

Characteristics of Children, Caregivers, and Orphanages for Young Children
in St. Petersburg, Russian Federation

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ABSTRACT

This report provides baseline information on conditions in orphanages in the Russian Federation. This information addresses three major limitations in the literature on the development of children residing in substandard orphanages and those adopted from such environments. First, although there is an assumption that early exposure to substandard orphanages is associated with a variety of developmental delays during and after residency, there are essentially no comprehensive, empirical descriptions of what these early environments are like. This paper provides such information on the orphanage system in the Russian Federation and on a sample of children from 0- four years of age residing in three orphanages in St. Petersburg. Second, because the orphanage environment is typically globally deficient, it is difficult to discern causal variables in developmental delays. In this report we attempt to show that the most salient deficiencies are in the social-emotional environment. Third, there are few empirical descriptions in the literature of the birth circumstances and characteristics of children residing in orphanages untangle the relative contributions of poor perinatal circumstances and the orphanage environment in accounting for developmental delays. The results of this study show that a larger than expected number of orphanage children have poor perinatal circumstances, and most fall far below the average local Russian (what is this???) on physical, cognitive and psychosocial development

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1. Introduction

A major approach to studying the role early experience plays in human development is to capitalize on opportunities to study children who, through natural circumstances, are exposed to unusual early environments that are deficient in elements thought to be crucial for later development. In particular, children who live in orphanages may be studied while they reside in the institution, and those children who are subsequently placed in more advantaged environments can provide information on the long-term consequences of early adversity as well as the resilience and adaptability of such children to their adoptive homes.

This area of research has had several major limitations (e.g., J. McCall, 1999), however. First, there are few descriptive studies of orphanage environments themselves. Most reports are short first- or second-hand narrative impressions and perceptions. While these are useful, they often lack details and empirical data. Although orphanage systems and individual orphanages can vary in their characteristics, the literature does not provide even a single thorough and empirical description of the precise early deficiencies that are presumably associated with the deficits and problems shown by children residing in the orphanage or those deficits and problems that may persist after adoption or foster care in presumably better environments.

Second, because those orphanage environments (e.g., Romanian orphanages in the early 1990's) that have been most strongly linked to later deficits are substandard in many ways, including

medical care, nutrition, sanitation, overcrowding, toys and equipment, abuse, social and emotional neglect, and multiple and changing caregivers, it is not possible to specify which deficits lead to later problems. A thorough description of orphanage environments might facilitate teasing apart which elements of the orphanage environment are more likely related to children's present and future developmental status.

A third limitation of this literature is the near total lack of descriptive, especially quantitative, information on the backgrounds and developmental status of the children who are relinquished to orphanages. It may be surmised that children sent to orphanages are more likely at-risk from birth than is typical of the general population of their country of origin and of non-orphanage children in the country of their adoptive parents, which are often used as comparison groups (e.g., Bohman & Sigvardsson, 1985; Hodges & Tizard, 1989a, 1989b; Hough, 1999; Tizard & Hodges, 1978). This selective risk potentially represents a substantial confound with the early orphanage rearing environment in explaining the developmental status of children (J. McCall, 1999), a possibility made ambiguous by the lack of information on the backgrounds of children entering orphanages.

The available narrative and empirical descriptions of the developmental status of orphanage children do reveal them to be delayed in physical growth (e.g., Bakwin, 1949; Fried & Mayer, 1948, Spitz, 1945) while living in substandard orphanages. More reports are available on children adopted into Britain, Canada, or the United States, and upon adoption these children also have substantial growth retardation (e.g., Benoit, Joycelyn, Moddemann, & Embree, 1996; Johnson, 2000, 2001; Johnson, Miller, & Iverson, 1992; Rutter & the English Romanian Adoptions Study Team, 1998), marked cognitive delays (e.g., Dennis & Najarian, 1957;

Goldfarb, 1943; Hunt, Mohandessi, Ghodssy, & Akiyama, 1976; Kaler & Freeman, 1994; Kohen-Raz, 1968), and limited speech and language skills (Brodbeck & Irwin, 1946; Goldfarb, 1943; Hough, 1999; Lowrey, 1940).

Children living in institutions also are reported to display a variety of behavior problems, including aggressive and anti-social behaviors, hyperactivity, distractibility or inattention, depression, worry, fear, indiscriminate friendliness, poor quality peer relationships, anxiety, oppositional behavior, and emotional regulation difficulties (Tizard & Hodges, 1978; Tizard & Joseph, 1970; Tizard & Rees, 1974, 1975; Tizard & Tizard, 1971; Vorria, Rutter, Pickles, Wolkind, & Hobsbaum, 1998a), and some of these problems persist several years after they are adopted into advantaged homes (e.g., Ames, Chisholm, Fisher, Morison, Thompson, & Mainemer, 1997; Groze & Ileana, 1996; Judge, 1999; Rutter et al., 1998; O'Connor, Brendenkamp, Rutter, & ERA Team, 1999).

However, it is not clear whether these developmental delays and greater rates of extreme behaviors are associated with the orphanage experience, and if so, which aspects of what is often a globally deficient environment may be implicated. It is widely believed that most of these deficits, including retarded physical growth (Blizzard, 1990; Johnson, 2000), are associated with the lack of social-emotional stimulation and warm, caring, sensitive, social interactions (Rutter, 2000; Spitz, 1945), but the evidence for this assertion is only circumstantial. For example, some deficits appear even in children reared in orphanages that are less globally deficient but still have some degree of social-emotional deprivation (e.g., Hodges & Tizard, 1989a, 1989b; Stevens, 1971; Tizard et al., 1970, 1971, 1972, 1974, 1975, 1978; Tizard, Cooperman, Joseph, & Tizard, 1972), and the size, frequency and persistence of many deficiencies after adoption are positively

correlated with time in the orphanage before adoption (e.g., Chisholm, Carter, Ames, & Morison, 1995; Chisholm, 1998; O'Connor, Bredenkamp, Rutter, Beckett, Keaveney, Kreppner, & the English and Romanian Adoptees Study Team, 2000; Sloutsky, 1997). However, the literature lacks systematic empirical data even on the number and work schedules of caregivers that describe this potential factor in the early experience of orphanage children.

The current report is intended to address the three limitations in the literature as described above. We describe the orphanage system in one country (i.e., Russian Federation) and the caregivers and children in three orphanages in St. Petersburg, Russian Federation. Although orphanages may differ from one another, the centralized administration of orphanages in the Russian Federation likely makes orphanages within this system more similar than in countries without such centralization. In addition, more children from the former Soviet states are adopted into the USA, for example, than from any other country (U.S. Department of State, 2004), so a description of orphanages in the Federation has implications for USA studies of adopted children and adoptive parents.

Second, given the available data, we attempt to specify the particular aspects of the orphanage care environment and of the children that may or may not deviate substantially from those in one other country (i.e., Bucharest, Romania) and from non-orphanage family care and children in the USA.

Third, we describe the birth conditions of children entering the three St. Petersburg orphanages and the medical condition of those children who are adopted compared to other orphanage

children to explore the possibility that orphanage and adopted children are an atypical and more at-risk group.

1.1 The Orphanage system, caregivers and children

1.1.1 *History.*

After the Revolution of 1917, the new government in Russia attempted to organize joint placement of mothers with their infants for those who needed assistance, but because of difficult economic times and civil war, this approach was abandoned in favor of institutions in which children were housed without their mothers. Initially, infants birth to 12 months were in one facility while children one to three years were in another, but soon these age groups were combined and “Baby Homes” were instituted for children of single mothers, orphans who lost contact with their parents, or children whose parents lost parental rights. Years later, children with special needs were added to the Baby Homes, because children with disabilities are not readily integrated into Russian society. For example, in 1994, 44 children with Down Syndrome were born in St. Petersburg and all but two were sent to the Baby Homes.

1.1.2 *Current size.*

In January 2003, the Russian Federation had 249 Baby Homes with a capacity of 21 505 children and 19 337 actual residents, 27.2% with special needs (Ministry of Health of the Russian Federation, 2003). In St. Petersburg, there were 13 Baby Homes housing 1 053 children, 26.4% with disabilities.

1.1.3 *Administration.*

The Baby Homes are administered by the Ministry of Health in each city, and their budgets are controlled by a district administration and by the city government. Many aspects of care are centrally regulated or prescribed, although Baby Home Directors, typically pediatricians, have local control within those limits. Consequently, the emphasis is more on the health and safety of children than their behavioral development, especially social-emotional development.

1.1.4 *Reasons for placement.*

No systematic records are kept specifying the reasons children are sent to the Baby Homes, but Baby Home administrators say the principal reasons are a) financial inability of the parents to care for a child; b) inability of the parents to behaviorally care for the child (e. g., parental drug and alcohol abuse, mental health problems, and other mental and behavioral incompetencies); c) parental unwillingness to rear a child with frank disabilities; and d) involuntary loss of parental rights because of abuse, neglect, and other inappropriate treatment.

1.1.5 *The children.*

Baby Homes typically take children from birth through approximately four years of age (although some children stay longer, especially those with disabilities). Most children arrive in the first months of life, but they may arrive at any age up to 4-5 yrs. Most come from the birth

hospital or via another hospital; some are relinquished voluntarily after spending some time at home, and some parents place their children in the Baby Homes temporarily.

1.1.6 *Wards.*

Baby Homes have a minimum of 60 and a maximum of 100+ children divided into wards of approximately 9-14 children. A typical ward might consist of a group sleeping room, a living/play room, plus bathroom and food preparation rooms. In addition, an “isolator” (e. g., infirmary) is available for housing newly arrived children for a few days and sick children. Children are grouped homogeneously with respect to age and disabilities, and each group has its own daily prescribed schedule of group sleeping, feeding, and indoor and outdoor play times.

1.1.7 *Staff.*

Each Baby Home has a Director, who is typically a pediatrician, additional medical personnel, specialized therapists (e. g., Special Teachers, locally called “defectologists,” who have special education training), plus specialists for physical education, music, massage, sensory stimulation, electrotherapy, social work, psychology, and caregivers who spend all of their time on the wards with the children.

1.1.8 *Salaries.*

Salaries are regulated by federal law and depend on educational level, years of employment, and job type; bonuses may be paid for exemplary work if funds are available. Recently, because

inflation is approximately 18% per year, salary supplements have been provided by the federal government, but this varies from region to region. In 1999, a medical nurse was paid 1500 to 2000 rubles (approximately \$50-\$67) per month, but in 2004, she could receive up to 5000-7000 rubles (approximately \$170-\$240) per month, which would be somewhat lower than the average Russian working person's wage.

A description of orphanages in the Russian Federation was reported by Mental Disability Rights International (1999) for UNICEF/Russia based on visits and interviews. The present study supplements this with an extended empirically-based description of the caregivers and children in three specific Baby Homes. The specific intent of this study is to provide two descriptive pictures. One portrays the caregivers and resident children across three Baby Homes in St. Petersburg at one point in time (the *Resident Sample*); the other described children when they first enter the orphanages (the *Intake Sample*).

