



**Data on the Developmental Patterns of Specific
Language and Learning Skills of Typically Developing Children
as Measured by the ABLLS®-R**

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Over the past three years, parents, relatives and friends of typically developing children have been entering data into the WebABLLS®. The data were collected by parents or professionals who both know the children and have received training in the administration of the ABLLS®-R. The data were updated at three-month intervals (i.e., 6 months, 9 months, 12 months) in order to track the specific changes in skills over the course of the children's development. To ensure accuracy of the data, all data that are included have been monitored to ensure that they have been recorded within 2 weeks of the child reaching the specified ages. These preliminary data have been collected in a systematic manner such as to provide information about when each skill measured by the ABLLS®-R is usually acquired by typically developing children.

The preliminary data that are currently being presented from this research project are from 81 children (42 females & 39 males) ranging in age from 6 months to 60 months. Children are from a variety of geographical locations (both nationally and internationally) and of differing ethnic, socio-economic and educational backgrounds. The children's development will be reviewed in the future to ensure that their data are truly representative of typical development before being included in the final analysis of the data.

The raw data provided by the informants were summarized to determine the average percent of each of the 25 repertoires in the ABLLS®-R attained by children at each three-month interval. For example, if one were to add all the highest possible scores (i.e., 0-4) for each of the 27 items in the Imitation repertoire (D section), there would be a maximum possible score of 80 points. For each child who had been assessed at one of the three-month intervals, his or her scores for all of those 27 items were summed and then divided by the 80 possible points. The result was then multiplied by 100 to provide the percent of the total imitation repertoire demonstrated by that child. These individual percent of repertoire scores were then averaged for all of the children's scores at each 3-month interval.

These scores have been calculated for all of the 25 repertoires of skills. At this time, a sample of the data is being presented to demonstrate some of the results of this project. Table 1 provides information about the average percent of the total ABLLS®-R scores for each of the 25 repertoires at three-month intervals between 6 and 60 months of age.

The column on the far left of the Table presents a letter representing each of the sections of the ABLLS®-R. The top row of the Table specifies the 3-month intervals

of the children's ages (e.g., 24 represents 2 years of age). The average percent of the repertoire is obtained by merely finding the intersection of the appropriate row and column. For example, the average percent of the imitation repertoire (D) obtained by the sample children at 24 months of age is 65% of the 80 possible points. At 36 months of age this score is 91%, and 98% at 48 months of age.

The average percent of the total possible scores along with the range from the highest to the lowest scores for the sample at each 3-month age intervals are presented in Figures 1-4. Figure 1 provides the graph of these scores for the Receptive Language section (C), while Figure 2 represents the Imitation section (D), Figure 3 represents the Intraverbal section (H), and Figure 4 represents the Toileting section (X). The average score for these sections reaches 90% or higher by the age of 36 months for the receptive language section, 36 months for the Imitative section, 51 months for the Intraverbal section, and 54 months for the Toileting section.

The data clearly indicate that typically developing children demonstrate most of the basic language and learning skills measured by the ABLLS®-R by the time they are 3 to 4 years of age. However, it is important to note that between 4 and 5 years of age there is still a significant amount of skill development demonstrated by many typically developing children in the Visual performance and Intraverbal repertoires.

Although the data reported by the observers are quite consistent for most of the children at a particular age, there is still a considerable amount of individual variation in the skills at any age. The variation in skills can be attributed to both actual differences in skills and also to individual differences in the scoring of specific skills by different observers. It is also possible that the data are influenced by the fact that the repeated evaluation of these children's skills may bring a parental focus on certain skills that may not otherwise be noticed by parents. As a result, this process may influence the parent's interaction with their child in such a manner as to teach those skills somewhat earlier than normal. Therefore the current results of this project must be interpreted carefully.

Because many of the children in this research are still quite young, there will need to be confirmation that the subjects are actually typically developing children. Furthermore, even though the sample size of the participants is continuing to increase, the sample size is still relatively small to make definitive statements about when a specific skill is usually demonstrated by typically developing children. Further analysis of the sequence for children to acquire specific skills across each repertoire is currently being completed, and should prove invaluable for individuals who develop IEPs for children with autism.

