ku.edu/hrpp

## Appendix B

PDC-HS

**PDC-HS** *Performance Diagnostic Checklist – Human Services*

Employee's Name: _____ Interviewer: _____ Date: _____

Describe Performance Concern:

_____

**Instructions:** Answer the questions below about the employee's specific performance problem (not the employee in general). The problem should be operationalized as either a behavioral excess or deficit. Items with an asterisk (*) should be answered only after the information is verified through direct observation.

### TRAINING

| | | |
|---|---|---|
| 1 | ❍ Yes ❍ No | Has the employee received formal training on this task? If yes, check all applicable training methods: ❍ Instructions ❍ Demonstration ❍ Rehearsal |
| 2* | ❍ Yes ❍ No | Can the employee accurately describe the target task and when it should be performed?* |
| 3 | ❍ Yes ❍ No | Is there evidence that the employee has accurately completed the task in the past? |
| 4* | ❍ Yes ❍ No ❍ N/A | If the task needs to be completed quickly, can the employee perform it at the appropriate speed?* |

### TASK CLARIFICATION & PROMPTING

| | | |
|---|---|---|
| 1 | ❍ Yes ❍ No | Has the employee been informed that he/she is expected to perform the task? |
| 2* | ❍ Yes ❍ No | Can the employee state the purpose of the task? |
| 3* | ❍ Yes ❍ No | Is a job aid (e.g., a checklist, data sheet) for completing the task visibly located in the task area? |
| 4 | ❍ Yes ❍ No | Is the employee ever verbally, textually, or electronically reminded to complete the task? |
| 5 | ❍ Yes ❍ No | Is the task being performed in an environment well-suited for task completion (e.g., not noisy or crowded)? |

### RESOURCES, MATERIALS, & PROCESSES

| | | |
|---|---|---|
| 1 | ❍ Yes ❍ No | Are there sufficient numbers of trained staff available in the program? |
| 2* | ❍ Yes ❍ No ❍ N/A | If materials (e.g., teaching stimuli, preferred items) are required for task completion, are they readily available (e.g., easy to find, nearby)? If no materials are required, proceed to question 5.<br><br>List materials below and indicate their availability.<br><br>Item 1: _____ Item 2: _____<br>Item 3: _____ Item 4: _____ |

| | | |
|---|---|---|
| 3* | ❍ Yes ❍ No ❍ N/A | Are the materials necessary to complete the task well designed for their intended purpose? |
| 4* | ❍ Yes ❍ No ❍ N/A | Are the materials necessary to complete the task well organized for their intended purpose? |
| 5 | ❍ Yes ❍ No | Is performance suffering from other tasks not being completed first? If so, indicate those tasks below.<br><br>Task 1: _____ Task 2: _____<br>Task 3: _____ Task 4: _____ |
| 6 | ❍ Yes ❍ No ❍ N/A | If you answered YES for Question 5, are other employees responsible for completing any of the earlier tasks in the process? If so, indicate the employee(s) below.<br><br>Task 1: _____ Task 2: _____<br>Task 3: _____ Task 4: _____ |

## PERFORMANCE CONSEQUENCES, EFFORT, & COMPETETION

| | | |
|---|---|---|
| 1 | ❍ Yes ❍ No | Is the employee ever directly monitored by a supervisor? If so, indicate the frequency of monitoring.<br><br>❍ hourly ❍ daily ❍ weekly ❍ monthly ❍ Other: _____ |
| 2 | ❍ Yes ❍ No | Does the employee ever receive feedback about the performance? If yes, indicate below.<br><br>By whom? _____ How often? _____<br>Delay from task? _____<br><br>Check all that apply:<br>Feedback Focus: ❍ Positive ❍ Corrective<br>Feedback Type: ❍ Written ❍ Verbal ❍ Graphed ❍ Other:<br>_____ |
| 3 | ❍ Yes ❍ No | Does the employee ever see the effects of accurate task completion? If yes, how?<br>_____ |
| 4 | ❍ Yes ❍ No | Is the task particularly effortful or difficult? |
| 5 | ❍ Yes ❍ No | Do other tasks appear to take precedence over the target task? If yes, indicate these tasks below.<br><br>Task 1: _____ Task 2: _____<br>Task 3: _____ Task 4: _____ |

## Appendix C

Healthy Behavioral Practices Role Play Script

"Thank you for your involvement in this activity! Today we are going to be doing a follow up role-play to the healthy behavioral practices interviews you already completed with us. Today we are going to have you demonstrate, to the best of your ability, each healthy behavioral practice and their respective components. This includes providing consumers with positive interactions, delivering effective instructions, promoting consumer activity engagement, and appropriate responding to problem behavior."

**Positive Interactions.** "First, we will be role playing positive interactions. I will play the role of a consumer, and you will play the role of yourself as a staff member. During this time, you should engage in positive interactions as you have been trained to the best of your ability."

During this role play, the confederate consumer will not initiate interactions; however, if the staff initiates a positive interaction, the confederate should engage in reciprocal interactions. If the staff does not interact with the confederate, the confederate should sit quietly and engage with the available item. The session will last until the staff engages in (or attempts to engage in) a positive interaction, approximately 30 seconds has elapsed with no response from the staff person, or the staff person says they are done demonstrating positive interactions.

**Effective Instructions.** "Now, we will role play effective instructions. I will be the consumer and you will act as yourself as a staff member. During this role play, you will deliver effective instructions as you have been trained. Specifically, I want you to deliver effective instructions to get me to… (confederate consumer will pick a simple instruction (e.g., "open this water bottle").

During this role play, the confederate will not initially comply with the instruction such that follow through prompting may be assessed. Instead, they will wait until prompted and then comply with any follow up prompt. The session will last until the staff engages in (or attempts) a follow through prompt, approximately 30 seconds has elapsed with no additional response from the staff person, or the staff person says they are done demonstrating effective instructions.

**Activity Engagement.** "Now, we will role play activity engagement. I will be the consumer and you will act as yourself as a staff member. During this role play, you will show me what you would to promote activity engagement, as you have been trained, if I were sitting here with nothing to do."

During this role play, the confederate will begin the session by not engaging in any activities (e.g., looking around, tapping table). If the staff provides the confederate with a choice of activities to engage with, the confederate will select and item engage with the activity. However, if not, the confederate will refrain from engaging with any available items or conversing with the staff. The session will last until the staff provides a choice (or attempts) or items for activity engagement, approximately 30 seconds has elapsed with no response from the staff person, or the staff person says they are done demonstrating activity engagement.

**Responding to Problem Behavior.** "For the final part of our activity, we will be role-playing the basics for responding to problem behavior. I will be the consumer and you will act as yourself as a staff member. During this role play, I will pretend to engage in problem behavior. Respond to my behavior based on what you have been trained regarding how to respond to problem behavior."

During this role play, the confederate will start the trial by engaging in minor problem behavior (e.g., inappropriate verbal behavior, hitting the table, flicking the lights). The

confederate will allow the staff person 10-20 s to respond to the minor problem behavior (e.g., redirect to ongoing activity, not comment on behavior). If the staff redirects the confederate, the confederate should briefly stop engaging in problem behavior. Following a few seconds of no problem behavior OR following 10-20 s of the staff not responding to the minor problem behavior, the confederate will escalate to a more severe problem behavior (e.g., self-injury, physical aggression). The confederate should engage in the severe problem behavior for 10-20 s and then stop engaging in the behavior, regardless of staff responding. The session should last at least 15 s after the confederate stops engaging in severe problem behavior to allow for the staff member to withhold attention and then redirect the confederate to the alternative activity. The session will last until the staff person redirects the confederate following severe problem behavior, 30 s elapses after the confederate engages in severe problem behavior with no additional responding from the staff, or the staff person says they are all done demonstrating responding to problem behavior.

# Appendix D

## HBP Competency Check

| | |
|---|---|
| Home/Program: | Observer: |
| Staff Observed: | Session Number and Phase: |
| Date/Time: | Observation Duration: |

**Provide Positive Interactions**

| | | |
|---|---|---|
| Staff interactions included eye contact and pleasant facial expression (smiling and nodding). | Always Sometimes Never N/A | Comments: |
| Staff provided a positive interaction (compliment, greeting, expression of care, conversation, appropriate physical interaction, descriptive praise) at least once every 5 minutes to consumers present. | Always Sometimes Never N/A | Comments: |

| Consumer | 1 | | 2 | | 3 | | 4 | |
|---|---|---|---|---|---|---|---|---|
| Tally of interactions per 5 min | | | | | | | | |

**Promote Consumer Engagement (if not applicable during your observation period, write in comment box)**

| | | |
|---|---|---|
| A variety of high-quality items/activities (i.e., in good condition and preferred by consumers) in common areas and easily accessible by consumers. | Always Sometimes Never | Comments: |
| All consumers appropriately engaged (i.e., attending to/looking at item/activity or manipulating object/material in way intended). | Always Sometimes Never | Comments: |
| When consumers not engaged, staff attempted to get them engaged by prompting engagement or providing choices of available activities. | Always Sometimes Never N/A | Comments: |