2. Method

2.1 Participants

2.1.1 *The Baby Homes.*

The three Baby Homes in this report were part of a larger intervention project (see Groark, Muhamedrahimov, Palmov, Nikiforova, & McCall, in press; Muhamedrahimov, Palmov, Nikiforova, Groark, & McCall, 2004). In the experience of the authors, the general nature of care is quite similar across most Baby Homes in St. Petersburg and even elsewhere in Russia,

especially with respect to the social-emotional characteristics of the “institutional climate.” Baby Homes vary in their physical facilities, the nature of the children assigned to them, and some aspects of caregiver behavior, including the three Homes in this study. For example, one of the three Homes had a new building and very expansive quarters, and another is assigned more children with disabilities. The HOME Inventory scores vary somewhat among the three sites. Analyses not reported here reflect these and other differences among the three Baby Homes, but no Home was consistently “better” than another. Collectively, then, these Homes are a reasonable, perhaps above average, portrait of Baby Homes in St. Petersburg and to some extent the Russian Federation. The Directors of each of the Homes agreed to cooperate with the procedures in this study.

2.1.1.2 Baby Home staff and children.

The *Resident Sample* included all staff of each Baby Home who work with children (from directors to aides) and who were employed at the time baseline assessments were conducted and all children in residence during the time of the baseline assessments. Baseline assessments were conducted in separate 2-5 month periods of time in the three Baby Homes between April 2000 and October 2002. . This provided a total of 306 staff (84, 116, and 107 individuals from the three Baby Homes) and 325 children (106, 118, 101 from the three Baby Homes). The *Ns* for some analyses were reduced by missing data and, for many children the fact that they had not resided in the Homes long enough to receive certain assessments.

The *Intake Sample* consisted of a maximum of 424 children (148, 168, 108 from the three Baby Homes) who came to the Baby Homes during the 16 (?) months after the baseline assessments were completed (through the spring of 2004).

Although it is tempting to interpret any difference between the Resident and Intake samples of children to be a consequence of the orphanage environment, such an inference may not be warranted because of selective attrition. Children leave the Baby Homes at various ages for various destinations (see below). Because healthier and behaviorally more competent children leave at younger ages, older residents are more likely to have deficiencies. Also, the Intake Sample is younger on average, and this age difference can influence results even when the data represent deviations from age-expected standards.

2.1.1.3 Comparison samples for staff variables.

Certain demographic and professional variables for Baby Home staff also have been reported for USA child care workers by the NICHD Study of Early Child Care (Bradley, Caldwell & Corwyn, 2003; NICHD Early Child Care Research Network, 2000), which represents caregivers in a variety of early childhood contexts (parents and relatives, family child care, group homes, center care, and preschools). Although very low socioeconomic status families are slightly underrepresented and children with serious disabilities are excluded, the NICHD sample reflects urban, suburban, and rural communities; ethnic minorities; single parents; and a broad range of socioeconomic circumstances and care facilities in the USA. The NICHD study also reported Parental Modernity Scores (NICHD Early Child Care Research Network, 2000) and HOME Inventory scores using the same instrument employed in the Baby Homes (Bradley et al., 2003).

2.1.1.4 Comparison samples for the children.

Children's developmental status was compared with available Russian and USA standards. Specifically, perinatal and physical growth variables were compared with the Center for Disease Control Standards for the USA (CDC, 2004), USA Vital statistics (Martin, Hamilton et al., 2003), and standards for the Northwestern Region of the Russian Federation (St. Petersburg State Pediatric Medical Academy, 2000) where available. Birth weight was also compared in a contemporary sample of 124 children taken from from a total sample of 208 children 5-31 mos. ($M = 20.65$, $SD = 7.26$) without serious handicapping conditions who lived in an orphanage in Bucharest (much improved over conditions in the early 1990's), and a sample of 66 non-institutionalized home/parent-reared children recruited from a pediatric community health center in Bucharest (Smyke, Koga, Johnson, & Zeanah, 2004; Zeanah, Nelson, Fox, Smyke, Marshall, Parker, & Koga, 2003). The USA standardization sample for the Battelle Developmental Inventory (LINC Associates, 1988) of approximately 50 children at each 6 mos. age period was used to define percentiles for Battelle performance.

Because there are many social, political, economic, medical, and cultural differences that influence caregiver and child characteristics, interpretations of the causes of such differences must be very circumspect; but these comparisons at least provide a general context for the data reported.

2.2 Assessments

2.2.1 Caregiver characteristics.

Demographic characteristics, education, special training, and experience were reported on questionnaires by Baby Home staff. Data on the work schedules of Baby Home staff were taken from official Baby Home records.

The Parental Modernity Scale (Schaefer & Edgerton, 1985), administered as part of the staff questionnaire, reports the extent to which the respondent holds progressive versus traditional ideas about raising children. “Progressive” reflects more child-directed attitudes and tolerance for creative expression, whereas “traditional” represents adult-directed and conforming approaches. A single score is reported composed of the sum of the progressive items (scores of 1-5) plus the sum of the reverse scored (scores of 5-1) traditional items, so high total scores are more progressive.

The HOME Inventory was administered during the baseline assessment to approximately 50 caregivers in each Baby Home who were relatively equally distributed across the wards and who represented the primary caregiving staff. The Infant/Toddler (24-mo) Group Care version of the HOME Inventory scale as created for the NICHD Study of Early Child Care (Bradley et al., 2003) was used for all wards, even though the ages of the children varied among wards. The 24-mo version was selected because it was the middle age of children residing in the Baby Homes, the younger versions of the scale are not much different, and children older than 24 mos in this sample are likely to be somewhat delayed in development.

The HOME inventory consists of 5-11 items in each of 5 subscales (Responsivity, Acceptance, Organization, Learning Materials, Involvement) that are scored yes/no. In addition, a Sociability subscale of 20 items from the HOME was created for this project, and a measure was added in

which assessors counted the number of times the caregiver spontaneously vocalized to the children, responded to the children's vocalizations, labeled objects or persons, and spontaneously praised children. These variables were added to reflect social behaviors and circumstances that support social interactions, because this was a major domain of interest.

Each HOME assessment was targeted to a specific caregiver who was caring for approximately 9-13 children with 1 or 2 other caregivers present. It consisted of 60 min of observation, including at least 45 min in which the children were not asleep and not being fed, changed, or bathed, plus 10-15 min in which they were engaged in these caretaking activities.

Two members of the St. Petersburg Research Team were trained and experienced in HOME administration, and they trained three assessors with a manual. Practice sessions at a separate preschool were conducted until assessors scored 90% of the items identically to the experts on three of four consecutive assessments. Formal reliability was conducted in a separate preschool on 16 caregivers for 3 - 9 children ranging in age from 3 months to 4 years with 1 or 2 children per group having a disability. Across pairs of raters and groups of children, 88% of the pairwise comparisons were within one point of each other on the total score; all of the six subscales were scored within one point of each other (87% were identical).

2.2.2 Child measures

2.2.2.1 Child measures--perinatal data.

Hospital records of birth circumstances are routinely transferred to the Baby Homes for most children. Records are in narrative form, but typically include the information reported below,

although not all pregnancy conditions may be stated in the records (in which case they have been judged to be absent). Unfortunately, these records do not routinely report parental characteristics (e.g., education, occupation, alcoholism, criminality, substance abuse), although it is occasionally mentioned. Additional information on the history of the child prior to entering the Baby Home is obtained at intake.

2.2.2.2 Child measures—physical growth and medical condition.

Baby Home physicians routinely assessed children's physical growth, including height (recumbent length until the child can stand flat-footed), weight, head circumference, and chest circumference, as well as made diagnoses of a great variety of chronic and acute disorders. Intake assessments were typically made within the first few days after arrival. Diagnoses are made according to the Russian medical system, which differs somewhat from its American counterpart. The vast majority of children receive a diagnosis, but this includes nonspecific "at risk" conditions, such as "encephalopathy" (e.g., hypoxia before birth with broad criteria), growth insufficiency, and dystrophy (i.e., undernourished, underweight, low muscle tone).

2.2.2.3 Child functional abilities.

The Functional Abilities Index (FAI) is a version (modified and defined by the St. Petersburg Research Team) of the Abilities Index originally developed by Simeonsson and Bailey (1988). The FAI contains 19 separate ratings on nine domains and associated sub-domains (including Audition, Behavior and Social Skills, Intellectual Functioning, Motor Functioning (left and right hands, arms, legs scored separately), Intentional Communication, Tonicity (tightness and looseness of muscle tone), Integrity of Physical Health, Eyes (left and right eye scored separately), and Structural Status (shape, body form, and structure). Each rating consists of a 6-

point scale (1 = normal/typical, 2 = suspected problems, 3 = mild problems, 4 = moderate problems, 5 = severe problems, and 6 = profound/extreme problems). The ratings for Motor Functioning and Tonicity were made by Baby Home neurologists or a specialist in motor and physical development, while the other subscales were rated by special teachers who are trained in educating children with disabilities. Reliabilities were determined on a sample of 30 children from 5 to 52 months with a wide range of physical conditions and disorders. Over 570 pairs of ratings, 73% - 85% were identical and 97 - 99% were within 1 point for the two types of raters respectively.

To separate children who had clear and markedly limited disabilities, the project defined a child with disabilities to be one who had at least 1 of the 9 ratings of 5 or higher (“severe” or “profound” problem) or four or more scores greater than 3 (“mild problem”). This criterion was intended to be sensitive to specific extreme disabilities as well as more pervasive but less extreme disabilities. This definition was found to separate scores on the Battelle very clearly and to have good stability across age.

2.2.2.4 Child developmental assessment.

The Battelle Developmental Inventory (LINC Associates, 1988) was selected for its wide use in assessing typically developing children and those with a variety of disabilities. The BDI is appropriate for children 1 to 95 mos of age and provides subscale scores for Personal-Social (interaction, expression of feeling/affect, self concept, peer interaction, coping, and social role), Fine Motor Skills (fine muscle, perceptual motor), Gross Motor Skills (muscular control, body coordination, locomotion), Adaptive Behavior (attention, eating, dressing, personal

responsibility, toileting), Communication (receptive and expressive language), and Cognition (perceptual discrimination, memory, reasoning, academic skills, and concept development).

One member of the St. Petersburg Team was trained by a certified Battelle administrator who then trained two assessors on 10 children ranging from 28 to 55 mos. who were not residents of the Baby Home. After the assessors agreed with the expert on 90% of the individual items on three of four consecutive administrations, formal reliability was begun on 19 children between 10 mos and 5 yrs, seven of whom had clearly diagnosed disabilities. Pairwise correlations among raters and between raters and the expert ranged between .82 and .99 for the subscales and .99 for the total score. Over all subscales, 93% of the pairs of scores were within one point of one another and 87% of the pairs of total scores were within two points. Additional assessors were trained subsequently with similar reliabilities.

2.2.2.5 Children's departures.

Data on the departures of children at various ages and with various diagnoses to different destinations were derived from the official records of these three Baby Homes over the 6-yr period 1997-2002.