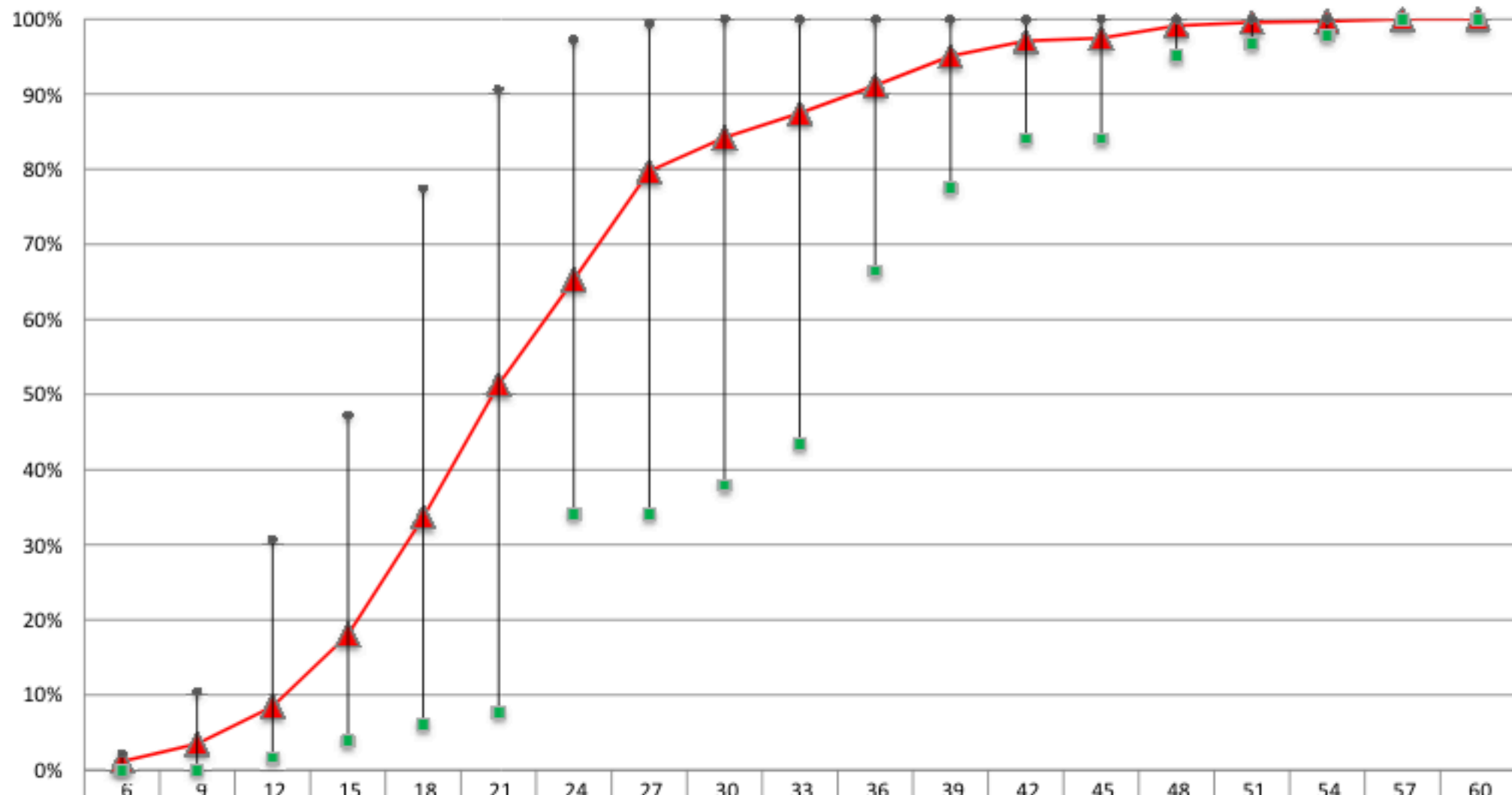
To Participate in This Research Project

We are always seeking individuals who would like to help with the gathering of data on the skills of typically developing children. Children who are between 5 and 54 months of age can be included in the project. For individuals who wish to participate in providing data for this research project, please contact Autumn Bailey at: Bailey@behavioranalysts.com

Average Percent of Total ABLLS®-R Repertoire Scores for Each 3-Month Age Interval