**Provide Effective Instructions/Requests (if not instructions were delivered during your observation period, write in comments box)**

| | | |
|---|---|---|
| Instructions provided w/ pleasant voice tone & facial expression. | Always Sometimes Never N/A | Comments: |
| Instructions were simple and clear. | Always Sometimes Never N/A | Comments: |
| Instructions provided using DO rather than DON'T requests. | Always Sometimes Never N/A | Comments: |
| Staff used TELL/SHOW (i.e., modeled/prompted completing task if consumer not comply with initial instruction) and provided help to complete difficult tasks. | Always Sometimes Never N/A | Comments: |
| **Number of instructions delivered during observation:** | | |

**Good Practices Following Problem Behavior (if no problem behavior occurred during your observation period, write in comments box)**

| | | |
|---|---|---|
| Staff refrained from commenting on minor disruptive behavior (IVB and other behavior that could not cause harm to self, others, property) AND severe problem behavior (behavior that could cause harm to self, others, property [SIB, AGG, PD, and SIB]). | Always Sometimes Never N/A | Comments: |
| Staff refrained from delivering attention (except physical procedures to ensure safety) | Always Sometimes Never N/A | Comments: |

| | | |
|---|---|---|
| and preferred items/activities following severe problem behavior (i.e., until at least 10 s without severe problem behavior). | | |

| | | | |
|---|---|---|---|
| Was the schedule followed for any portion of the pre-observation (i.e., one minute prior to starting session)? | Y N | Was the schedule followed for any portion of the post observation (i.e., one minute following the session)? | Y N |

| **Step** | **Implementation Guidelines** |
|---|---|
| Call participant as soon as possible after observation | Notify the participant that you conducted a HBP competency check and would like to review their feedback. |
| Review each competency check item with staff person. | |
| Provide praise for staff's checklist behaviors that occurred ALWAYS. | Use behavior-specific praise. Provide examples of particularly excellent implementation of the checklist item. Be authentic and sincere.<br><br>*"You did an amazing job in providing positive interactions to all of the consumers at least once every 5 min. I particularly liked when you provided Johnny with a high-five….he really seemed to like that interaction."* |
| Provide praise for instances in which staff's checklist behaviors occurred SOMETIMES and provide corrective feedback on situations in which they could improve. | 1. Use behaviors-specific praise for correct instances of checklist item. Provide examples of particularly excellent examples of when they implemented the checklist item. Be authentic and sincere.<br>2. Corrective feedback can be respectfully delivered. Use a supportive tone.<br><br>"I noticed that you sometimes delivered instructions using DO requests---I particularly liked it when you asked Johnny to "please pick up his plate and bring it to the kitchen. There were a few times when you told Johnny not to do something rather than telling him what it is that you want him to do." |
| Provide corrective feedback on checklist behaviors that occurred NEVER and describe how staff can improve on this item in the future. | Corrective feedback can be respectfully delivered. Use a supportive tone of voice.<br><br>*"I noticed you commented on Steve's disruptive behavior by pointing out why his reaction was annoying. Next time avoid these types of comments. It is okay to redirect to another activity, but don't comment on the disruptive behavior."* |
| Solicit questions and clarify any ambiguities. | |

| **Questions to ask participant following feedback** | | | |
|---|---|---|---|
| Did staff answer the phone and receive feedback? | Y | N | comments: |
| Is the job aid posted in an accessible area for staff? | Y | N | comments: |
| Are HBP handouts available? | Y | N | comments: |
| Is the house schedule posted in an accessible area? | Y | N | comments: |
| Was the house schedule reviewed with staff this morning? | Y | N | comments: |

## Appendix E

Staff Consent Form

Staff Permission to Participate in:
Assessing and Enhancing the Maintenance and Generalization of Staff Implementation of Healthy Behavioral Practices via Telehealth

**INFORMED CONSENT**

Key information

- The purpose of this project is to determine barriers for staff implementation of Healthy Behavioral Practices and evaluate an intervention based on these practices to increase staff ability to implement these practices with high fidelity (see more information below).
- Your participation in this research project is completely voluntary. That is, although the procedures will be implemented as part of your employment, it is voluntary as to whether you provide informed consent for your data to be used for publication or presentation purposes.
- Your participation for the assessment interview and training will take approximately 1-2 hours. Your participation for observations will part of your ongoing work in the homes and will be done remotely via iLink for approximately three months.
- You will be involved in answering questions within the context of an interview to determine the barriers to implementing Healthy Behavioral Practices. Further, managers will be asked to participate in a remote schedule building workshop (one hour) and all members of the house staff (i.e., managers and direct support staff) will be asked to participate in an approximately one-hour remote Healthy Behavioral Practices booster training. More detailed information on the procedures can be found below.
- There are no risks for participating in this study.
- Information you provide within the context of the interview will help us determine effective assessment and intervention approaches to addressing barriers for implementing Healthy Behavioral Practices in the home.
- Your alternative to participating is this study (i.e., your data being used for publication/presentation purposes) is not to participate. However, regardless of whether you provide informed consent for your data to be used for publication/presentation purposes, you will experience the procedures outlined in this document as part of your ongoing professional development at GoodLife.
- Your employment will not be affected if you decide not to participate or withdraw from the study at any time. Thus, you will not be allowing your data to be used for publication/presentation purposes.

*The Department of Applied Behavioral Sciences at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You may refuse to sign this form and not participate in this study. You should be aware that even if you agree to participate, you are free to withdraw at any time. If you do withdraw from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Kansas.*

Purpose

The goal of this study is to (a) identify the barriers to staff's implementation of Healthy Behavioral Practices (HBP) in the group home environment and (b) assess the efficacy and feasibility of an intervention package derived from the results of a Performance Diagnostic Checklist—Human Services (PDC-HS) interview for increasing implementation of HBP across the day.

Procedures

At the beginning of this study, we will conduct PDC-HS interviews with staff and managers and use the results to identify barriers for the implementation of HBP across the day. Results from our initial PDC-HS interviews revealed that various tasks across the day impeded staffs implementation of the four HBP skills or took precedent over the implementation of the skills; thus, we will be implementing a treatment package consisting

of a remote schedule building workshop (for managers to attend) to create a schedule for homes to ensure all tasks, including the implementation of HBP, are completed each day. Additionally, we will conduct a remote HBP booster training will all staff and managers in the home to review the new home schedule (created in the schedule building workshop), review HBP (with an opportunity to see the skills modeled by the presented) and discuss how HBP can be implemented in conjunction with other tasks across the day. Following the implementation of the treatment package, observations of staffs implementation of HBP in the natural environment will take place. Experimenters will conduct observations via iLink (secure remote video software) and will call the house to provide feedback on your performance immediately following the observation. A summary of the observation will also be shared with the home manager. Again, these procedures are part of our ongoing consultation with GoodLife; however, this informed consent is for you to provide consent for the use of your data for publication and presentation purposes.

COVID-19 PROCEDURES

All assessments, training, and observations will occur remotely, so there are no risks to you or others by being involved in this study.

Alternatives to Participation
I can choose not to participate in this study.

Risks
There are no risks associated with my participation in this study (i.e., providing consent for my data to be used for publication/presentation purposes).

Benefits
The current intervention addresses barriers to staff implementation of four important skills (HBP) included in your job responsibilities which will aid in working with consumers, building rapport, creating a therapeutic environment, effectively delivering and following-through with instructions, reinforcing appropriate client behavior, and refraining from reinforcing client-problem behavior. These benefits may aid in increasing consumer on-task behavior and decreasing off-task and problem behavior, thus increasing opportunities for learning and inclusion in the community.

Payment to participants
No payment will be made to you for participation in this study.

Information to be collected
Information will be collected during interviews, the schedule building workshop, and during observations as listed in the Procedures section of this consent form.

All research related records and information from this study will be kept confidential. Research results will only be presented to others outside of the organization using participant number or alias. A summary of results (i.e., staffs implementation of HBP) will be shared with home management following post-training observations. Be assured that your name will not be associated with the research findings in any way. Permission granted on this date to use and disclose your information remains in effect indefinitely. By signing this form, you give permission for the use and disclosure of your information, excluding your name, for purposes of this study at any time in the future. The information collected from your interview will be used by Nicole Kanaman, members of the research team, and KU's Center for Research and officials of KU that oversee research, including committees and offices that review and monitor research activities.

The researchers will not share information about you with anyone not specified above unless (a) it is required by law or university policy or (b) you give written permission.

Consent refusal and withdrawal of consent
You are not required to sign this consent form and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or to participate in any programs or events of the University of Kansas. If you refuse to sign, your data will not be included for publication and presentation purposes.

Cancelling this consent and authorization
You may withdraw your consent at any point in time for this study. You also have the right to cancel your permission to use and disclose information collected from you, in writing, at any time, by sending your written request to: Nicole A. Kanaman (see address below). If you cancel permission to use your information, the researchers will not use your data from that point on for publication/presentation purposes. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

Questions about participation
I have read the information in this form. I know if I have any more questions after signing this from, I should contact Nicole Kanaman at (512) 788-4378 or the faculty supervisor for this project, Dr. Claudia Dozier, at (785) 864-0526. If I have any questions about my rights as a research participant, I may call (785) 864-7429 or write the Human Research Protection Program, University of Kansas, Youngberg Hall, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563, email irb@ku.edu.