3. Results

3.1 Caregiver Characteristics and Behavior

Insert Table 1 about here

3.1.1 Job categories

Table 1 presents the characteristics of the staff across the three Baby Homes divided into three Job Categories. Each Baby Home has approximately seven *Administrator/medical* staff, which typically includes 1 head pediatrician (director), 3-4 physicians, and 1 Head Nurse, and 1 Head Assistant Teacher. *Specialists* include providers of specialized services who visit wards or pull children out for services. Depending on the size of the Baby Home (capacities for the three Homes ranged between approximately 80 and 120 children), a Baby Home will have 3-5 special teachers who specialize in teaching children with disabilities; 6 to 7 special therapists who provide physical education, music, massage, swimming instruction, and multi-sensory experiences; 10 to 11 special nurses who provide specific kinds of medical services (e.g., electrotherapy, administration of medicines on the wards, etc.); one psychologist; and one social worker. *Caregivers* are those individuals who spend all of their working hours on the wards with the children. Caregivers are of three types: Medical nurses are primarily responsible for the health and safety of the children, assistant teachers are primarily responsible for the behavioral development of the children, and nursery nurses are aides. A ward of 9 - 14 children is likely to be assigned four medical nurses, two assistant teachers, and three nursery nurses (although some

Homes cannot fill the nursery nurse positions). A Baby Home may have 60 - 80 or more caregivers, but only 20 - 25 may work at any one time.

3.1.2. Education and experience.

The education and experience of people in the three job categories depicted in Table 1 is substantially different. Administrative/medical staff have substantially more education and special training than do the other job categories (note that many physicians go directly to medical school following secondary school). The majority of specialists and caregivers receive approximately 8-10 years of general education plus approximately 1 to 3 years of specialized training.

Such “specialized training” mostly pertains to health and safety; caregivers do not get very much information on developmental stages, caregiving, play, feeding, and special needs of young children. Even special teachers until recently were more likely trained to handle older children rather than the birth to - 4 year olds who populate the Baby Homes. Continuing education is required of caregivers every five years, which consists of taking a one-month course, writing a paper on a topic they choose, and passing an examination. Additional continuing education and training is available that leads to higher qualifications and raises in salaries.

Administrative/medical staff tend to stay in their Baby Home jobs somewhat longer than those in the other categories, and a substantial number of caregivers (41%) have worked in the Baby Homes for 11 or more years. The annual turnover rate based on employment records is lower for administrative/medical staff and about 16% for caregivers, despite the low pay and demanding

characteristics of the job. Although this rate reportedly varies substantially, turnover of staff in USA child care is estimated to be about twice as high (Whitebook, Howes, & Phillips, 1998).

Comparisons with USA child care personnel are difficult because of the differences in educational systems and because American data are sometimes aggregated over different job types and circumstances. Nevertheless, among early childhood care and education caregivers in the NICHD Study of Early Child Care (2000), only 10% had less than a high school education (approximately 12 years), 21% were high school graduates, 33% had some college, 21% had a college degree, and 14% had some graduate training (16 years). Conversely, Baby Home staff are much more likely to have specialized training instead of college (more than half had 1 yr or more), whereas USA child care workers on average have only .6 - .8 yrs of training specifically relevant to their jobs and nearly half have no specialized training at all (NICHD, 2000).

Similarly, whereas American child care workers are likely to have 4 - 5 yrs. of experience, over half of Baby Home staff have more than 6 yrs. and a substantial percentage more than 10 yrs.

3.1.3 Work schedules.

Table 1 also shows marked differences in work schedules between job categories. A majority of administrative/medical staff work relatively conventional schedules of 6-15 hrs. a day for 4 or 5 days a week. Specialists are most likely to work somewhat fewer hours per day and days per week, although some will substitute for caregivers. On the other hand, caregivers tend to work long hours but fewer days per week: Assistant teachers work 10-14 hrs, 3 days a week, whereas medical nurses, following typical medical practice, work 24-hr shifts every fourth day.

Caregivers also tend to act as substitutes for other caregivers, either by extending their hours (even beyond 24) or working extra days. The consequence of these work schedules is that

caregivers work few days in succession—an average of 1.25 consecutive days worked per caregiver by our calculations from employment records.

Thus, from the child's standpoint, it is literally a different cast of caregivers each day. Nine different caregivers are assigned to a single group of 9 - 14 children. We calculated over 4 - 8 mos the actual number of caregivers who were formally assigned to a ward, which was 8.7. But this is deceiving. Specifically, only three (including one aide) are present during the daytime hours during the week, one is present at night, and two work on the weekends. Thus, the child:caregiver ratio is approximately 9 - 14:1 at night and 4.5 - 7:1 during the day (across age groupings), and few caregivers work two days in a row (although some substitute for others). Further, children may "graduate" to a new set of caregivers at 3 months, when they become ambulatory (approximately 8 - 10 months), at approximately 15 - 18 months, and again at 2 years (although these schedules vary between Baby Homes). In addition, the government permits caregivers 52 - 56 days of vacation per year plus there are sick days and staff turnover. Also, specialized therapists and personnel pull children out for music, physical education, speech and language training, etc. The net effect is that children may see 50 - 100 different caregivers by the time they are two years old, and there is typically little day to day continuity.

3.1.4 Personal characteristics.

Table 1 also presents personal characteristics of the staff. Caregivers averaged 44.7 yrs. of age, ranged between 19 and 79 yrs., and were well-distributed across this age span. Further, 90% had their own children, and 56% had two or more.

Administrative/medical staff had much more progressive attitudes than the other types of staff, whereas caregivers were the least progressive. Indeed, USA caregivers tend to score approximately 103 on the Parental Modernity Scale (NICHD, 2000), whereas Baby Home caregivers averaged 98.26 (less progressive, more traditional, and adult-directed in attitude), with substantially less variability ($SD=13.3$ versus SDs of more than 18 for the USA caregivers). – this does not sound to me like a large difference, given the larger USA SDs . Comments?

3.1.5 Caregiver ward behavior.

The results for the Total Score, the six subscales, and the special Sociability subscale of the HOME Inventory are presented in Table 2 for Baby Home caregivers and USA caregivers in family-child care homes in the NICHD study (Bradley et al., 2003). Baby Home caregivers scored significantly lower than USA caregivers on Total Score, but the difference was small (2.31 points) and did not account for very much variance (4.53%). Baby Home caregivers were significantly lower on Responsivity (4.37%), Organization (14.54%), Variety (29.19%), and Sociability, but slightly higher on Learning Materials (2.53%).

 Insert Table 2 about here

These data on individual items on the HOME give mixed messages about the nature of the care in the Baby Homes. On the one hand, it may be that certain structural aspects of the orphanage and residential nature of the Baby homes could account for all of the Total Score difference between the Baby Home and USA Caregivers. Specifically, the differences on the items “no child cared for by more than three caregivers” (.93), “at least one outing per week” (.45), “child outside at least four times per week” (.38), “eating with caregiver/children” (.29), and “having

visitors” (.49) account for a total of 2.54 points, more than the 2.31-point Total Score difference between the two groups.

On the other hand, USA caregivers are significantly more likely to talk and read more with the children, use less negative verbal sanctions, and provide more outings and visitors. Baby Home caregivers are more likely to respond to children’s vocalizations, verbally label objects, spontaneously praise children, refrain from interfering with children’s play, and have a great variety of toys and learning materials available. But these differences reflect the Baby Homes caregivers’ tendency to structure interactions with children, direct them, and otherwise not interact much with them. Also, while the Baby Homes are more likely to have books, toys, and equipment available, this is not to say they are used, and in the authors’ experience, many are not used very often.

Therefore, while the HOME Total Score for caregivers in the Baby Homes is lower than for caregivers in the USA, most of that difference is associated with the orphanage and residential nature of the Baby Homes. In this sense, then, the two groups are not that much different in overall HOME Inventory score. However, Baby Home caregivers talk and read to children less often and are less likely to permit messy play consistent with the proposition that the Baby Homes place a greater emphasis on adult-directed activities and provide a diminished social-emotional environment for children (see Discussion).

3.1.6 Relations between caregiver backgrounds and ward behavior.

The caregiver demographic, education, training, experience, and progressive attitude variables were correlated with the HOME Total Score, each subscale, and the Sociability subscore.

Caregiver's age, children raised, years of Baby Home experience, and total years of education did not correlate significantly with any HOME score after adjustment for differences among the three Baby Homes. However, years of specialized training showed very small but significant correlations ($r_s = .16-.20$) with Total Score, Sociability, Responsivity, and Variety; and progressive attitude was correlated ($r_s = .16$) with Acceptance (i.e., lack of harsh restrictiveness and punishment). This pattern of relations to quality of care is similar to that in the USA (Burchinal, Cryer, Clifford & Howes, 2002; Kontos & Fiene, 1987; Phillips & Howes, 1987), except for years of education in which the limited variability in the general educational background of the Baby Home caregivers likely precludes relations to caregiving.

3.2 Child Characteristics

3.2.1 *Perinatal circumstances.*

Table 3 presents a variety of perinatal characteristics of children across the three St. Petersburg Baby Homes for the Intake and Resident samples. The data from the Intake sample represent a picture of the nature of children who are sent to the orphanages, and figures reported in the text that follows are for this sample. The Resident Sample gives a picture at any one point in time of the children currently residing in the Baby Homes. Generally, the characteristics of the Resident Sample tend to be poorer than the Intake sample, largely because of selective attrition of children to adoption and to their biological parents. However, the Resident Sample is most likely to be comparable to reports from other orphanages which have typically only had access to information about current residents (e.g., Smyke et al., 2004), so the Resident Sample will be used for this purpose.

Insert Table 3 about here

The ages of the mothers (and the small subsample of fathers for whom age was available) indicate that the parents of children placed in the orphanages span the entire child-bearing age range. Whereas young mothers (≤ 17 yrs.) did not dominate the total group (8.2%), they were 3.4 times more frequent than for all births in the USA (2.39%; Martin et al., 2003). This was the first birth for 48.8% of the mothers, 27.1% had one or more abortions prior to this birth, and 6.8% were born by Caesarian Section (one-fourth the USA rate of 26.1%; Martin et al., 2003). Children were born an average of 2.3 weeks early, with a great range of reported gestational ages (however, “gestational age” is sometimes inferred from birth weight and not determined by independent methods; Johnson, personal communication, Aug. 23, 2004).

Table 3 also lists the percentage of women who suffered various pregnancy complications. These are not mutually exclusive, but 68.2% of the Intake and 72.5% of the Resident Samples had at least one of these complications, although the most frequent diagnosis was “Other” which might include low placed placenta, diabetes, hypertension, gastritis, etc.

A substantial percentage of these children were in guarded condition at birth. Specifically, Apgar scores at birth and at 10 min averaged 5.5 and 6.2, with large *SDs* (3.1 - 3.6) and nearly the entire 0-10 range represented. Further, only 60% were regarded as “satisfactory” whereas 14.7% were considered “grave” at birth. Artificial ventilation was needed for 8.2% for an average of 7.4 days.

Not surprisingly, birth measurements indicated that although these children covered the entire range of physical size at birth, a substantial percentage was quite small. For example 27.0% were low birth weight (less than 2500 grs.) and 5.5% were very low birth weight (less than 1500 grs.). These are approximately four times the rates among all USA births (7.8% and 1.46%, respectively; Martin et al., 2003). On average, the Baby Home children are substantially smaller at birth than the average newborn in the Russian Federation.