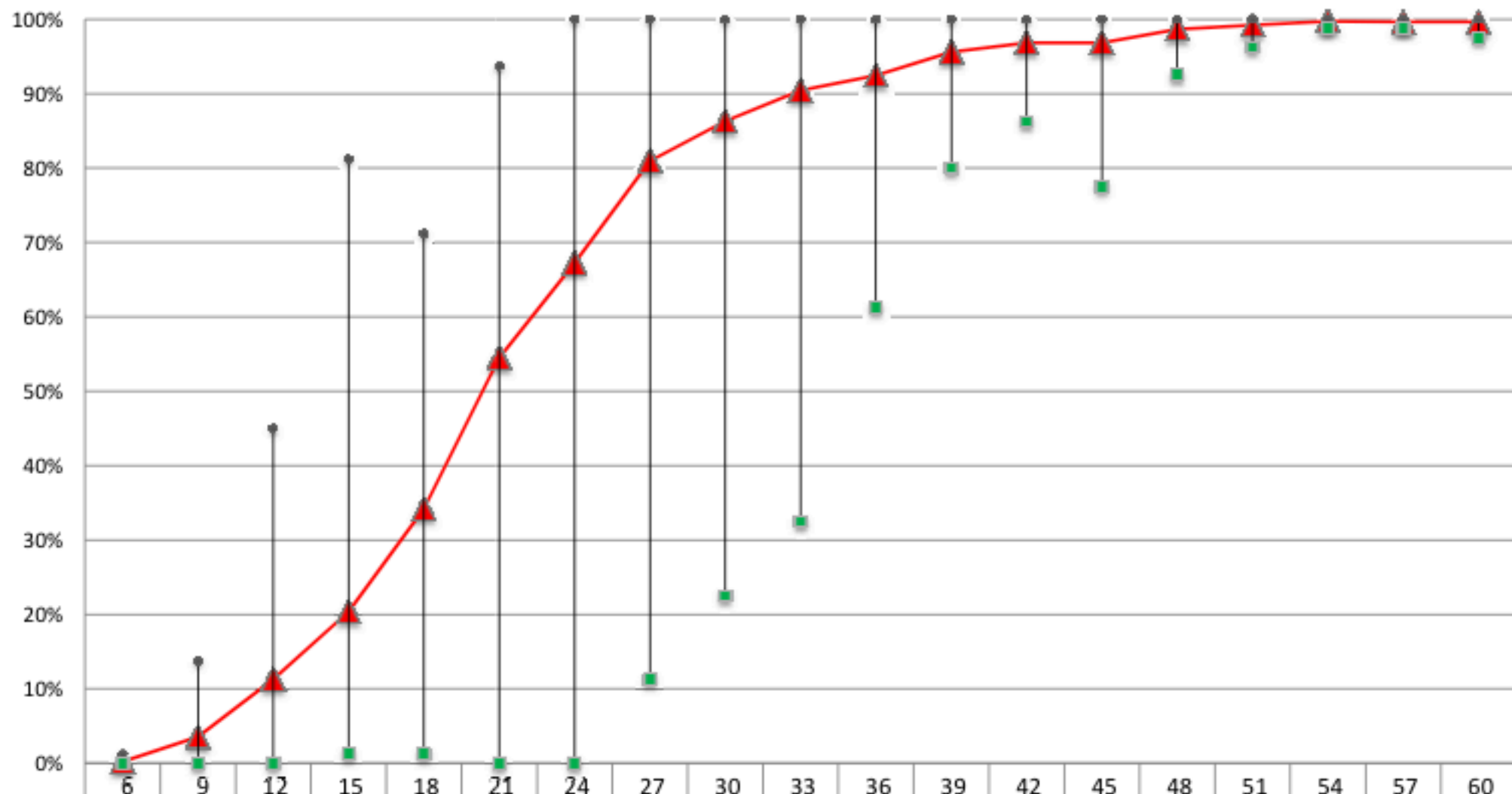
	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
A	16%	22%	31%	44%	56%	74%	85%	91%	91%	93%	95%	99%	98%	99%	99%	99%	99%	100%	100%
B	0%	0%	0%	3%	8%	17%	27%	43%	52%	57%	64%	76%	80%	83%	87%	93%	95%	98%	99%
C	2%	5%	11%	21%	37%	54%	68%	81%	85%	89%	92%	95%	97%	97%	99%	100%	100%	100%	100%
D	0%	3%	10%	19%	31%	51%	65%	79%	85%	89%	91%	95%	96%	96%	98%	99%	100%	99%	99%
E	0%	2%	9%	17%	30%	54%	72%	89%	92%	94%	95%	97%	97%	97%	98%	99%	99%	99%	99%
F	1%	3%	7%	15%	27%	44%	57%	76%	81%	87%	93%	97%	97%	98%	99%	100%	100%	100%	100%
G	0%	0%	1%	3%	9%	22%	37%	62%	74%	82%	87%	92%	94%	96%	96%	98%	98%	99%	100%
H	0%	0%	0%	2%	3%	9%	18%	34%	52%	62%	70%	78%	83%	87%	88%	92%	94%	97%	97%
I	5%	10%	18%	26%	48%	67%	81%	91%	95%	98%	98%	99%	100%	100%	100%	100%	100%	100%	100%
J	0%	0%	0%	1%	2%	10%	21%	44%	58%	66%	77%	84%	87%	89%	92%	94%	96%	96%	98%
K	10%	18%	25%	32%	45%	57%	66%	79%	83%	87%	90%	93%	94%	95%	97%	98%	99%	98%	99%
L	7%	18%	27%	35%	46%	59%	67%	78%	82%	86%	91%	95%	94%	95%	96%	98%	98%	99%	100%