Participant certification
The investigator gave me information about what will be done in this research study. They also told me how it will be done, what I will have to do, and how long the research will take. The investigators told me about any inconvenience, discomfort, or risks I might experience due to this research. I agree to take part in this study. I am aware that I may quit or refuse any part of the research study at any time. I know that if I have any more questions after signing this form, I may contact the investigator directly or the Human Research and Protection Program listed above.

Nicole A. Kanaman, M.A., BCBA, LBA-KS
Principal Investigator
Doctoral Student
Applied Behavioral Sciences
University of Kansas
Dole Building
Lawrence, KS 66045
(512) 788-4378

Claudia L. Dozier, Ph.D., BCBA-D, LBA-KS
Faculty Supervisor
Professor
Applied Behavioral Science Department
University of Kansas
4043 Dole Building
Lawrence, KS 66045
(785) 864-0526

_____
Print Participants Staff Name


KU Lawrence IRB # STUDY00148211 | Approval Period 2/3/2022

_____ _____

Participant Staff Signature Date

"With my signature I acknowledge that I am over the age of eighteen, and I have received a copy of this consent form to keep."

_____ _____

Investigator's Signature Date


KU Lawrence IRB # STUDY00148211 | Approval Period 2/3/2022

**Appendix F**

Group Home Schedule Builder

Home:
Manager:
# of staff required each day:

<table>
<tr><td colspan="4">List all regularly scheduled tasks to be completed in the home</td></tr>
<tr><td rowspan="3">Daily tasks</td><td rowspan="2">Day staff tasks</td><td>Can occur any time</td><td>Must occur at a specific time</td><td>Specific time</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Night staff tasks</td><td colspan="3"></td></tr>
</table>

| Daily Schedule | | | | |
|---|---|---|---|---|
| Time | Staff A: | Staff B: | Staff C: | Staff D: |
| 7:00-7:15 | | | | |
| 7:15-7:30 | | | | |
| 7:30-7:45 | | | | |
| 7:45-8:00 | | | | |
| 8:00-8:15 | | | | |
| 8:15-8:30 | | | | |
| 8:30-8:45 | | | | |
| 8:45-9:00 | | | | |
| 9:00-9:15 | | | | |
| 9:15-9:30 | | | | |
| 9:30-9:45 | | | | |
| 9:45-10:00 | | | | |
| 10:00-10:15 | | | | |
| 10:15-10:30 | | | | |
| 10:30-10:45 | | | | |
| 10:45-11:00 | | | | |
| 11:00-11:15 | | | | |
| 11:15-11:30 | | | | |
| 11:30-11:45 | | | | |
| 11:45-12:00 | | | | |
| 12:00-12:15 | | | | |
| 12:15-1:00 | | | | |
| 1:00-1:15 | | | | |
| 1:15-2:00 | | | | |
| 2:00-2:15 | | | | |
| 2:15-3:00 | | | | |
| 3:00-3:15 | | | | |
| 3:15-3:30 | | | | |
| 3:30-3:45 | | | | |
| 3:45-4:00 | | | | |
| 4:00-4:15 | | | | |
| 4:15-4:30 | | | | |
| 4:30-4:45 | | | | |
| 4:45-5:00 | | | | |
| 5:00-5:15 | | | | |
| 5:15-5:30 | | | | |
| 5:30-5:45 | | | | |
| 5:45-6:00 | | | | |
| 6:00-6:15 | | | | |
| 6:15-6:30 | | | | |
| 6:30-6:45 | | | | |
| 6:45-7:00 | | | | |
| 7:00-7:15 | | | | |
| 7:15-7:30 | | | | |
| 7:30-7:45 | | | | |
| 7:45-8:00 | | | | |

**Appendix G**

Group Home Schedule Builder: Example

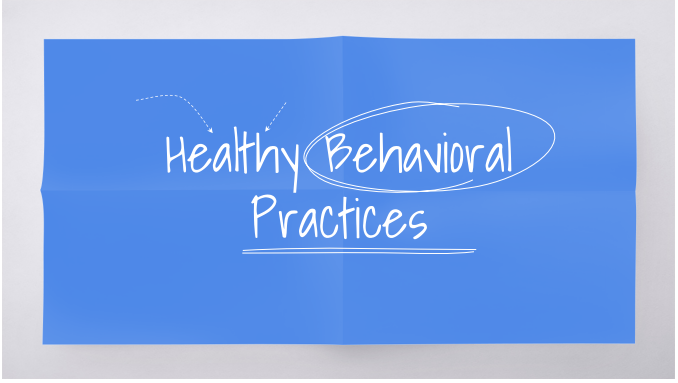
Home: Example home
Manager: Example manager
# of staff required each day: 2

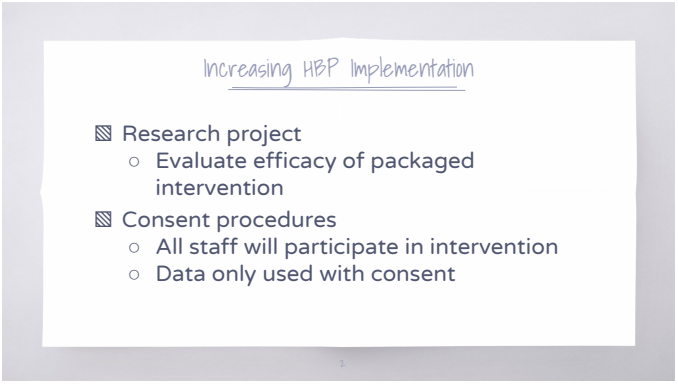
<table>
<tr><td colspan="4">List all regularly scheduled tasks to be completed in the home</td></tr>
<tr><td rowspan="2">Daily tasks</td><td rowspan="1">Day staff tasks</td><td>Can occur any time</td><td>Must occur at a specific time Specific time</td></tr>
<tr><td></td><td>• Select activities for the next day<br>• Consumer B shower<br>• Consumer C shower</td><td>• Consumer A medication – 9 am<br>• Consumer B medication – 9:30 am; 2 pm; 5 pm<br>• Consumer C medication – 5 pm<br>• Consumer D medication – 9 am; 5 pm<br>• Consumer A shower (prefers morning)<br>• Breakfast – 8 am<br>• Lunch – 12 pm<br>• Dinner – 6 pm<br>• Leave house at 10 am for day center (10:30 am – 33:30 pm)</td></tr>
<tr><td>Night staff tasks</td><td colspan="2">• Laundry (one consumer each day)<br>• Make sack lunches for next day</td></tr>
</table>

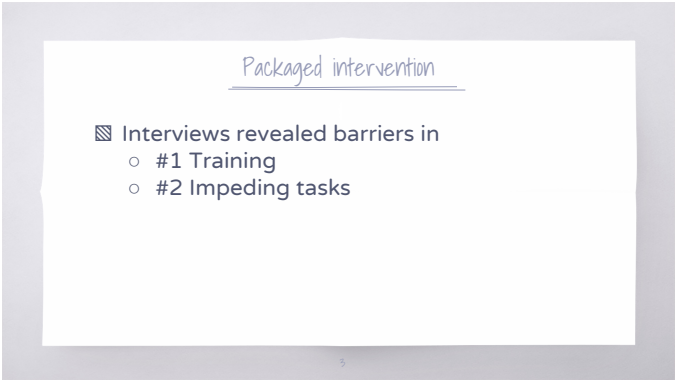
| Time | Staff A: med certified staff; Lena | Staff B: Nick |
|---|---|---|
| 7:00-7:15 | Cook breakfast and engage with consumers who are waiting for their ADL routine or who have finished their routine | ADLS:<br>Assist with consumer B and C morning routine<br>Assist Consumer A with shower and morning routine |
| 7:15-7:30 | | |
| 7:30-7:45 | | |
| 7:45-8:00 | | |
| 8:00-8:15 | Breakfast: assist with serving and sit with consumers while they eat and prompt cleaning up when they finish | Breakfast: sit with consumers as they eat. As consumers finish eating, prompt engagement |
| 8:15-8:30 | | |
| 8:30-8:45 | | |
| 8:45-9:00 | Prep morning medications | Prompt engagement while consumers are receiving medication. If anyone still needs to get dressed for center, provide assistance |
| 9:00-9:15 | Pass medication for consumer A and D | |
| 9:15-9:30 | | |
| 9:30-9:45 | Pass med for consumer B | |
| 9:45-10:00 | Pack sack lunches, activities, and prep van | Assist with getting ready for van ride |
| 10:00-10:15 | Drive to center | |
| 10:15-10:30 | | |
| 10:30-10:45 | Weekdays: Day center and day center activities<br>Weekends: weekend outing (see activity calendar for schedule activity) | |
| 10:45-11:00 | | |
| 11:00-11:15 | | |
| 11:15-11:30 | | |
| 11:30-11:45 | | |
| 11:45-12:00 | | |
| 12:00-12:15 | | |
| 12:15-1:00 | | |
| 1:00-1:15 | | |
| 1:15-2:00 | | |
| 2:00-2:15 | | |
| 2:15-3:00 | | |
| 3:00-3:15 | | |
| 3:15-3:30 | | |
| 3:30-3:45 | Prompt home leisure activities and engage with consumers | Complete household chores as needed for the day—if no chores, prompt home leisure activities and engage with consumers |
| 3:45-4:00 | | |
| 4:00-4:15 | | |
| 4:15-4:30 | | |
| 4:30-4:45 | Prep medications | Prompt engagement while consumers are receiving medication |
| 4:45-5:00 | | |
| 5:00-5:15 | Pass medication for all consumers | |
| 5:15-5:30 | | |
| 5:30-5:45 | Engage with consumers not assisting with dinner | Cook dinner |
| 5:45-6:00 | | |
| 6:00-6:15 | Dinner: sit with consumers as they eat. As consumers finish eating, prompt engagement | Dinner: assist with serving and sit with consumers while they eat and prompt cleaning up when they finish |
| 6:15-6:30 | | |
| 6:30-6:45 | | |
| 6:45-7:00 | Night ADLs:<br>Assist consumer B and C with showers<br>Assist all consumers get ready for bed | Clean up common areas (e.g., dinner mess) and engage with consumers who are waiting for their ADL routine or who have finished their routine |
| 7:00-7:15 | | |
| 7:15-7:30 | | |
| 7:30-7:45 | | |
| 7:45-8:00 | | |