To place birth condition in another context, children residing in orphanages in Bucharest, Romania (Smyke et al., 2004) have average birth weights of 2849 grs. compared with 2614 for the Resident Sample from the St. Petersburg Baby Homes (but 2798.4 grs. for the Intake Sample), and the Bucharest standard deviation is smaller (588 versus 727). This difference is significant ($t = 3.18$, $df = 415$, $p < .01$), but accounted for only a small portion ($T^2 = 2.14\%$) of the large variability. The difference between the Bucharest home/parent-reared community sample and the St. Petersburg Baby Home children is more substantial: 3326 (which is slightly smaller than the Russian Federation norm) versus 2614 and with a greater disparity in variability (457 versus 727), producing a highly significant difference ($t = 7.40$, $df = 354$, $p < .001$) and accounting for more variance ($T^2 = 13.13\%$).

Therefore, the birth conditions of the St. Petersburg orphanage children cover the entire spectrum but on average show a disproportionate representation of low-birth weight, poor Apgar scores, and guarded condition. Although differences in systems, pre- and post-natal medical care, and different rates of adoption of healthy children may operate, on average the Russian orphanage children are smaller at birth than northwestern Russian norms and orphanage children in Romania.

Table 3 also indicates that most children come directly from the birth hospital (15.3%) or via another hospital (47.5%); only 30.0% spend most time with parents, relatives, or in foster care (which is unusual) before coming to the Baby Home. The average age at Intake was 6.4 mos., but most children come in the first few months of life, the variability is high, and the range is literally from birth to 59 mos. (ordinarily the Baby Homes serve children until approximately 48 mos., but some children with severe disabilities are admitted late or stay longer).

 Insert Table 4 about here

3.2.2 Functional abilities of Baby Home children.

Table 4 presents data on the functional abilities of children in the Intake and Resident Samples. The mean Functional Abilities Index as given by the modified Simeonsson and Bailey (1988) rating system was 1.84 and 1.97 for the Intake and Resident Samples respectively, which is slightly better than a rating of 2.0 which represents “suspected problems.” Given our definition of serious disability (i.e., is likely to interfere with performance on behavioral assessments: at least one of the nine Functional Abilities scores at 5 = severe or 6 = profound or 4 or more scores greater than 3 = moderate problems), 8% of the Intake sample but 21% of the children in residence were considered to have a disability. This difference is likely associated both with selective attrition in Baby Home residents as well as the fact that some disabilities cannot be diagnosed early in life when many children are first admitted to the Baby Home.

Table 4 also presents the percentage of those children in each sample regarded as having a disability who had a severe or profound rating in each of the nine Functional Abilities domains.

As can be seen, except for minimum Social Skills and Audition (neither of which would be assessed in a very sensitive manner because no hearing tests are conducted and no on-the-ward assessments of social skills are performed), the disabilities are broadly distributed among the other seven categories (designations are not mutually exclusive because an individual child may be severe in more than one domain).

Thus, while nearly all children are considered “at-risk” and the majority have some medical diagnosis, only 8% have severe to profound disabilities at Intake but nearly 21% of the Residents of the Baby Home have a severe or profound disability, and these disabilities span nearly the entire range of disorders (except AIDS children who reside in a separate institution).

3.2.3 Physical growth.

Table 5 presents the cumulative percentages of Baby Home children (typical children only because comparison standards usually eliminate children with severe disabilities) in the Intake and Resident Samples for physical growth relative to the percentiles of both local Russian Federation (St. Petersburg State Pediatric Medical Academy, 2000) and the USA Center for Disease Control (2004) growth standards. For example, for height, 34% of the Intake Sample fell below the 10th percentile of northwestern Russian Federation growth standards and 43% were below the 10th percentile for the CDC USA standards.

Insert Table 5 about here

Table 5 shows that for height, weight, head circumference, and chest circumference, more than one-third (35%-44%) of the children at Intake are below the 10th percentile for their gender in physical size relative to the northwestern Russian Federation and approximately half (43-55%)

are below the 10th percentile of USA standards. Approximately 90% or more are below the median of both these standards. There were fewer children who were extremely small in weight relative to height, a finding similar to results from some other studies of orphanage children (Johnson, Miller, & Iverson, 1992; Smyke et al., 2004).

Although there are some differences associated with using the northwestern Russian Federation vs. the USA standards, they are inconsistent and small relative to the overall impression of substantial percentages of children who are undersized. Further, fewer Intake relative to Resident children are in the extremely small percentiles, but the difference between samples seems to be confined to the frequency of very small children.

Equations describing the actual measured growth parameters for the Intake and Resident Samples (typical children only) can be obtained from mccall2@pitt.edu. These may be used to estimate each physical growth parameter in actual measurements for children of any age. Quadratic equations fit the data more accurately than linear, and the slopes for Age and Age² are smaller in the Resident than Intake Sample.

Insert Table 6 about here

To place the physical stature of the Baby Home children into a more specific context, their standardized scores relative to the USA CDC mean and standard deviation were calculated for the St. Petersburg Baby Home children in the Resident sample and the Bucharest orphanage and

home/parent-reared community samples of Smyke et al. (2004). The results are presented in Table 6. For each physical growth parameter, the children in the St. Petersburg Baby Homes are significantly smaller than the children in the Bucharest orphanage, and the Bucharest orphanage children are significantly smaller than the Bucharest home/parent-reared community sample. However, the percent variance accounted for by the difference between the two orphanage groups is relatively small, with T^2 estimates equaling 6.10%, 2.21%, and 2.23% for height, weight, and head circumference respectively. Weight relative to height did not differ between these groups. Therefore, the St. Petersburg Baby Home children are physically smaller relative to other orphanage children as well as home/parent-reared children, although this could be associated with higher rates of adoption of healthy children in the St. Petersburg orphanages.

3.2.4 Battelle Developmental Inventory (BDI).

Table 7 presents the cumulative percentages of Baby Home children (typical children only) in the Intake and Resident Samples for their age-equivalent scores relative to the USA standardization percentiles for the Battelle Developmental Inventory. The picture mirrors that presented in Table 5 for physical growth. On the Total Score, 60% of the Intake and 68% of the Residents scored below the 10th percentile of the USA standardization sample of home/parent-reared children, and 96% of both samples fell below the median. On the subscales, a greater percentage of Baby Home children, especially in the Resident Sample, scored poorly on the Personal-Social than on any other subscale, presumably reflecting a substandard social-emotional experience prior to entering and while residing in the Baby Homes. Residents seem to have more low scores relative to the Intake sample on the Communication and Personal-Social Subscales, which seems to potentially reflect the relative lack of talking and social interaction in the Baby Homes.

Insert Table 7 about here

The regressions for age-equivalent Total BDI scores on age were calculated for the Intake and Resident Samples to permit estimation of scores at any age. The two regressions were nearly identical (Intake—age equivalent score = $.75(\text{age}) - .58$; Residents—age equivalent score = $.78(\text{age}) - .47$).

The relations were quite linear, and the r^2 s were .85 and .88 respectively. This seems to indicate that relative to USA age equivalents these children are 6 mos. behind to begin with and gain only 9 mos. in a year both before they arrive at the orphanage and after they reside in the orphanage. Children with disabilities had a slope of .26 for the Intake and .34 for the Residents, indicating they were gaining at a rate of approximately 4 months for every year. These equations are based on cross-sectional data and are descriptive only; they do not necessarily characterize intra-individual growth functions, which would remove the effects of selective attrition.

3.2.5 Relations between caregiver behavior and child development.

The most recent HOME scores were averaged across caregivers who were assigned to a ward the month prior to a child's Battelle assessment, and then HOME Total Score, each Subscale, the Sociability score, and the four counted items on the HOME were correlated with children's Battelle Total and Subscale standardization percentile ranks for the Resident Sample. Several canonical correlations were also calculated in addition to the bivariate correlations.

The correlations are small, perhaps not surprising given the time between the HOME and Battelle assessments (possibly up to 12 mos.) and the possibility that caregivers and children may not have been matched on the same ward for very long periods of time. Nevertheless, HOME average Total score for a child's ward was correlated significantly with all Battelle scales ($r_s=.13$ to $.25$) except Total and Communications, but these two Battelle scores were predicted ($r_s=.14-.17$) by the number of times caregivers spontaneously vocalized or labeled objects or persons. This general finding is consistent with expectations. However, while the HOME subscales reflecting social behavior (i.e., Responsivity, Involvement, Sociability) did not correlate with children's Personal-Social or Communications scores, counts of spontaneous caregiver vocalizations and labeling did, suggesting that the pass-fail scoring on the HOME and the high pass rates for Responsivity were not as sensitive as actual counts of social-verbal caregiver behavior. Also, the fact that most caregiver scores predicted children's Fine Motor, Gross Motor, and Adaptivity best may reflect the relative emphasis many caregivers place on these child behaviors and skills.

3.3 Departures from the Baby Homes

Table 8 is based on the records of the three Baby Homes over a 6-yr. period (1997-2002) and indicates the percentage of children transferred from the Baby Homes at different ages for each of six destinations. At the bottom of the Table, the total number of children during the 6-yr. period and the average number and percent of children per year is given for that destination.

Insert Table 8 about here

Table 8 shows that 21% of children were adopted to the USA and 38% to other countries (mostly Scandinavia and Germany), although the rate can fluctuate with political conditions in the Russian Federation and demand in the USA. Adoptions tend to occur at young ages (two-thirds within the first year and 89% within the first two years to the USA and 70% in the first two years to other countries). These adoption rates (59%) are only slightly higher than for the entire Russian Federation (54.9%) in 2002 (Ministry of Health of the Russian Federation, 2003). Approximately 28% of children return to their biological parents (more than the 18.8% nationwide), with two-thirds more likely to make this transition in the first 2 years. In contrast, children who remain in the Russian orphanage system tend to “graduate” after 3 or 4 years, either to Children’s Homes operated for children without severely disabling conditions by the Ministry of Education or to the Internats operated for children with the most severe disabilities by the Ministry of Labor and Social Care.

Insert Table 9 about here

Table 9 presents the medical diagnoses of children within each of the departure destinations at the time of their departure. The diagnoses are divided into those that are non-specific and are mild or at-risk (i.e., encephalopathy, growth insufficiency, dystrophy) versus more specific syndromes that are often more serious. Three-fourths or more of the children adopted to the USA and other countries plus those returned to their biological parents or others in Russia are predominately without specific diagnosed syndromes. Consistent with government policy, most children who go to the Children’s Homes have relatively mild impairments (including Down and Fetal Alcohol Syndromes), whereas children transferred to the Internats have severe disabilities (e.g., more severe Down Syndrome, Cerebral Palsy, and Hydro- and Microcephalus).

4. Discussion

The purpose of this article was to provide descriptive information on the orphanage system in the Russian Federation and empirical information on the caregivers and children in three Baby Homes of St. Petersburg. This information addresses several issues discussed below.

4.1 Children Who Enter the Orphanage

A major potential confound to the inference that the “institutional culture” produces contemporary and long-term limitations and problems is the possibility that children relinquished to orphanages come with genetic and perinatal disorders. This study provides a mixed conclusion in this regard. On the one hand, the hospital birth records indicate that although children entering the Baby Homes represent the entire range of perinatal circumstances, a substantial percentage had serious perinatal complications -- 27% were low birth weight (less than 2500 gr) and 5.5% were very low birth weight (less than 1500 gr), more than four times the rates among all Caucasian births in the USA. The average birth weight (2614 gr) for Baby Home residents was lower than the northwestern Russian average (3380 gr) and than the average (2849 gr) birth weight of children living in an orphanage in Bucharest, Romania, and both orphanage birth weights were lower than the average for a home/parent-reared community sample in Bucharest. Although the vast majority of children is given some diagnosis (mostly nonspecific “at risk”), approximately 8% of children have a seriously limiting disability at intake.