M	0%	1%	2%	4%	5%	12%	21%	30%	42%	48%	54%	66%	72%	83%	89%	93%	94%	99%	100%
N	0%	0%	1%	3%	5%	13%	24%	32%	44%	48%	59%	70%	72%	84%	89%	94%	97%	99%	99%
P	0%	3%	10%	23%	42%	55%	69%	81%	91%	94%	94%	95%	99%	100%	99%	99%	100%	100%	100%
Q	0%	0%	0%	0%	0%	1%	4%	8%	9%	12%	15%	18%	22%	27%	32%	37%	39%	46%	51%
R	0%	0%	0%	0%	0%	1%	5%	9%	14%	18%	24%	29%	34%	37%	41%	50%	52%	54%	62%
S	0%	0%	1%	3%	5%	7%	11%	15%	19%	23%	27%	34%	40%	48%	57%	74%	76%	80%	83%
T	0%	0%	0%	0%	0%	1%	2%	2%	4%	5%	7%	11%	19%	25%	31%	43%	39%	51%	54%
U	0%	0%	2%	6%	9%	18%	26%	37%	45%	51%	58%	66%	72%	77%	83%	86%	90%	92%	94%
V	2%	7%	13%	23%	29%	37%	45%	51%	62%	67%	76%	81%	78%	82%	83%	90%	89%	90%	92%
W	0%	0%	1%	4%	11%	19%	35%	48%	56%	65%	73%	81%	79%	85%	94%	95%	95%	94%	94%
X	0%	0%	0%	0%	2%	4%	9%	20%	30%	48%	60%	81%	86%	86%	87%	89%	90%	90%	93%
Y	2%	5%	11%	20%	24%	36%	48%	59%	65%	68%	75%	81%	80%	85%	88%	92%	90%	94%	96%
Z	1%	4%	8%	19%	26%	36%	44%	53%	63%	65%	71%	79%	80%	85%	93%	98%	98%	97%	99%
avg	2%	4%	8%	13%	20%	30%	40%	52%	59%	64%	69%	76%	78%	81%	85%	88%	89%	91%	92%