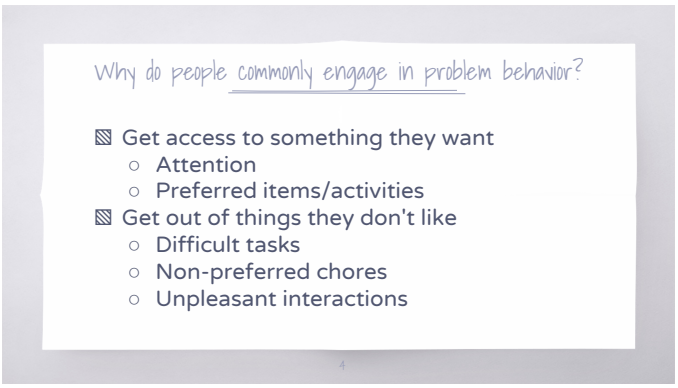
## Appendix H

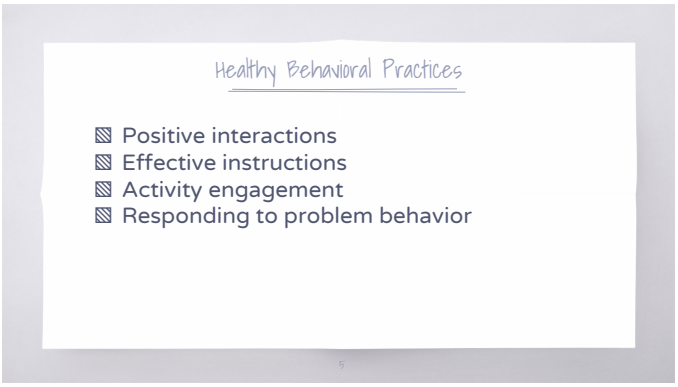
Healthy Behavioral Practices PowerPoint



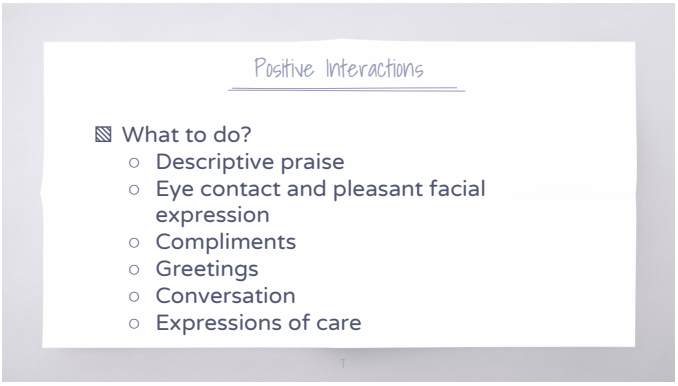



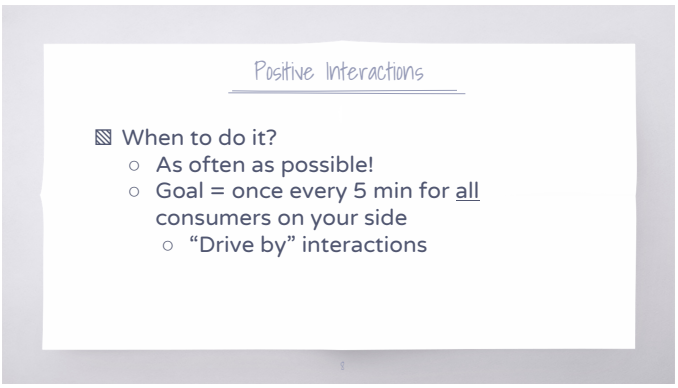




Why do people commonly engage in problem behavior?
Get access to something they want
Attention
Preferred items/activities
Get out of things they don't like
Difficult tasks
Non-preferred chores
Unpleasant interactions
4

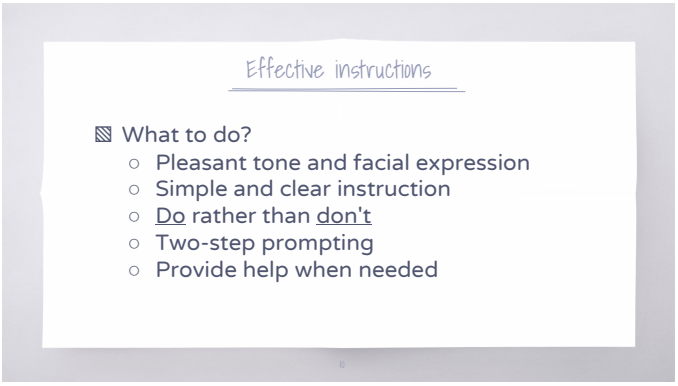

Healthy Behavioral Practices
Positive interactions
Effective instructions
Activity engagement
Responding to problem behavior
5


Positive Interactions
Promote healthy relationships, increase appropriate behaviors, decrease problem behavior
6


Positive Interactions
What to do?
Descriptive praise
Eye contact and pleasant facial expression
Compliments
Greetings
Conversation
Expressions of care
7

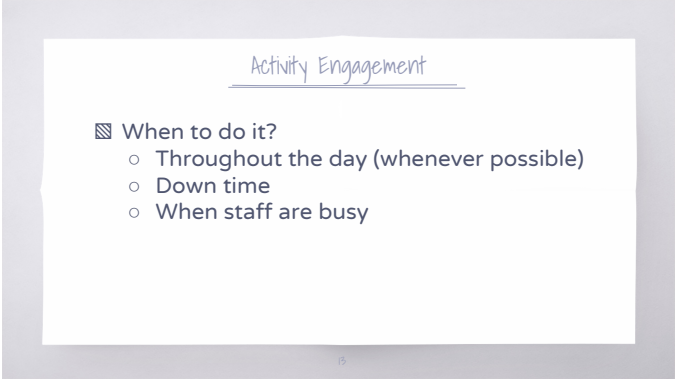

Positive Interactions
When to do it?
As often as possible!
Goal = once every 5 min for all consumers on your side
"Drive by" interactions


Effective Instructions
Decrease difficulty of task, increase compliance, decrease problem behavior during demands

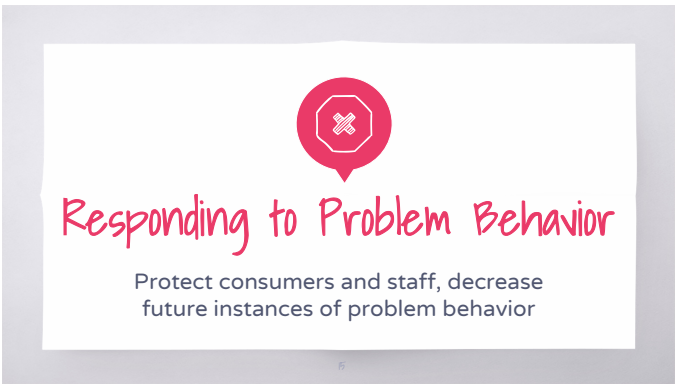

Effective instructions
What to do?
Pleasant tone and facial expression
Simple and clear instruction
Do rather than don't
Two-step prompting
Provide help when needed

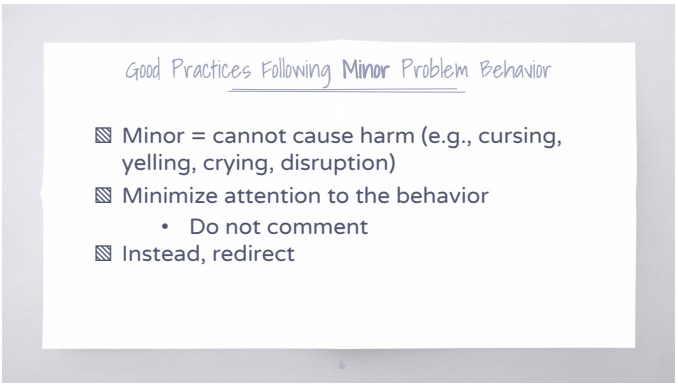

Do rather than don't
"Stop running"
"Don't touch that"
"Quit yelling"
"You shouldn't hit yourself"
"Walk"
"Come hold this"
"How can I help you?"
*protect consumer, withhold attention 10 s* "lets find something fun to do"