The physical growth of children at intake is substantially delayed relative to Russian and USA standards. Specifically, more than a third (34% - 44%) of the children entering the Baby Homes are below the 10th percentile in height, weight, and head and chest circumference relative to local Russian standards and approximately half (43% - 55%) are below the 10th percentile of USA standards; approximately 90% or more are below the median of both of these standards. The percentage of children below these standards is even higher for the Resident Sample, which sample is often all that is available to researchers.

Such growth retardation has been reported previously for children from Romanian orphanages newly adopted into British and Canadian homes in the 1990s (e.g., Benoit, Joycelyn, Moddemann, & Embree, 1996; Rutter and the English Romanian Adoption Study Team, 1998). Indeed, children's physical growth is said to fall behind by approximately one month for every five months they lived in the orphanages (Alpers, Johnson, Hostetter, Iverson, & Miller, 1997). The fact that the percentage of very small children is higher in the Resident than in the Intake Samples is consistent with the "psychosocial short stature hypothesis," which postulates that children's growth is delayed when they live in environments that are deficient in social-emotional responsive caregiving (Blizzard, 1990; Johnson, 2000).

Similarly, on the Total Score of the Battelle Developmental Inventory, 60% of the Intake and 68% of the Resident children scored below the 10th percentile relative to the USA standardization sample of home/parent-reared children, and 96% of both samples fell below the median. This result also is not unprecedented; Goldfarb (1943) reported 37% of 6-year old children in an institution were "mentally retarded." Again, Residents generally have higher percentages of low scores (except Fine Motor) than the Intake Sample, especially on the

Communication and Personal-Social subscales. While attrition may explain some of this decline, the particular lack of social-emotional activity, talking, and relationships in the Baby Home suggest that some of the difference might be associated with the Baby Home environment.

It is clear that children come to the Baby Homes with substantially delayed physical and behavioral development, presumably a result of both perinatal circumstances as well as their postnatal environments prior to entering the Baby Homes at an average age of 6.4 months. It is less clear why Residents of the Baby Homes are even more delayed than are children first entering the orphanages. It is not yet possible to determine whether such delays are associated with the Baby Home environment or selective attrition. However, preliminary longitudinal data for children in these Baby Homes show increases in percentile standing for physical growth and behavioral development (BDI) the longer the children are residents in the Baby Home, so the lower scores for the Resident Sample are likely associated with selective attrition. Even though children improve in relative standing while in residence, the improvement is still small; so they continue to fall behind non-orphanage standards the longer they reside in the Baby Home (e.g., Alpers et al., 1997; Smyke et al., 2004).

Selective attrition due to adoption and return to parents also may explain some of the differences in growth status of children between orphanages, including the comparison between St. Petersburg Baby Home children and those from the Bucharest orphanage (i.e., the more selective departures the poorer the developmental status of the resident children). Whereas 59% of Baby Home children are adopted and 28% return to their parents, most in the first two years of life, foreign adoptions are banned in Romania and local adoptions are not common (Zeanah, personal

community, January 6, 2005). Thus, selective attrition may explain the St. Petersburg-Bucharest difference and constitute a potential confound more generally in other orphanage comparisons.

Whereas children entering and residing in the Baby Homes have a variety of growth limitations, those selected for adoption and those who return to their biological parents, although “at-risk,” typically do not have major diagnoses that would likely limit their development. Children adopted to the USA from these Homes are screened for parents who uniformly desire a typically developing child, so the possible role of unfavorable genetic and perinatal circumstances in these children can be expected to be much less than the general population of Baby Home residents or children adopted when the selection is less rigorous.

4.2 General Quality of Care

At a very general level, the quality of care in the Baby Homes is not much different than that provided in USA family and home care. The Baby Homes are governed by the Ministry of Health, which emphasizes the health and safety (e.g., medical care, nutrition, sanitation, safety) of the children. These aspects do not appear especially substandard. For example, an analysis of the nutritional content of food provided to the children did not reveal major deficiencies (Kossover, 2004). Abuse is considered a serious matter and not prevalent, and there were no USA-St. Petersburg differences on the HOME Acceptance subscale which consists largely of the absence of harsh treatment and discipline (at least while an assessor is present). There is an ample supply of toys, equipment, and learning materials in the Baby Homes, although it is less certain how much these items are used.

Although caregivers lack general education, they do receive specialized training, primarily in health and safety. Over the entire HOME Inventory, Baby Home caregivers score only 2.31 points lower than family and home caregivers in the USA (Bradley et al., 2003), and that difference can be entirely attributed to items that are restricted by nature of the residential orphanage setting. Therefore, at a very general level, the care provided in the Baby Homes is not much different than that provided in family and home non-residential care in the USA. However, that level of care is not particularly good. For example, the quality of care across a variety of USA early childhood facilities is scored as “fair” (NICHD Early Child Care Network, 2000); quality is often worse in USA family and home environments, and in some areas the quality is getting worse as demand outstrips the availability of trained providers (Fiene et al., 2002).

Further, inspection of the data reveals a specific lack of warm, caring, sensitive, reciprocal interaction between caregivers and children; a lack of emotional expressiveness and responsiveness; and a lack of opportunities for children to form relationships with caregivers or with each other. These are the characteristics that define the “institutional culture” which some have suggested produces higher rates of contemporary and subsequent social, emotional, and mental limitations and problems (Rutter, 2000; Spitz, 1945) and even reduced physical growth (Blizzard, 1990; Johnson, 2000).

More specifically, although caregivers receive some specialized training, it is focused on health and safety rather than behavioral development of any kind, and until recently, most behavioral training was oriented toward children older than those cared for in the Baby Homes. Not surprisingly, Baby Home caregivers were significantly lower than USA family and home care providers on HOME subscales of Responsivity, Organization, Variety, and especially the

constructed Sociability Score. On individual items, they talk and initiate activities with the children less frequently, and they have a more traditional attitude toward child rearing that emphasizes caregiver-directed interactions rather than child-directed activities.

Moreover, the employment practices and structural circumstances of the Baby Homes do not permit children to develop relationships with caregivers or peers. For one thing, children do not go home to parents at night who could provide relationship experiences. Further, staffing patterns are such that an average of 8.7 caregivers are formally assigned each month to a ward of 9 - 14 children, but only a fraction of these work at any one time, producing estimated child:caregiver ratios of approximately 9 - 14:1 at night and 4.5 - 7:1 during the day. Caregivers also tend to work part time and in large blocks of time with several days off, meaning that the average number of consecutive days worked by caregivers is 1.25. Add to this that caregivers get 52-56 days of vacation per year plus sick days, children may be “graduated” to new caregivers 2-4 times during the first 2 years of life, and turnover rates are at least 16% (often reported as high as 30% by Baby Home directors). The result is that children may see 50 to 100 different caregivers in the first 2 years of life in the Baby Home and no caregiver today whom they saw yesterday or will see tomorrow.

Although the number and inconsistency of caregivers is substantially worse in the lives of orphanage children than USA children attending non-residential early care and education, structural circumstances that support relationships are not common in the USA either. For example, even among 22 highly selected “best practices” programs in two states, only 60% of children experienced the same caregivers all week for 1 year, only 15% had the same caregivers for more than 1 year (called “looping”), and only 11% were assigned a primary caregiver

(Ritchie & Howes, 2003). BOB: not sure this is a fair comparison, because the children in day care still go home at the end of the day to the same parents; in contrast, in the orphanage there are lots of day care providers with no similar constancy as having parents.

4.3 Narrative Description

While the data cited above support the conclusion of a primary deficit in social, emotional, warm, sensitive, and responsive caregiving in the Baby Homes, they do not capture many elements of the “institutional culture.” The following is a narrative description of caregiver and child behaviors based on the accumulated experience of the St. Petersburg Research Team (which includes a Baby Home director) and notes from more than 30 visits to 5 different Baby Homes over more than 5 years by the USA Research Team. Caregivers and children vary in their behavior but the following behaviors, while emphasizing the extremes, are typical or at least frequently observed.

4.2.1 Caregiver social-emotional detachment.

Caregivers tend to confine their interactions with children to routine caregiving chores (e.g., dressing, changing, feeding, etc.), which they perform rapidly in a business-like, perfunctory manner, displaying little emotion, warmth, or caring. Caregivers provide minimal and inconsistent non-essential physical contact with most children, and there is almost no hugging, kissing, holding for comfort, or empathic expressions of joy, sadness, or pain. Many caregivers rarely change facial expressions from a basically expressionless, sober appearance, and there is little smiling, emotional expressiveness, and animation.

4.2.2 Adult-directed caregiving.

Caregiving is exceedingly adult-directed. Caregivers show children how to use toys or perform tasks and expect the children to imitate that model; deviations from that behavior are “corrected.” Caregivers tell children what to do; they do not ask children what they want to do. The questions they ask children tend to require specific correct answers, not open-ended descriptions, perceptions, opinions, or feelings. Caregivers do not often play in a sustained reciprocal manner with the children; they show them how to use an object and then turn away, perhaps to direct another child, put toys away, or write records. Play is object-oriented, rather than person-oriented. Caregivers tend to stand at a distance and monitor children to prevent accidents, keep order, and enforce group conformity. While some children seek help and attention, children who are shy or play well by themselves are often ignored.

4.2.3 Minimum interactions.

Some of these behaviors have been documented by Muhamedrahimov (1999) who observed caregivers with children birth to 3 months and 3 to 10 months of age once a week from 9:30 am to 12:30 pm over a two-month period. This time period included routine caregiving and “free time.” Across these two age groups, caregivers initiated interaction with the children approximately 10% of the total time (approximately 18 min.). They rarely replied to children’s initiation of social interaction (less than 1% of the time or less than 2 min.), and children cried for approximately 11 min. before a caregiver responded. Instead, caregivers were typically busy with routine caregiving and medical procedures for 50% of the time with infants birth to 3 mos. (90.7 min.) and 36% of the time with children 3-10 months (65.6 min.). Talking was minimal; there was no talking during more than half the time caregivers were engaged in routine caregiving. The result was that an individual child interacted with a caregiver for any reason for

only approximately 12.4 min. during the 3-hr. period, and 40%-50% of this interaction was spent in feeding.

The feeding regime provides a specific example of the “institutional culture.” Infants up to 3-4 mos. are bottle fed, typically with no social interaction and occasionally with bottles propped on pillows. After approximately 4 mos., a caregiver places the child on her lap facing laterally or directly away from her, presses the baby tightly against her body with her arm, holds a large bowl under the child’s chin, and feeds the child with a large spoon. An analysis of videotapes of the feeding of children 3-10 mos. old showed the total feeding time was 7.1 min. with actual feeding transpiring over 5.1 min. The caregiver spooned the food into the child’s mouth and scraped the food that spilled out back into the mouth twice all within 5 sec. Thus, food was put into the child’s mouth approximately 30 times per min., with essentially no social interaction except to encourage eating or to look at the child (Muhamedrahimov, 1999). Infants sometimes tried to get the caregiver’s attention (approximately 2.5 times a min.), but caregivers responded to only 51% of these overtures.