C. Receptive Language (3 month intervals)



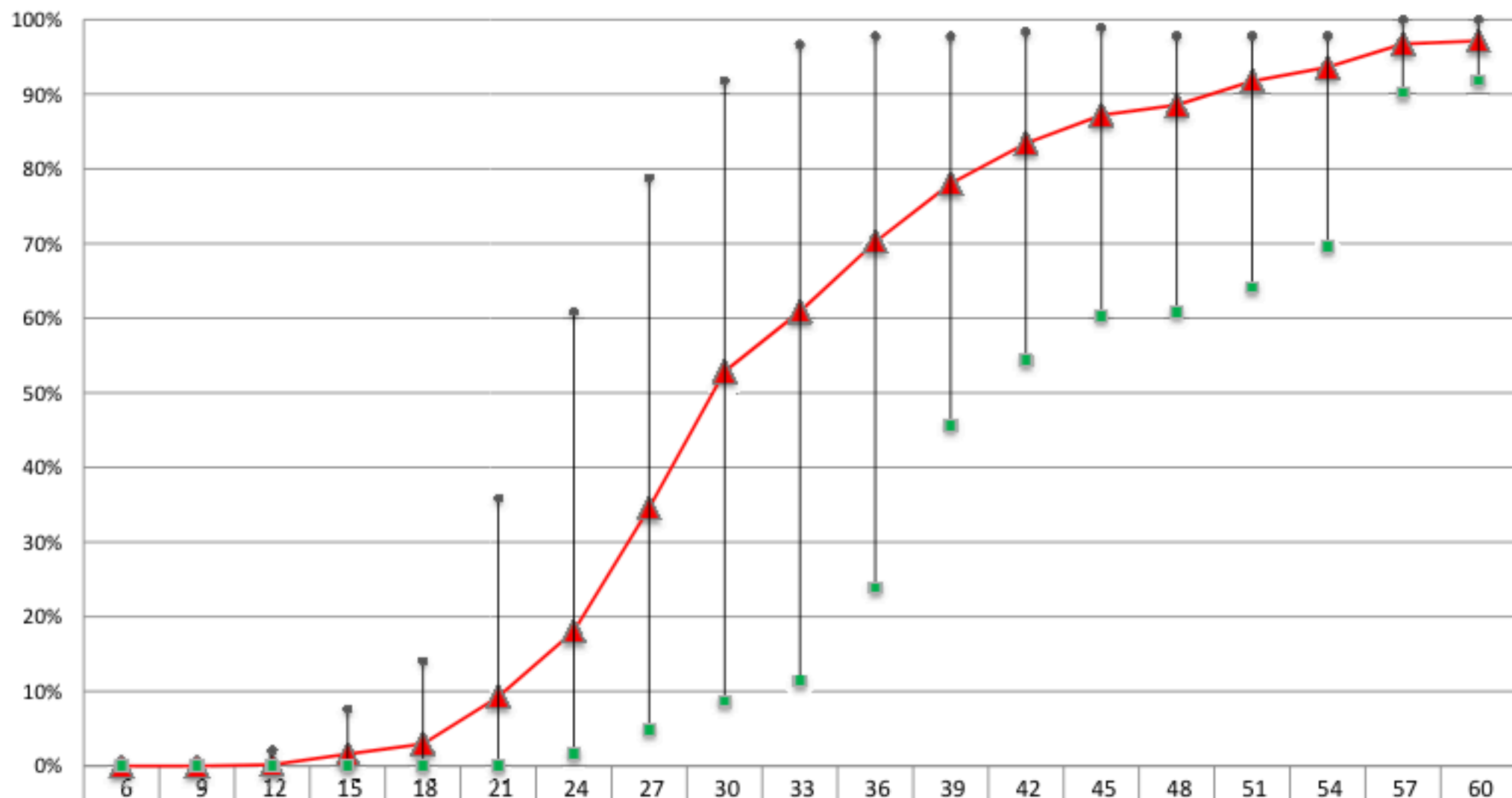
• Max	2%	10%	31%	47%	77%	91%	97%	99%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
■ Min	0%	0%	2%	4%	6%	8%	34%	34%	38%	43%	66%	77%	84%	84%	95%	97%	98%	100%	100%
▲ Average	1%	3%	8%	18%	34%	51%	65%	80%	84%	87%	91%	95%	97%	97%	99%	100%	100%	100%	100%