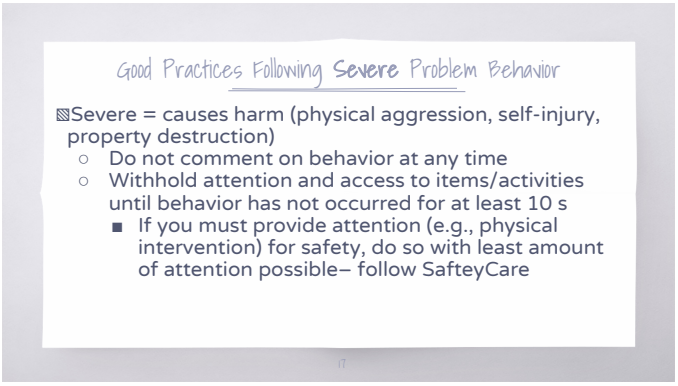

Activity Engagement
Promote health relationships, decrease problem behavior


Activity Engagement
When to do it?
Throughout the day (whenever possible)
Down time
When staff are busy


Activity Engagement
What to do?
Ensure consumers always have access to things they like and are engaged
Provide consumers choices of things to do

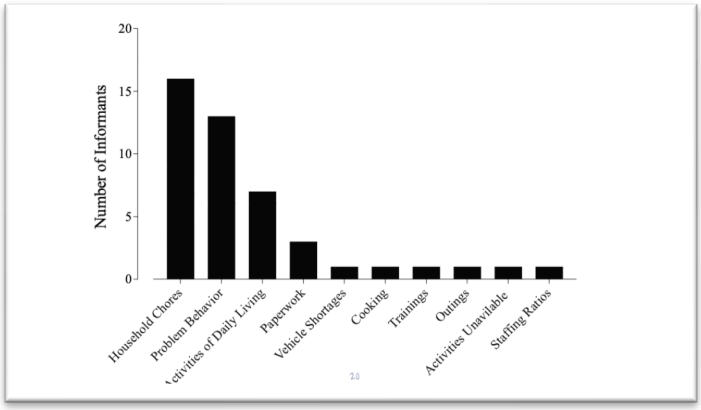

Responding to Problem Behavior
Protect consumers and staff, decrease future instances of problem behavior

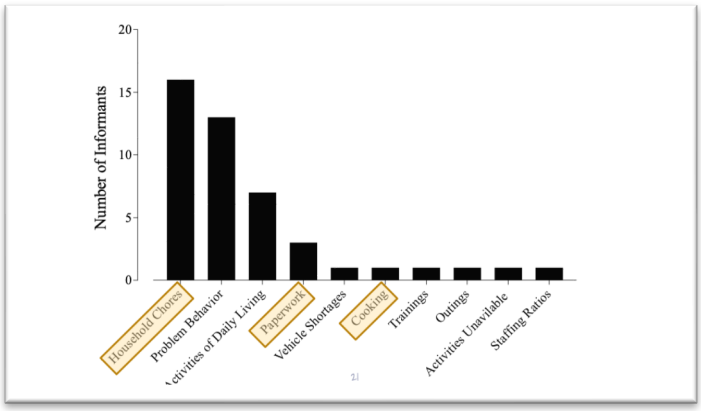

Good Practices Following Minor Problem Behavior
Minor = cannot cause harm (e.g., cursing, yelling, crying, disruption)
Minimize attention to the behavior
Do not comment
Instead, redirect

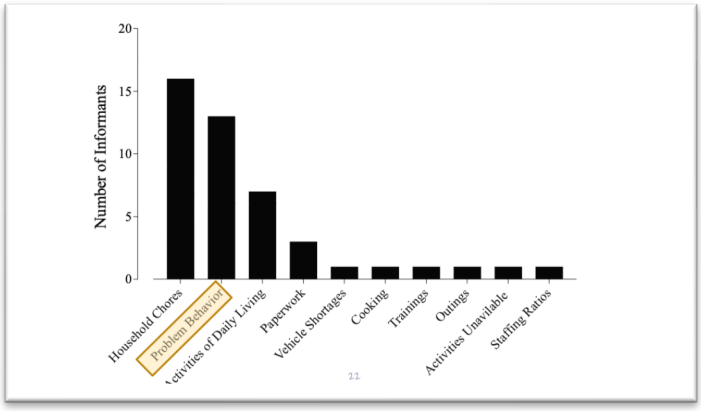

Good Practices Following Severe Problem Behavior
Severe = causes harm (physical aggression, self-injury, property destruction)
Do not comment on behavior at any time
Withhold attention and access to items/activities until behavior has not occurred for at least 10 s
If you must provide attention (e.g., physical intervention) for safety, do so with least amount of attention possible– follow SafteyCare

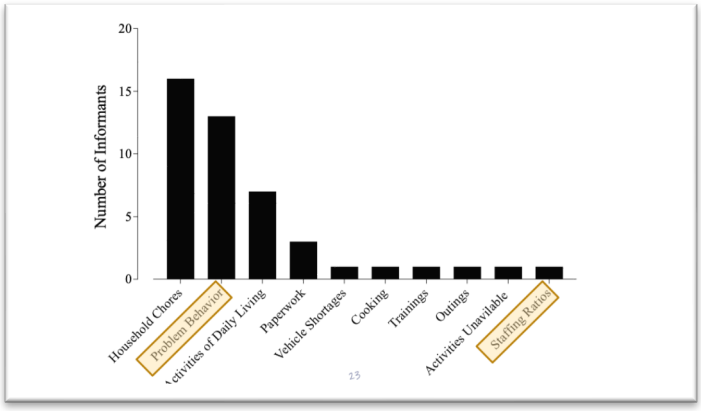

Healthy Behavioral Practices
Why are healthy behavioral practices important?
1. They help develop HEALTHY relationships
2. They decrease the motivation for PROBLEM BEHAVIOR
3. They increase APPROPRIATE BEHAVIOR
Positive Interactions
Greetings
Pleasant facial expressions
Appropriate physical interaction
Compliments
Conversation
Expressions of Care
Once every
5
MINUTES
Access To
Preferred Items & Activities
2
OR ACTIVITIES
FREE
Effective Instructions
USE
DO
REQUESTS
Responding to
PROBLEM BEHAVIOR
10
SECONDS
goodlife

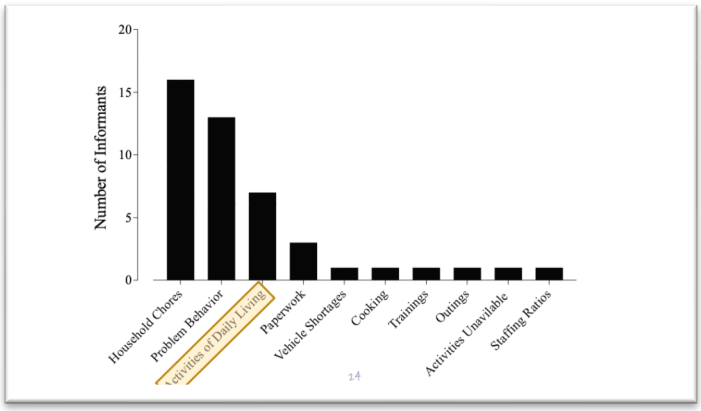

Barrier #2: Impeding Tasks

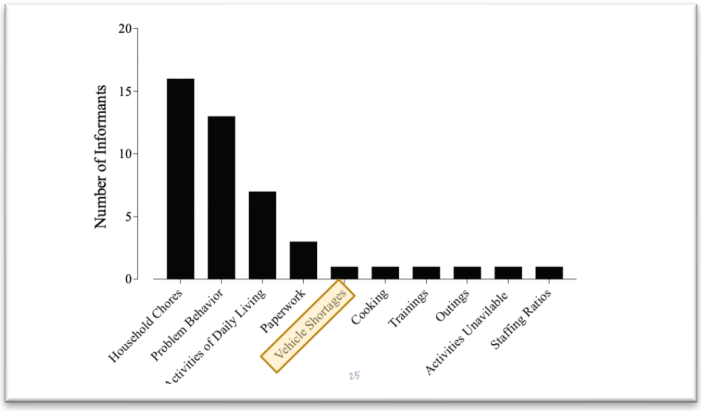

Number of Informants
20
15
10
5
0
Household Chores
Problem Behavior
Activities of Daily Living
Paperwork
Vehicle Shortages
Cooking
Trainings
Outings
Activities Unavailable
Staffing Ratios