When asked on a questionnaire why there was generally a lack of interaction with the children, 57% of a sample of 63 caregivers in a single Baby Home said that the law on Baby Homes dictated that their main work was medical care and education, and 37% said they were unwilling to form attachment relationships with the children.

4.2.4 *Infant and toddler behaviors.*

Younger children are typically placed in cribs or group playpens. Generally, infants and toddlers lie, stand, or sit with little to do; when they are engaged with toys, it is in a simplistic, repetitive,

and autonomous manner (e.g., banging, shaking, mouthing) regardless of the nature of the object (e.g., Piaget's primary circular reaction). They are often engaged in stereotypic or self-stimulation behaviors, such as rocking, repetitive shaking of an object, and head banging. Because of the lack of adult interaction, they do not anticipate caregiver interactions with them, they do not show much excitement and movement in their cribs when a caregiver comes near, nor do they reach to be picked up. When they are frustrated or hurt, they cry in isolation rather than look for a caregiver to provide assistance.

By the second half of the first year, these children have become largely devoid of affect and have vacant or empty looks on their faces. They look at other children and strangers apparently as objects, staring blankly and examining the person as something to be explored or studied but not related to. They may not get upset when another child takes a toy they are playing with.

4.2.5. Behaviors of older children.

Older children tend to play in isolation from one another, and without much expression. When play is social, it is largely parallel play—they play in isolation even in groups, bumping into each other but not reciprocally interacting in contingent or cooperative ways. Even active and social games are played with little smiling, laughing, or enthusiasm. They also often sit or stand with nothing to do, or they follow adult direction and largely do what they are told, conforming to rules and adult direction. They play with toys in the adult-prescribed traditional way; they do not tend to engage in creative, imaginary play or even play experimentally with objects in the manner of Piaget's tertiary circular reaction.

There are many toys and learning materials available, but their use seems limited. Caregivers are very concerned with orderliness, and are constantly putting toys back on shelves. Children tend to play with one toy for a prolonged period of time, and when it is relinquished a caregiver puts it away. A variety of learning materials are on shelves, typically out of children's reach, often neatly labeled, but rarely used.

When strangers arrive, infants and toddlers do not display wariness or fear of a stranger. Rather, they stare at the person, exploring the individual without expression. Older children often show a great interest in strangers, do not fear them, and are indiscriminately friendly, running up to the stranger and hugging him or her repeatedly. While they become excited when a stranger arrives, they do not seem to know how to relate to the individual in an appropriate manner.

4.2.6 Special-needs children.

Children with special needs often receive the least attention. They spend long periods of time in cribs, chairs, or walkers, often sitting or lying in awkward, contorted, asymmetrical, and uncomfortable positions. Self-stimulation behaviors (e.g., rocking, repetitive shaking, head banging, poking at the wallpaper) are common, and these children do not seek social interaction. They are lethargic, inactive, unresponsive, and behave autonomously as if other children and adults are not there. They display limited social-emotional expression, and they tend not to watch what other children and caregivers are doing. While there may be wheelchairs and other equipment available for children with disabilities, they are not used much, and caregivers do not compensate by holding such children and otherwise bringing them to the center of activity so they can observe and participate.

4.3 Generality of the “Institutional Culture”

Orphanages can vary substantially in essentially all respects, so a major issue is the generality of the “institutional culture” described above. We are fairly confident, based upon the observations of both Research Teams, that this culture pervades Baby Homes in St. Petersburg and likely much of the Russian Federation. Although directors have some discretion and autonomy, orphanages are governed by federal, regional, and city Ministries that dictate employment practices, certain aspects of children’s schedules and services, and even the size of spoons used to feed children. Therefore, the description offered above is probably generalizable in large part to at least urban orphanages in the Russian Federation.

In addition, several themes described above conform to reports of orphanages in other countries (e.g., Groze & Illeana, 1996; Hough, 1999; Johnson et al., 1996; Kaler & Freeman, 1994; Provence & Lipton, 1962; Sloutsky, 1997; Spitz, 1945; Tizard & Hodges, 1978; Tizard & Tizard, 1971, Vorria, Rutter, Pickles, Wolkind & Hobsbaum, 1998a, 1998b). Commonly reported elements include the two-room suite that defines a ward; many caregivers and periodic “graduations” to new caregivers; caregivers who have minimum training, work long hours, spend little time interacting or talking with children, and maintain social-emotional detachment from the children; caregiver directed interaction, group scheduling of caretaking activities; children who are given up for financial and parental incompetence; children who spend long periods of time in their cribs or playpens often engaged in stereotypic self-stimulation; propped bottle feeding; failure of caregivers to respond to crying; children who ignore or are indiscriminately friendly to strangers; and children who do not seem to know how to play with objects or peers.

These reports, however, do not include descriptions of orphanages in Asia or Central and South America.

References

Alpers, L. H., Johnson, D. E., Hostetter, M. K., Iverson, S., & Miller, L. C. (1997). Health of children adopted from the former Soviet Union and Eastern Europe: Comparison with preadoptive medical records. *JAMA*, 278(11), 922-924.

Ames, E. W., Chisholm, K., Fisher, L., Morison, S. J., Thompson, S., & Mainemer, H. (1997). The development of Romanian orphanage children adopted to Canada. Final report to the National Welfare Grants Program Human Resources Development Canada. Authors. Vancouver, Canada: Simon Fraser University.

Bakwin, H. (1949). Emotional deprivation of infants. *Journal of Pediatrics*, 35, 512-521.

Benoit, T., Joycelyn, L. J., Moddemann, D. M., & Embree, J. E. (1996). Romanian adoption: The Manitoba experience. *Archives of Pediatric and Adolescent Medicine*, 150, 1278-1282.

Blizzard, R. M. (1990). Psychosocial short stature. In F. Lifshitz (Ed.), *Pediatric Endocrinology* (pp. 77-91). New York, NY: Marcel Dekker.

Bohman, M., & Sigvardsson, S. (1985). A prospective longitudinal study of adoption. In A. R. Nicol (Ed.), *Longitudinal Studies in Child Psychology and Psychiatry* (pp. 137-155). New York: John Wiley and Sons Ltd.

- Bradley, R. H., Caldwell, B. M., & Corwyn, R. F. (2003). The Child Care Home Inventories: Assessing the quality of family child care homes. *Early Childhood Research Quarterly, 18*(3), 294-309.
- Brodbeck, A. J., & Irwin, O. C. (1946). The speech behaviour of infants without families. *Child Development, 17*, 145-146.
- Burchinal, M. R., Cryer, D., Clifford, R. M., & Howes, C. (2002). Caregiver training and classroom quality in child care centers. *Applied Developmental Science, 6*(1), 2-11.
- Carpenter, S. C., Clyman, R. B., Davidson, A. J., & Steiner, J. F. (2001). The association of foster care or kinship care with adolescent sexual behavior and first pregnancy. *Pediatrics, 108*, p. e46. <http://www.pediatrics.org/cgi/content/full/108/3/e46>.
- Center for Disease Control (2004). www.cdc.gov/nccdphp/dnpa/growthcharts/sas.htm.
- Chisholm, K., Carter, M. C., Ames, E. W., & Morison, S. J. (1995). Attachment security and indiscriminantly friendly behavior in children adopted from Romanian orphanages. *Development and Psychopathology, 7*, 283-294.
- Chisholm, K. (1998). A three year follow-up of attachment and indiscriminant friendliness in children adopted from Romanian orphanages. *Child Development, 69*, 1092-1106.
- Dennis, W., & Najarian, P. (1957). Infant development under environmental handicap. *Psychological Monographs: General and Applied, 71*, 1-13.

Fiene, R., Greenberg, M., Bergston, M., Fegley, C., Carl, B., Gibbons, E., and the Universities Children's Policy Collaborative (2002). Early care and education: The keystone of Pennsylvania's future. Harrisburg, PA: Commonwealth of Pennsylvania.

Fried, R., & Mayer, M. (1948). Socio-economic factors accounting for growth failure in children living in an institution. *Journal of Pediatrics*, 33, 444-451.

Goldfarb, W. (1943). Infant rearing and problem behavior. *American Journal of Orthopsychiatry*, 13, 249-265.

Groark, C. J., Muhamedrahimov, R. J., Palmov, O. I. Nikiforova, N. V., & McCall, R. B. (in press). Improvement in early care in Russian orphanages and their relationship to observed behaviors. *Infant Mental Health Journal*.

Groze, V., & Ileana, D. (1996). A follow-up study of adopted children from Romania. *Child and Adolescent Social Work Journal*, 13, 541-565.

Hodges, J., & Tizard, B. (1989a). IQ and behavioural adjustment of ex-institutional adolescents. *Journal of Child Psychology and Psychiatry*, 30, 53-75.

Hodges, J., & Tizard, B. (1989b). Social and family relationships of ex-institutional adolescents. *Journal of Child Psychology and Psychiatry*, 30, 77-97.

Hough, S. D. (1999). Risk factors for the speech and language development of children adopted from Eastern Europe and the Former USSR. In T. Tepper, D. Sandstorm, & C. L. Hannon (Eds.), *International adoption: Challenges and opportunities* (pp. 108-128). Meadowlands, PA: Parents Network for the Post-Institutionalized Child.

Hunt, J. M., Mohandessi, K., Ghodssi, M., & Akiyama, M. (1976). The psychological development of orphanage-reared infants: Interventions with outcomes. *Genetic Psychology Monographs*, *94*, 177-226.

Johnson, D. E. (2000). Medical and developmental sequelae of early childhood institutionalization in Eastern European adoptees. In C. A. Nelson (Ed.), *The effects of early adversity on neurobehavioral development* (Vol. 31, pp. 113-162). Mahwah, NJ: Lawrence Erlbaum.

Johnson, D. E. (2001). International adoption: New kids, new challenges. *Pediatric Basics*, *94*, 16-28.

Johnson, E., Alpers, L., Iverson, S., Mathers, M., Dole, K., Georgieff, M., Hostetter, M., & Miller, L. (1996). Health status of U.S. adopted Eastern European orphans. *Pediatric Research*, *39*(4), 134-A.

Johnson, D. E., Miller, L. C., & Iverson, S. (1992). The health of children adopted from Romania. *Journal of the American Medical Association*, *268*, 3446-3451.

Judge, S. L. (1999). Eastern European adoption: Current status and implication for intervention. *Topics in Early Childhood Special Education, 19*, 4.

Kaler, S., & Freeman, B. (1994). Analysis of environmental deprivation: Cognitive and social development in Romanian orphans. *Journal of Child Psychology and Psychiatry, 35*, 769-781.

Kohen-Raz, R. (1968). Mental and motor development of Kibbutz, institutionalized, and home-reared infants in Israel. *Child Development, 39*, 489-503.

Kontos, S., & Fiene, R. (1987). Child care quality, compliance with regulations, and children's development: The Pennsylvania study. In D. Phillips (Ed.), *Quality in child care: What does research tell us?* (pp. 57-79). *Research Monographs of NAEYC, 1*. Washington, DC: NAEYC.

Kossover, R. (2004). Analysis of dietary composition and nutritional adequacy in Russian orphans living in Baby Home No 13. Unpublished manuscript. Minneapolis, MN: University of Minnesota.

LINC Associates (1988). *The Battelle Developmental Inventory Scoring Booklet*. Itasca, IL: Riverside Press.