D. Imitation (3 month intervals)



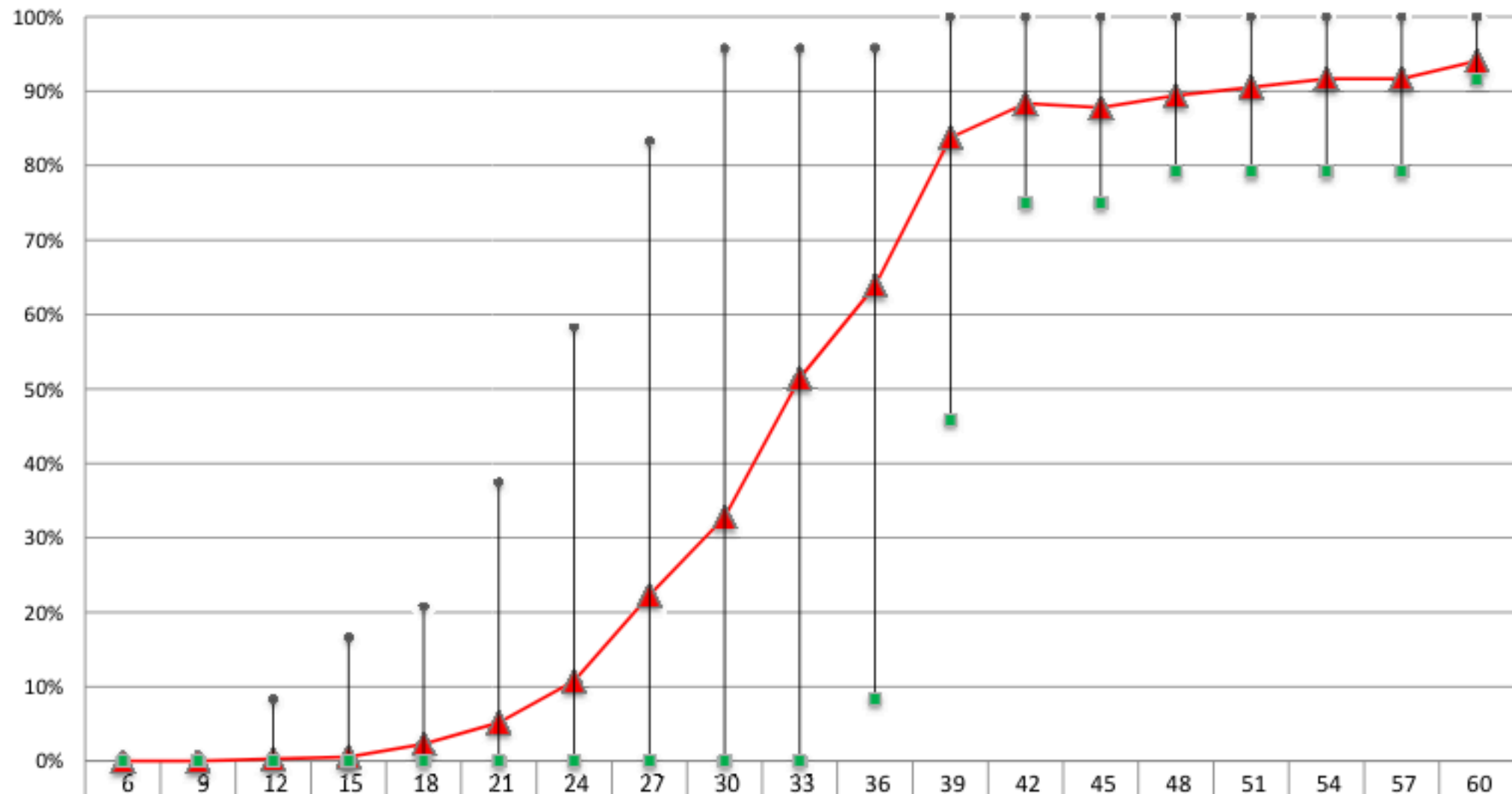
• Max	1%	14%	45%	81%	71%	94%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
■ Min	0%	0%	0%	1%	1%	0%	0%	11%	23%	33%	61%	80%	86%	78%	93%	96%	99%	99%	98%
▲ Average	0%	4%	11%	20%	34%	54%	67%	81%	86%	90%	92%	96%	97%	97%	99%	99%	100%	100%	100%

H. Intraverbal (3 month intervals)



• Max	0%	0%	2%	8%	14%	36%	61%	79%	92%	97%	98%	98%	98%	99%	98%	98%	98%	100%	100%
■ Min	0%	0%	0%	0%	0%	0%	2%	5%	9%	11%	24%	46%	54%	60%	61%	64%	70%	90%	92%
▲ Average	0%	0%	0%	2%	3%	9%	18%	35%	53%	61%	70%	78%	83%	87%	89%	92%	94%	97%	97%

X. Toileting Skills (3 month intervals)



• Max	0%	0%	8%	17%	21%	38%	58%	83%	96%	96%	96%	100%	100%	100%	100%	100%	100%	100%	100%
■ Min	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	46%	75%	75%	79%	79%	79%	79%	92%
▲ Average	0%	0%	0%	1%	2%	5%	11%	22%	33%	51%	64%	84%	88%	88%	89%	91%	92%	92%	94%