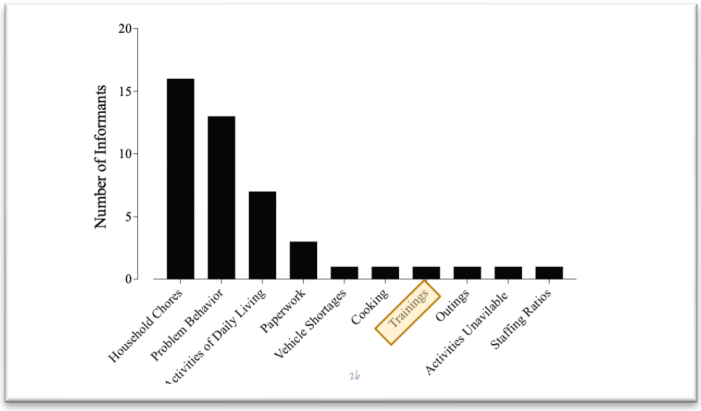

Number of Informants
20
15
10
5
0
Household Chores
Problem Behavior
Activities of Daily Living
Paperwork
Vehicle Shortages
Cooking
Trainings
Outings
Activities Unavailable
Staffing Ratios
21

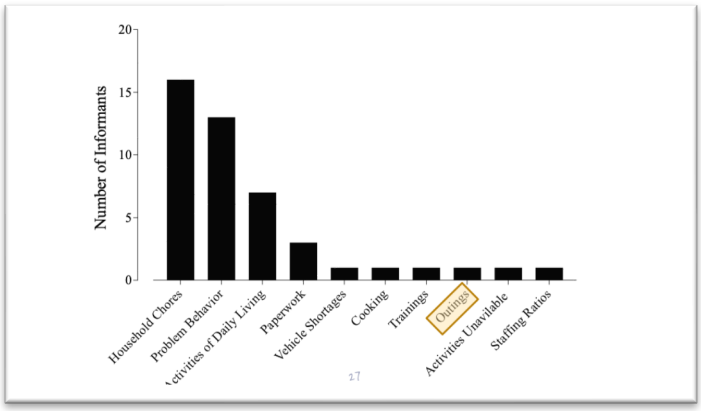

Number of Informants
20
15
10
5
0
Household Chores
Problem Behavior
Activities of Daily Living
Paperwork
Vehicle Shortages
Cooking
Trainings
Outings
Activities Unavailable
Staffing Ratios
22

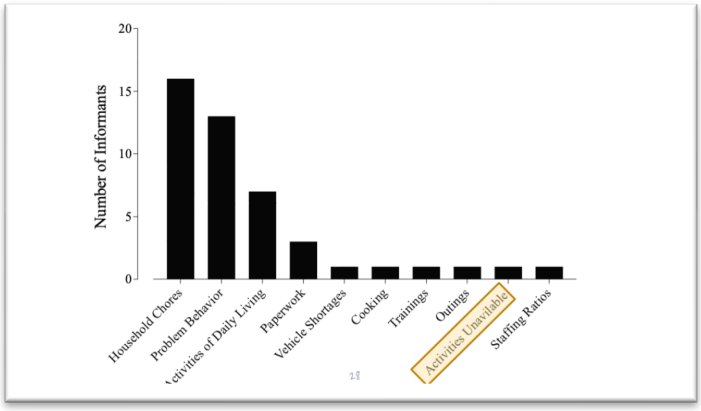

Number of Informants
20
15
10
5
0
Household Chores
Problem Behavior
Activities of Daily Living
Paperwork
Vehicle Shortages
Cooking
Trainings
Outings
Activities Unavailable
Staffing Ratios
23


Number of Informants
20
15
10
5
0
Household Chores
Problem Behavior
Activities of Daily Living
Paperwork
Vehicle Shortages
Cooking
Trainings
Outings
Activities Unavailable
Staffing Ratios
24

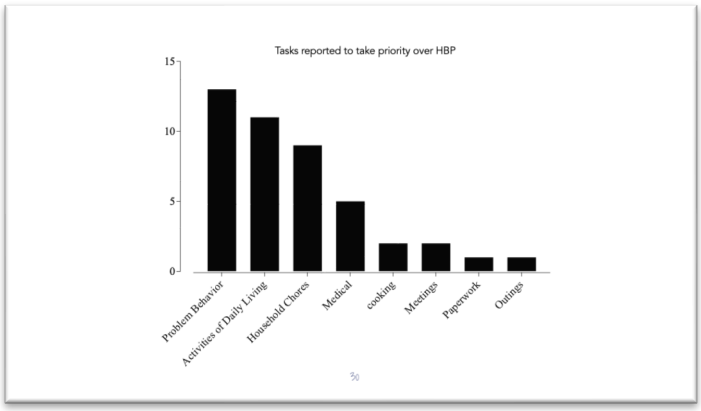

Number of Informants
20
15
10
5
0
Household Chores
Problem Behavior
Activities of Daily Living
Paperwork
Vehicle Shortages
Cooking
Trainings
Outings
Activities Unavailable
Staffing Ratios
25


Number of Informants
20
15
10
5
0
Household Chores
Problem Behavior
Activities of Daily Living
Paperwork
Vehicle Shortages
Cooking
Trainings
Outings
Activities Unavailable
Staffing Ratios
26


Number of Informants
20
15
10
5
0
Household Chores
Problem Behavior
Activities of Daily Living
Paperwork
Vehicle Shortages
Cooking
Trainings
Outings
Activities Unavailable
Staffing Ratios
27


Number of Informants
20
15
10
5
0
Household Chores
Problem Behavior
Activities of Daily Living
Paperwork
Vehicle Shortages
Cooking
Trainings
Outings
Activities Unavailable
Staffing Ratios
28


Task hierarchy
29

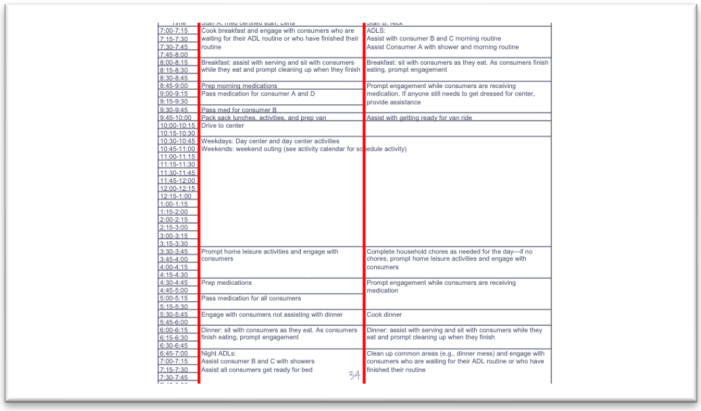

Tasks reported to take priority over HBP
15
10
5
0
Problem Behavior
Activities of Daily Living
Household Chores
Medical
cooking
Meetings
Paperwork
Outings
30


1. Ensure safety of consumers
2. Provide a preferred and therapeutic environment
Healthy behavioral practices
31


New Home Schedule
32

| | | |
|---|---|---|
| 7:00-7:15 | Cook breakfast and engage with consumers who are waiting for their ADL routine or who have finished their routine | ADLS:<br>Assist with consumer B and C morning routine<br>Assist Consumer A with shower and morning routine |
| 7:15-7:30 | | |
| 7:30-7:45 | | |
| 7:45-8:00 | | |
| 8:00-8:15 | Breakfast: assist with serving and sit with consumers while they eat and prompt cleaning up when they finish | Breakfast: sit with consumers as they eat. As consumers finish eating, prompt engagement |
| 8:15-8:30 | | |
| 8:30-8:45 | | |
| 8:45-9:00 | Prep morning medications | Prompt engagement while consumers are receiving medication. If anyone still needs to get dressed for center, provide assistance |
| 9:00-9:15 | Pass medication for consumer A and D | |
| 9:15-9:30 | | |
| 9:30-9:45 | Pass med for consumer B | |
| 9:45-10:00 | Pack sack lunches, activities, and prep van | Assist with getting ready for van ride |
| 10:00-10:15 | Drive to center | |
| 10:15-10:30 | | |
| 10:30-10:45 | Weekdays: Day center and day center activities<br>Weekends: weekend outing (see activity calendar for schedule activity) | |
| 10:45-11:00 | | |
| 11:00-11:15 | | |
| 11:15-11:30 | | |
| 11:30-11:45 | | |
| 11:45-12:00 | | |
| 12:00-12:15 | | |
| 12:15-1:00 | | |
| 1:00-1:15 | | |
| 1:15-2:00 | | |
| 2:00-2:15 | | |
| 2:15-3:00 | | |
| 3:00-3:15 | | |
| 3:15-3:30 | | |
| 3:30-3:45 | Prompt home leisure activities and engage with consumers | Complete household chores as needed for the day—if no chores, prompt home leisure activities and engage with consumers |
| 3:45-4:00 | | |
| 4:00-4:15 | | |
| 4:15-4:30 | | |
| 4:30-4:45 | Prep medications | Prompt engagement while consumers are receiving medication |
| 4:45-5:00 | | |
| 5:00-5:15 | Pass medication for all consumers | |
| 5:15-5:30 | | |
| 5:30-5:45 | Engage with consumers not assisting with dinner | Cook dinner |
| 5:45-6:00 | | |
| 6:00-6:15 | Dinner: sit with consumers as they eat. As consumers finish eating, prompt engagement | Dinner: assist with serving and sit with consumers while they eat and prompt cleaning up when they finish |
| 6:15-6:30 | | |
| 6:30-6:45 | | |
| 6:45-7:00 | Night ADLs:<br>Assist consumer B and C with showers<br>Assist all consumers get ready for bed | Clean up common areas (e.g., dinner mess) and engage with consumers who are waiting for their ADL routine or who have finished their routine |
| 7:00-7:15 | | |
| 7:15-7:30 | | |
| 7:30-7:45 | | |