Lowrey, L. G. (1940). Personality distortion and early institutional care. *American Journal of Orthopsychiatry, 10*, 576-585.

Martin, J. A., Hamilton, B. E., Sulton, P. D., Ventura, S. J., Menacker, F., & Munson, M. L. (2003). Births: Final data for 2002. *National Vital Statistics Reports*, 52(10).

McCall, J. (1999). Research on the psychological effects of orphanage care: A critical review. In R. B. McKenzie (Ed.), *Rethinking orphanages for the 21st century*. Newbury Park, CA: Sage Publications, Inc.

Mental Disability Rights International (1999). Children in Russia's institutions: Human rights and opportunities for reform. <http://www.mdri.org/publications/Russia1.html>.

Ministry of Health of the Russian Federation (2003). *Services for mother and child protection in 2002*. Moscow: Russian Medical Science Academy.

Muhamedrahimov, R. J. (1999). New attitudes: Infant care facilities in St. Petersburg, Russia. In J. D. Osofsky and H. E. Fitzgerald (Eds.). *WAIMH handbook of infant mental health. Vol. 1. Perspectives on infant mental health* (pp. 245-294). New York: Wiley.

Muhamedrahimov, R. J., Palmov, O. I., Nikiforova, N. V., Groark, C. J., & McCall, R. B. (2004). Institution-based early intervention program. *Infant Mental Health Journal*, 25(5), 488-501.

NICHD Early Child Care Research Network (2000). Characteristics and quality of child care for toddlers and preschoolers. *Applied Developmental Science*, 4, 116-135.

O'Connor, T. G., Bredenkamp, D., Rutter, M., Beckett, C., Keaveney, L., Kreppner, J., & the English and Romanian Adoptees (ERA) study team (2000). The effects of global severe privation on cognitive competence: Extension and longitudinal follow-up. *Child Development, 71*, 376-390.

O'Connor, T. G., Bredenkamp, D., Rutter, M., & the English Romanian Adoption Study Team (1999). Attachment disturbances and disorder in children exposed to early severe deprivation. *Infant Mental Health Journal, 20*, 10-29.

Phillips, D., & Howes, C. (1987). Indicators of quality in child care: Review of research. . In D. Phillips (Ed.), *Quality in child care: What does research tell us?* (pp. 1-19). *Research Monographs of NAEYC, 1*. Washington, DC: NAEYC.

Provence, S., & Lipton, R. C. (1962). *Infants in Institutions*. New York: International Universities Press.

Ritchie, S., & Howes, C. (2003). Program practices, caregiver stability, and child-caregiver relationships. *Applied Developmental Psychology, 24*, 497-516.

Rutter, M., (2000). Psychosocial influences: Critiques, findings, and research needs. *Development and Psychopathology, 12*, 265-296.

Rutter, M., Kreppner, J. M., O'Connor, T., & the English Romanian Adoption Studies Team. (1998). Specificity and heterogeneity in children's responses to profound institutional privation. *British Journal of Psychiatry*, *179*, 97-103.

St. Petersburg State Pediatric Medical Academy (2000). *Assessment of main anthropometrical items and some physiological parameters of children in North-Western Region*. St. Petersburg, Russian Federation.

Schaefer, E., & Edgerton, M. (1985). Parental and child correlates of parental modernity. In I. E. Sigel (Ed.), *Parental belief systems: The psychological consequences for children* (pp.287-318). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Simeonsson, R. J., & Bailey, D. B. (1988). Essential elements of the assessment process. In T. D. Wachs and B. Sheehan (Eds.), *Assessment of developmentally disabled infants and preschool children* (pp. 25-41). New York: Plenum Press.

Sloutsky, V. M. (1997). Institutional care and developmental outcomes of 6- and 7-year-old children: A conceptualist perspective. *International Journal of Behavioral Development*, *20*(1), 131-151.

Smyke, A. T., Koga, S. F. M., Johnson, D. E., Zeanah, C. H., and the BEIP Core Group (2004). *The caregiving context in institution reared and family reared infants and toddlers in Romania*. Authors. New Orleans, LA: Tulane University.

Spitz, R. A. (1945). Hospitalism: An inquiry into the genesis of psychiatric conditions in early childhood. *Psychoanalytic Study of the Child, 1*, 53-74.

Stevens, A. G. (1971). Attachment behavior, separation anxiety, and stranger anxiety in polymatrically reared infants. In H. R. Schaffer (Ed.), *The origins of human social relations*. New York: Academic Press.

Tizard, B., Cooperman, O., Joseph, A., & Tizard, J. (1972). Environmental effects on language development: A study of young children in long-stay residential nurseries. *Child Development, 43*, 337-358.

Tizard, B., & Hodges, J. (1978). The effect of early institutional rearing on the development of eight-year-old children. *Journal of Child Psychology and Psychiatry, 19*, 99-118.

Tizard, B., & Joseph, A. (1970). The cognitive development of young children in residential care: A study of children aged 24 months. *Journal of Child Psychology and Psychiatry, 11*, 177-186.

Tizard, B., & Rees, J. (1974). A comparison of the effects of adoption, restoration to the natural mother, and continued institutionalization on the cognitive development of four-year-old children. *Child Development, 45*, 92-99.

Tizard, B., & Rees, J. (1975). The effect of early institutional rearing on the behavior problems and affectional relationship of four-year-old children. *Journal of Child Psychology and Psychiatry, 17*, 61-73.

Tizard, J., & Tizard, B. (1971). The social development of two year old children in residential nurseries. In H. R. Schaffer (Ed.), *Origins of human social relations*. New York: Academic Press.

US Department of State (2004, Nov. 16).

http://www.travel.state.gov/family/adoption_resources_02.html.

Vorria, P., Rutter, M., Pickles, A., Wolkind, S., & Hobsbaum, A. (1998a). A comparative study of Greek children in long-term residential group care and in two-parent families: I. Social, emotional, and behavioral differences. *Journal of Child Psychology, 39*(2), 225-236.

Vorria, P., Rutter, M., Pickles, A., Wolkind, S., & Hobsbaum, A. (1989b). A comparative study of Greek children in long-term residential group care and in two-parent families: II. Possible mediating mechanisms. *Journal of Child Psychology, 39*(2), 237-245.

Whitebook, Howes, & Phillips (1998). *Worthy Work, Unlivable Wages: The National Child Care Staffing Study, 1988-1997*. Washington, DC: Center for the Child Care Workforce, 1998.

Zeanah, C. H. (2005, January 6). Personal communication.

Zeanah, C. H., Nelson, C. A., Fox, N. A., Smyke, A. T., Marshall, P., Parker, S. W., & Koga, S. F. M. (2003). Designing research to study the effects of institutionalization on brain and behavioral development: The Bucharest Early Intervention Project. *Development and Psychopathology, 15*, 885-907.

Author Notes

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Table 1. Characteristics of Baby Home Staff

	Job Category		
	<u>Administrative/ Medical</u>	<u>Specialists</u>	<u>Caregivers</u>
	N=22(7%)	N=73(24%)	N=211(70%)
<u>Education and Experience</u>			
Total Years of Education ¹ :			
11-12 Yrs.	27%	56%	64%
13-14 Yrs.	5%	16%	21%
15-16 Yrs.	0%	18%	12%
17+ Yrs.	68%	10%	3%
Special Training:			
0 Yrs.	0%	7%	10%
<1 Yr.	14%	21%	23%
1-2 Yrs.	18%	47%	48%
3-4 Yrs.	68%	26%	19%
Baby Home Experience:			
<1 Yr.	5%	18%	13%
1-2 Yrs.	5%	8%	13%
3-5 Yrs.	5%	22%	15%
6-10 Yrs.	27%	18%	17%
11+ Yrs.	59%	34%	41%
Annual Turnover	5%	19%	16%

Table 1, continued

Work Schedule

Hours Worked Per Day:

3-5	0%	14%	5%
6-9	73%	48%	3%
10-15	23%	8%	21%
16-24	5%	30%	71%

Work Days Per Week:

2-3	0%	33%	83%
4-5	91%	60%	12%
6-7	9%	7%	5%

Personal Characteristics

Age (SD; Range)	51.3 (9.3; 23-65)	41.6 (9.9; 22-70)	44.7 (10.7; 19-79)
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Number of own children:

0	14%	10%	10%
1	32%	34%	34%
2	27%	47%	40%
3+	27%	9%	16%

Mean (SD) Progressive Attitude	107.86 (15.47)	101.28 (14.60)	98.26 (13.30)
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¹Includes the years in special training.

² Progressive attitude toward children from Parental Modernity Scale (Schaefer & Edgerton, 1985).

Higher scores reflect more progressive attitudes (i.e., child-directed vs. adult-directed interactions, greater child independence, less child conformity).

Percentages may not add to 100% because of rounding error.

Table 2. HOME Inventory Means (SD) for Caregivers in Baby Homes and USA Family Child Care Homes (24 months)

Scale	Baby Homes (N=151)	Family Child Care Homes(N=377) ¹	<i>t</i>	<i>f</i> ²
Total Score	32.45 (3.68)	34.76 (5.04)	5.11***	4.53%
Subscale:				
Responsivity	9.09 (1.37)	9.77 (1.42)	5.02***	4.37%
Acceptance	5.80 (1.40)	5.60 (1.32)	1.55	--
Organization	3.27 (0.93)	4.28 (1.16)	9.54***	14.54%
Learning Materials	8.06 (0.96)	7.52 (1.62)	3.84***	2.53%
Involvement	4.26 (1.52)	4.31 (1.57)	<1	--
Variety	1.97 (1.13)	3.28 (0.82)	14.80***	29.19%
Sociability ²	14.23 (2.19)	16.67 (NA)	13.70***	NA

¹Data from the Infant/Toddler Child Care HOME for 24-month children in family child care homes in the NICHD Study of Early Child Care (Bradley, Caldwell, & Corwyn, 2003).

²Sociability is a set of items, defined in Table 4, selected to reflect actual social interaction or circumstances that promote it. It is not independent of the other subscales, especially Responsivity and Involvement.