33

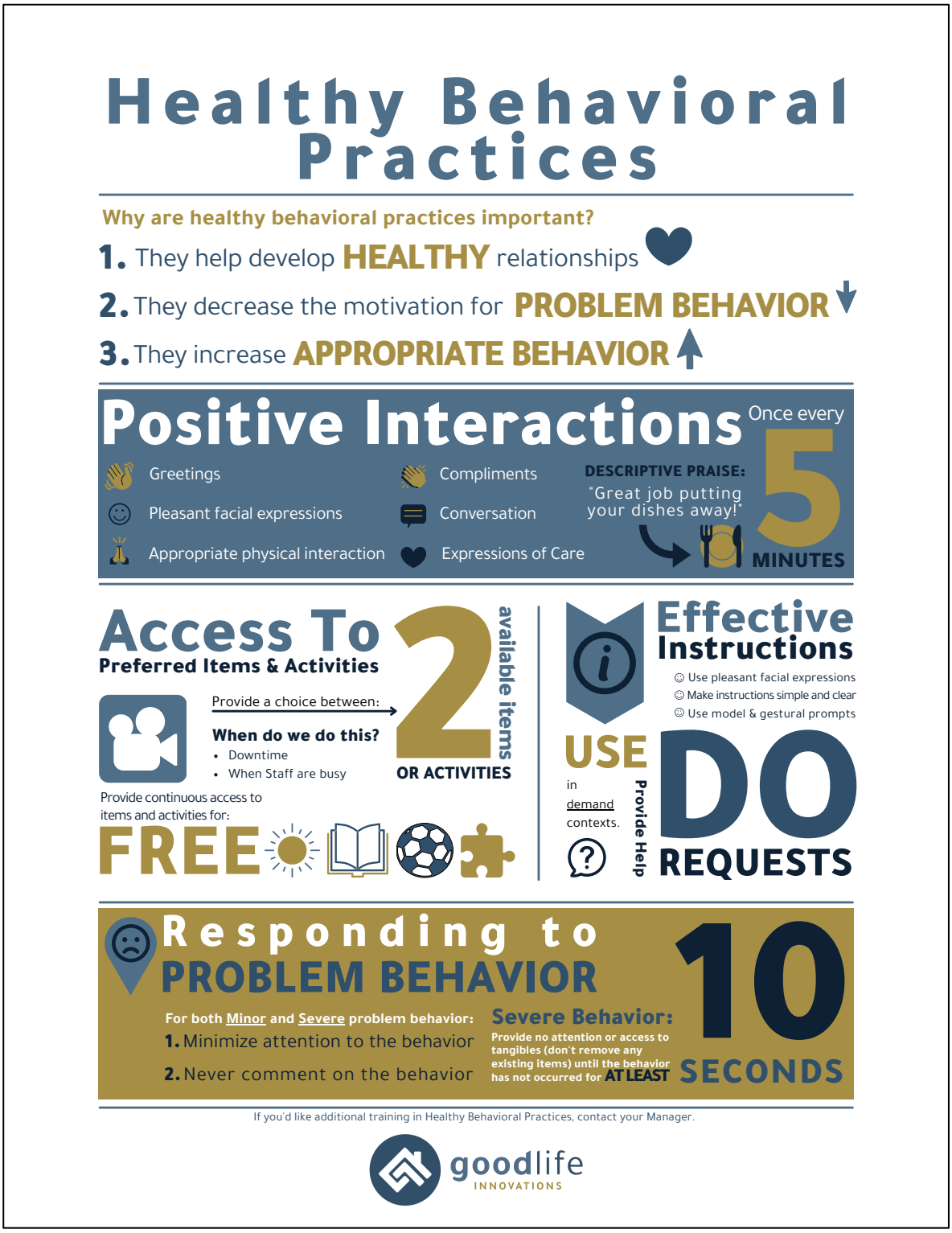


| | | |
|---|---|---|
| 7:00-7:15 | Cook breakfast and engage with consumers who are waiting for their ADL routine or who have finished their routine | ADLS:<br>Assist with consumer B and C morning routine<br>Assist Consumer A with shower and morning routine |
| 7:15-7:30 | | |
| 7:30-7:45 | | |
| 7:45-8:00 | | |
| 8:00-8:15 | Breakfast: assist with serving and sit with consumers while they eat and prompt cleaning up when they finish | Breakfast: sit with consumers as they eat. As consumers finish eating, prompt engagement |
| 8:15-8:30 | | |
| 8:30-8:45 | | |
| 8:45-9:00 | Prep morning medications | Prompt engagement while consumers are receiving medication. If anyone still needs to get dressed for center, provide assistance |
| 9:00-9:15 | Pass medication for consumer A and D | |
| 9:15-9:30 | | |
| 9:30-9:45 | Pass med for consumer B | |
| 9:45-10:00 | Pack sack lunches, activities, and prep van | Assist with getting ready for van ride |
| 10:00-10:15 | Drive to center | |
| 10:15-10:30 | | |
| 10:30-10:45 | Weekdays: Day center and day center activities<br>Weekends: weekend outing (see activity calendar for schedule activity) | |
| 10:45-11:00 | | |
| 11:00-11:15 | | |
| 11:15-11:30 | | |
| 11:30-11:45 | | |
| 11:45-12:00 | | |
| 12:00-12:15 | | |
| 12:15-1:00 | | |
| 1:00-1:15 | | |
| 1:15-2:00 | | |
| 2:00-2:15 | | |
| 2:15-3:00 | | |
| 3:00-3:15 | | |
| 3:15-3:30 | | |
| 3:30-3:45 | Prompt home leisure activities and engage with consumers | Complete household chores as needed for the day—if no chores, prompt home leisure activities and engage with consumers |
| 3:45-4:00 | | |
| 4:00-4:15 | | |
| 4:15-4:30 | | |
| 4:30-4:45 | Prep medications | Prompt engagement while consumers are receiving medication |
| 4:45-5:00 | | |
| 5:00-5:15 | Pass medication for all consumers | |
| 5:15-5:30 | | |
| 5:30-5:45 | Engage with consumers not assisting with dinner | Cook dinner |
| 5:45-6:00 | | |
| 6:00-6:15 | Dinner: sit with consumers as they eat. As consumers finish eating, prompt engagement | Dinner: assist with serving and sit with consumers while they eat and prompt cleaning up when they finish |
| 6:15-6:30 | | |
| 6:30-6:45 | | |
| 6:45-7:00 | Night ADLs:<br>Assist consumer B and C with showers<br>Assist all consumers get ready for bed | Clean up common areas (e.g., dinner mess) and engage with consumers who are waiting for their ADL routine or who have finished their routine |
| 7:00-7:15 | | |
| 7:15-7:30 | | |
| 7:30-7:45 | | |

34

## Appendix I

HBP Job Aid



**Appendix J**

Healthy Behavioral Practices Handout

# Heathy Behavioral Practices

Cheat sheet

*Positive interactions*

- How to: deliver an interaction to each consumer once every five minutes
    - * remember, some interactions can be brief!
- Positive interaction examples: compliments, greeting, conversation, praise, expressions of care

*Activity engagement*

- How to:
    - ensure there are plenty of preferred items and activities available for consumers during the day
    - If a consumer is not engaged, offer a choice of two available activities (e.g., "would you like to do this craft with me or do you want to bake cookies?")

*Effective instructions*

- How to: deliver all instructions in the following way
    - Pleasant tone and facial expression
    - Simple and clear instruction
    - "DO" rather than "DON'T" request (e.g., "walk" instead of "don't run")
    - Two-step prompting when needed (verbal and model prompt [show consumer *how* to engage in the request])
    - Provide help when needed!

*Responding to problem behavior*

- How to: respond to MINOR problem behavior (behaviors that do not cause harm)
    - Minimize attention to the behavior (don't comment)
    - Instead, redirect to the ongoing activity or to a new activity
- How to: respond to SEVERE problem behavior (behaviors that can cause harm)
    - Withhold attention and access to items/activities until behavior has not occurred for at least 10 s
        - If you must provide attention for safety (e.g., physical intervention or blocking), do so with least amount of attention possible—follow SafteyCare procedures

## Appendix K

Schedule Building Workshop Procedural Integrity Checklist

| Home:<br>Experimenter:<br>Date of workshop:<br>Data collector: | **Yes or No** | |
|---|---|---|
| Did the experimenter send the schedule template to the HC prior to the workshop? | Y | N |
| Did the experimenter summarize the results of the Study 1 PDC-HS interviews for the home? | Y | N |
| Did the experimenter explain the rationale for the implementation of a schedule? (i.e., the schedule is the first intervention in the intervention package and is intended to address the tasks impeding the participants implementation of HBP by creating a set schedule for staff to follow during the day that ensures the necessary tasks [i.e., tasks reported to impede HBP] are done along with the consistent implementation of HBP across the day) | Y | N |
| Did the experimenter provide 1:1 support until a schedule was developed for the home? | Y | N |
| Did the experimenter and HC determine a location to post the schedule in the home? | Y | N |
| Procedural integrity score | Y | N |