Table 3. Perinatal Characteristics of Children for Intake and Resident Samples

Characteristic	Intake ¹	Residents ¹
	<i>M/% (SD; Range)</i>	<i>M/% (SD; Range)</i>
<u>Pregnancy History</u>		
Mothers age (yrs.) (<i>N</i> =330, 260) ²	25.6 (6.8; 14-43)	27.2 (6.7; 14-44)
Percent 10-14 years	0.6%	0.4%
Percent 15-17 years	7.6%	4.2%
Percent 18-19 years	11.2%	8.1%
Fathers age (yrs.) (<i>N</i> =78, 73)	29.6 (8.0; 16-46)	30.3 (7.2; 17-53)
Number of previous births (<i>N</i> =424, 326):		
None	48.8%	41.7%
1	31.6%	35.9%
2	12.7%	12.9%
3+	6.8%	9.4%
Number of abortions (<i>N</i> =420, 320):		
None	72.9%	69.8%
1	12.6%	12.8%
2+	14.5%	17.3%
Number of miscarriages (<i>N</i> =420, 320):		
None	93.1%	91.3%
1	4.8%	6.6%
2+	2.0%	2.2%
Gestation (wks.) (<i>N</i> =323, 251):	37.7 (3.1; 24-42)	36.4 (4.1; 25-42)
Labor (<i>N</i> =424,327):		
Precipitated	2.1%	3.4%

Caesarian	6.8%	8.0%
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Pregnancy Complications³

Intrauterine Fetal Delay (“small for dates”)	16.0%	16.2%
Anemia	9.9%	11.0%
Syphilis ⁴	6.8%	7.3%
Preeclampsia	5.9%	6.1%
Mycoplasmosis ⁴	1.4%	7.6%
Oligo/polydramosis	2.6%	5.5%
Herpes ⁴	3.1%	1.8%
Chlamydia ⁴	2.6%	2.1%
Abruption of placenta	1.2%	1.8%
Other ⁵	47.2%	48.3%

Percent with at least one complication	68.2	72.5%
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Birth Data

Apgar at birth (<i>N</i> =423, 320)	5.5 (3.2; 0-9)	5.2 (3.1; 0-8)
Apgar at 10 min. (<i>N</i> =423, 320)	6.2 (3.6; 0-10)	5.9 (1.5; 0-9)

Child’s general birth condition (*N*=361; 263):

Satisfactory	60%	44.1%
Moderate	25.2%	28.5%
Grave	14.7%	27.4%

Percent on ventilation	8.2%	16.8%
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Days on artificial ventilation (<i>N</i> =418, 315)	7.4 (7.25; 1-30)	11.4 (13.2; 1-60)
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Birth weight (grs.) (<i>N</i> =374, 294)	2798.4 (661.5; 900-4410)	2614.1 (726.5; 700-4130)
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Russian Fed. Mean ⁵	3380	3380
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Percent less than 2500, 1500 grs.	27.0%, 5.5%	39.1%, 8.8%
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Table 3, continued

Birth length (cms.) (<i>N</i> =369, 286)	48.11 (4.1; 32-55)	46.9 (4.62; 31-55)
Russian Fed. Mean	50.88	50.88
Birth head circumference (cms.) (<i>N</i> =303, 214)	33.4 (2.1; 26-38)	32.88 (2.6; 23-42)
Russian Fed. Mean	36.21	36.21
Birth chest circumference (cms.) (<i>N</i> =277, 193)	32.2 (2.5; 21-39)	31.5 (3.1; 15-37)
Russian Fed. Mean	33.74	33.74

Postnatal Experience

Main experience before intake (*N*=417, 322):

Direct from birth hospital	15.3%	7.1%
Birth and another hospital	47.5%	56.2%
With parents (relatives & foster)	30.0% (0.5%)	29.2% (0.6%)
Other orphanage	5.5%	5.3%
No information	1.2%	1.6%
Age at intake (mos.) (<i>N</i> =416, 313)	6.4 (9.4; 0.1-59.4)	5.5 (7.5; 0.2-38.6)

¹Residents are all children residing in the orphanages essentially at one point in time between April 2000 and October 18, 2002. Intake Sample includes all children entering the three orphanages between the end of baseline for that Baby Home and spring of 2004; it represents an estimate of the nature of children being sent to the orphanages.

²The total number of cases available for Intake is 424 and for Residents is 327. The disparity between the listed *N*s and these total *N*s is due to unavailable information or refusal to provide information. Percentages may not add to 100% because of rounding error.

³More than one item could be attributed to a single case, so percentages are not mutually exclusive.

⁴Syphilis is sometimes indicated even if maternal syphilis was treated years before this pregnancy.

Mycoplasmosis, herpes, and Chlamydia may show up on a positive IgG test but actually reflect maternal antibodies rather than an actual infection (D. Johnson, Personal communication, Aug. 23, 2004).

⁵Russian birth standards for the Northwestern Region of the Russian Federation from St. Petersburg State Pediatric Medical Academy (2000).

⁶“Other” can include low-placed placenta, diabetes, hypertension, chronic gastritis, etc.

Table 4. Functional Abilities of Baby Home Children for the Intake and Resident Sample

	Intake (N=383)	Residents (N=302)
Mean (SD) Functional Abilities Index ¹	1.84 (.54)	1.97 (.81)
Percent considered w/disability ²	8%	21%
Percent considered typical	92%	79%
<u>Severe or Profound Disabilities:</u> ³	<u>% Disabled (N=32)</u>	<u>% Disabled (N=63)</u>
Audition	6%	3%
Social Skills	6%	3%
Intellectual	28%	62%
Hands, Arms, Legs	42%	24%
Communication	30%	51%
Tonicity	9%	23%
Physical Health	59%	65%
Vision	32%	21%
Structural Status	13%	15%

¹Functional Abilities Index is the average of 9 ratings 1-6 (profound) on the domains listed above (an average of 2.0 is “suspected problem”). Based upon Simeonsson & Bailey (1988).

²Children categorized as having a “disability” had a rating of 5 (severe) or 6 (profound) in at least one of the 9 domains or had four or more ratings of greater than 3 (“mild problem”).

³Children may have more than one rating of 5 (severe) or 6 (profound).

Table 5. Cumulative Percentages of Baby Home Children (Typical Children Only) at Intake and in Residence for Physical Growth Relative to Russian¹ and CDC USA Standard Percentiles

Physical Measure	Russian Standards ¹					CDC USA Standards ²				
	10%	25%	50%	75%	90%	10%	25%	50%	75%	90%
Height:										
Intake (<i>N</i> =327, 304)	34	49	91	95	98	43	61	78	93	97
Residents (<i>N</i> =237, 218)	54	73	95	98	99	61	77	90	96	99
Weight:										
Intake (<i>N</i> =327, 309)	41	58	90	96	99	55	73	90	97	99
Residents (<i>N</i> =236, 216)	67	78	97	98	99	63	81	91	97	99
Head Circumference:										
Intake (<i>N</i> =329, 298)	44	63	92	97	99	44	64	89	97	98
Residents (<i>N</i> =238, 197)	53	74	96	99	100	46	68	85	91	97
Weight for Height:										
Intake (<i>N</i> =294, 304)	24	49	93	97	100	29	51	74	91	97
Residents (<i>N</i> =231, 219)	24	50	90	95	98	25	45	72	89	96
Chest Circumference:										
Intake (<i>N</i> =329)	40	57	93	97	99	NA				
Residents (<i>N</i> =237)	43	63	92	96	99					

¹ Standards for the Northwestern Region of the Russian Federation from St. Petersburg State Pediatric Medical Academy (2000).

² Centers for Disease Control (2004).

Table 6. Standardized (USA CDC Standards) Physical Growth Means (*SDs*) for St. Petersburg Baby Homes and Bucharest Orphanage and Home/Parent-Reared Community Samples¹

	St. Petersburg	Bucharest	
	Baby Homes (<i>Ns</i> =230, 230, 209)	Orphanage (<i>N</i> =124)	Community (<i>N</i> =66)
Height for Age	-1.56 (1.37)***	-.89 (.90)	.06 (.98)***
Weight for Age	-1.68 (1.39)**	-1.25 (1.07)	-.06 (1.02)**
Head Circumference for Age	-1.17 (1.33)**	-.77 (.97)	.17 (.79)***
Weight for Height	-0.60 (1.20)	-.79 (1.03)	.002 (.99)

¹Resident groups from orphanages; children with serious disabilities omitted; Bucharest data from Smyke et al., 2004; entries are mean (*SD*) standardized scores using the USA CDC mean and *SD* to calculate *z*, thus USA home/parent-reared children have a mean $\forall 0$ (*SD*=1.00); significance levels under St. Petersburg compare it with Bucharest Orphanage sample, and significance levels under Bucharest Community compare it with Bucharest Orphanage.

Table 7. Cumulative Percentages of Baby Home Children (Typical Only) in the Intake and Resident Samples for the Battelle Developmental Inventory
Relative to the USA Standardization Percentiles

Scales	USA Standardization Percentiles				
	10%	25%	50%	75%	90%
Total Score:					
Intake (<i>N</i> =338)	60	74	96	98	99
Residents (<i>N</i> =206)	68	77	96	98	99
Personal-Social Subscale:					
Intake	59	78	96	99	99
Residents	71	83	94	99	99
Fine Motor Subscale:					
Intake	59	69	90	96	97
Residents	41	65	88	96	98
Gross Motor Subscale:					
Intake	43	84	96	99	99
Residents	51	72	89	97	100
Adaptiveness Subscale:					
Intake	44	79	93	96	98
Residents	49	67	86	94	99
Communication Subscale:					
Intake	35	65	91	98	99
Residents	57	79	91	99	100
Cognition Subscale:					
Intake	44	51	89	96	99
Residents	49	68	87	97	100

Table 8. Percentage of Children Adopted in USA, Adopted in Other Countries, Returned to Biological Parents, or Transferred to Children's Homes, Internats, and Other Places at Various Ages¹

Age at Transition (mos.)	Adoption, USA	Adoption, Other Countries	Biological Parents	Children's Homes ²	Internats ³	Other
0-12	67%	46%	35%	0%	0%	13%
13-24	22%	24%	31%	0%	0%	47%
25-36	4%	14%	19%	5%	0%	20%
37-48	3%	11%	11%	42%	14%	20%
49-60	2%	4%	4%	50%	82%	0%
61-72	0%	1%	0%	3%	4%	0%
73+	0%	0%	0%	0%	0%	0%
<i>N</i> (Avg./yr.)	245 (41)	444 (74)	24 (54)	76 (13)	56 (9)	15 (3)
%	21%	38%	28%	7%	5%	1%

¹Based upon official records of the three Baby Homes covering six years, 1997-2002. Percentages may not add to 100% because of rounding error.

²Children's Homes are institutions of approximately 80-100 children without or with relatively mild disabilities, approximately 3-18 years of age, located throughout the city, operated by the Ministry of Education.

³Internats are large self-contained institutions of 100-500 children with disabilities approximately 4-18 years of age operated by the Ministry of Labor and Social Care.

Table 9. Percentage of Children Transitioning to Different Post-Orphanage Destinations with Various Diagnoses

Diagnoses	Adoption, Adoption, Other		Biological	Children's		
	USA	Countries	Parents	Homes	Internats	Others
Non-specific At Risk:						
Encephalopathy	65%	43%	39%	0%	0%	16%
Growth Insufficiency	11%	20%	21%	9%	0%	36%
<u>Dystrophy</u>	<u>7%</u>	<u>11%</u>	<u>17%</u>	<u>11%</u>	<u>0%</u>	<u>24%</u>
Subtotal	83%	74%	77%	20%	0%	76%
Specific Syndromes:						
Prenatal Narcotic Exposure	5%	4%	1%	1%	0%	2%
Fetal Alcohol Syndrome	7%	12%	5%	33%	2%	0%
Physical Deformity ¹	3%	4%	3%	1%	0%	8%
Down Syndrome	0%	0%	2%	35%	32%	0%
Cerebral Palsy	0%	0%	6%	5%	36%	6%
Hydrocephalus, Microcephalus	0%	1%	1%	3%	27%	0%
Heart Disorder	0%	1%	3%	0%	0%	8%
Other ²	<u>0%</u>	<u>1%</u>	<u>0%</u>	<u>1%</u>	<u>0%</u>	<u>0%</u>
Subtotal	15%	23%	21%	79%	97%	24%
Total N:	243	448	295	75	56	50

¹Hernia, scoliosis, limb deformity, cryptorchism.

²Deafness, blindness, kidney deformity.