## Appendix L

Staff Training Procedural Integrity Checklist

| Home:<br>Experimenter:<br>Date of training:<br>Data collector: | **Yes or No** |
|---|---|
| Prior to starting the training, did the experimenter administer the pre-HBP questionnaire? | |
| Did the experimenter review the HBP PowerPoint? | Y N |
| Did the experimenter provide examples of how to engage in each of the four practices? | Y N |
| Did the experimenter review the identified barriers for implementing HBP? | Y N |
| Did the experimenter introduce the job aids and HBP handout? | Y N |
| Did the experimenter review the new homes schedule? | Y N |
| Did the experimenter notify the staff of future iLink observations and feedback? | Y N |
| Following the training, did the experimenter administer the post-HBP questionnaire? | Y N |
| Procedural integrity score | |

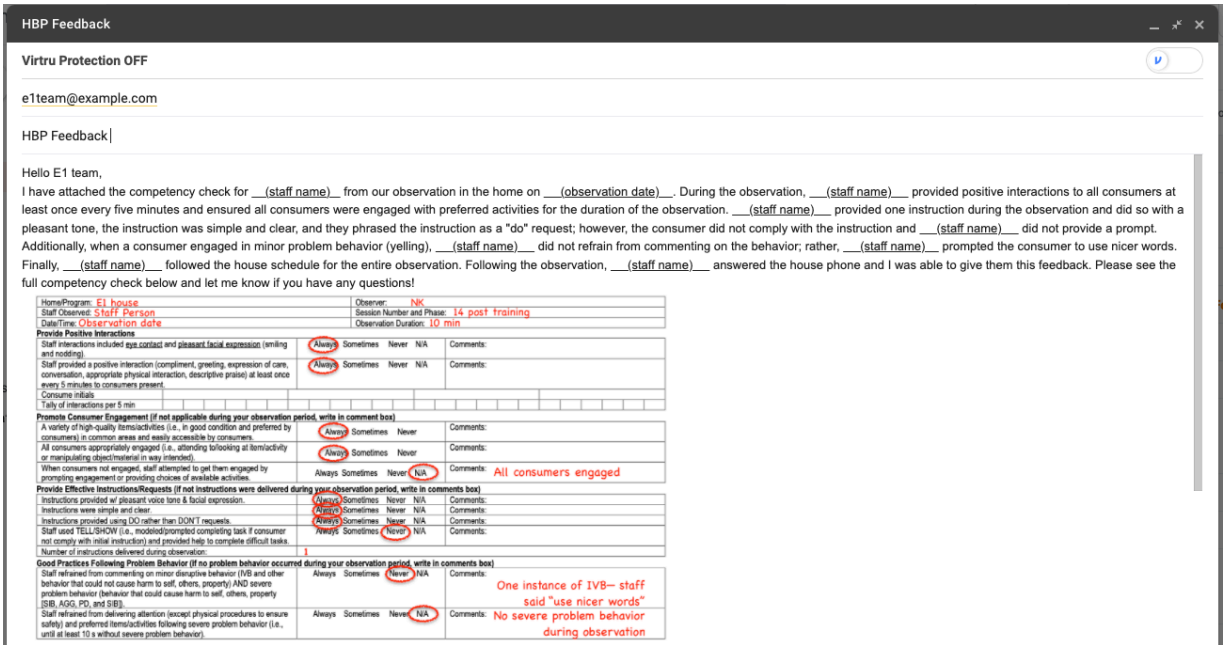
## Appendix M

On-The-Job Feedback Procedural Integrity Checklist

| Home:<br>Experimenter:<br>Date of observation:<br>Data collector: | **Yes or No** |
|---|---|
| Did the experimenter call the home following the observation? | Y N |
| If the participant did not answer the phone, did the experimenter call again? | Y N<br>N/A |
| If the participant did not answer the second call, did the experimenter call the home over the intercom? If no, skip to last question) | Y N<br>N/A |
| Did the experimenter review each item on the competency check with the participant? | Y N<br>N/A |
| Did the experimenter provide praise for skills scored as ALWAYS? | Y N<br>N/A |
| Did the experimenter provide corrective feedback for skills scored as SOMETIMES or NEVER? | Y N<br>N/A |
| Did the experimenter solicit questions and clarify any ambiguities? | Y N<br>N/A |
| Did the experimenter send an email to the homes HC following the observation with a copy of the competency check and a brief description of the participants responding during the observation? | Y N |

# Appendix N

## Example Feedback Email



HBP Feedback

Virtru Protection OFF

e1team@example.com

HBP Feedback

Hello E1 team,

I have attached the competency check for __(staff name)__ from our observation in the home on __(observation date)__. During the observation, __(staff name)__ provided positive interactions to all consumers at least once every five minutes and ensured all consumers were engaged with preferred activities for the duration of the observation. __(staff name)__ provided one instruction during the observation and did so with a pleasant tone, the instruction was simple and clear, and they phrased the instruction as a "do" request; however, the consumer did not comply with the instruction and __(staff name)__ did not provide a prompt. Additionally, when a consumer engaged in minor problem behavior (yelling), __(staff name)__ did not refrain from commenting on the behavior; rather, __(staff name)__ prompted the consumer to use nicer words. Finally, __(staff name)__ followed the house schedule for the entire observation. Following the observation, __(staff name)__ answered the house phone and I was able to give them this feedback. Please see the full competency check below and let me know if you have any questions!

| | | | | | |
|---|---|---|---|---|---|
| Home/Program: E1 house | | | | Observer: NK | |
| Staff Observed: Staff Person | | | | Session Number and Phase: 14 post training | |
| Date/Time: Observation date | | | | Observation Duration: 10 min | |
| **Provide Positive Interactions** | | | | | |
| Staff interactions included eye contact and pleasant facial expression (smiling and nodding). | Always | Sometimes | Never N/A | Comments: | |
| Staff provided a positive interaction (compliment, greeting, expression of care, conversation, appropriate physical interaction, descriptive praise) at least once every 5 minutes to consumers present. | Always | Sometimes | Never N/A | Comments: | |
| Consume initials | | | | | |
| Tally of interactions per 5 min | | | | | |
| **Promote Consumer Engagement (if not applicable during your observation period, write in comment box)** | | | | | |
| A variety of high-quality items/activities (i.e., in good condition and preferred by consumers) in common areas and easily accessible by consumers. | Always | Sometimes | Never | Comments: | |
| All consumers appropriately engaged (i.e., attending to/looking at item/activity or manipulating object/material in way intended). | Always | Sometimes | Never | Comments: | |
| When consumers not engaged, staff attempted to get them engaged by prompting engagement or providing choices of available activities. | Always | Sometimes | Never N/A | Comments: All consumers engaged | |
| **Provide Effective Instructions/Requests (if not instructions were delivered during your observation period, write in comments box)** | | | | | |
| Instructions provided w/ pleasant voice tone & facial expression. | Always | Sometimes | Never N/A | Comments: | |
| Instructions were simple and clear. | Always | Sometimes | Never N/A | Comments: | |
| Instructions provided using DO rather than DON'T requests. | Always | Sometimes | Never N/A | Comments: | |
| Staff used TELL/SHOW (i.e., modeled/prompted completing task if consumer not comply with initial instruction) and provided help to complete difficult tasks. | Always | Sometimes | Never N/A | Comments: | |
| Number of instructions delivered during observation: 1 | | | | | |
| **Good Practices Following Problem Behavior (if no problem behavior occurred during your observation period, write in comments box)** | | | | | |
| Staff refrained from commenting on minor disruptive behavior (IVB and other behavior that could not cause harm to self, others, property) AND severe problem behavior (behavior that could cause harm to self, others, property [SIB, AGG, PD, and SIB]). | Always | Sometimes | Never N/A | Comments: One instance of IVB– staff said "use nicer words" | |
| Staff refrained from delivering attention (except physical procedures to ensure safety) and preferred items/activities following severe problem behavior (i.e., until at least 10 s without severe problem behavior). | Always | Sometimes | Never N/A | Comments: No severe problem behavior during observation | |

## Appendix O

Healthy Behavioral Practices (HBP) Study Social validity Questionnaire

1. I found the intervention used in the current study (i.e., the home schedule, staff training, job aid, and feedback) to be an acceptable way to increase staffs implementation of HBP (positive interactions, activity engagement, effective instructions, appropriately responding to problem behavior) across the day.
   0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, 4 = strongly agree

2. Overall, I enjoyed the intervention implemented during this study.
   0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, 4 = strongly agree

3. I feel the implementation of the home schedule, staff training, job aid, and feedback increased my ability to engage in HBP across the day.
   0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, 4 = strongly agree

4. I feel the implementation of the home schedule is feasible.
   0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, 4 = strongly agree

5. Overall, the home schedule and HBP is easy to implement.
   0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, 4 = strongly agree

6. I found Google Meet coaching and feedback over the phone to be an acceptive approach.
   0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, 4 = strongly agree

7. If possible, I would like to continue to use remote coaching to implement other procedures
   0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, 4 = strongly agree

8. I would recommend the implementation of a home schedule, staff training, job aid, and feedback to other homes.
   0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, 4 = strongly agree

9. I am satisfied with the results of the intervention.
   0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, 4 = strongly agree