

# **Implementation**

## **(excerpts from Chapters 4–6)**



### **Score the Questionnaires**

**Developmental Area Items** For each questionnaire item, a score line is provided to the right of the boxes. Parents check *yes*, *sometimes*, or *not yet* (see Figure 16). The scoring system allows 10 points for each *yes*, 5 points for each *sometimes*, and 0 points for each *not yet*. These scores may be recorded on the score lines. On a few of the questionnaires, there are items that ask about behaviors the child may have performed at one time but no longer does because he or she has acquired more advanced skills (e.g., crawling replaced by walking). On these questionnaires, parents are instructed to answer *yes* to items their child performed earlier but no longer does. If parents mistakenly answer *not yet* or *sometimes* to an easier item (e.g., pertaining to crawling) but *yes* to a more advanced item (e.g., pertaining to walking), the score for the earlier item should be changed to 10 (for a *yes* response) before computing the total area score. Items relating to more advanced behaviors that should be changed are indicated in the scoring instructions on each questionnaire.

Total scores for each developmental area may be recorded on the line located below the last item in each area (see Figure 17). To score the developmental areas, first, all of the *yes* and *sometimes* responses can be added for each area. The scores can then be compared to the established cutoffs indicated on the Information Summary Sheet to determine whether the child's performance meets the criteria for referral. Children whose scores are above the cutoff points are not identified as needing further assessment or are considered to be developing typically. Children whose scores fall on or below the cutoff scores are "identified," or considered to be in need of follow-up and should be referred for further assessment.

#### **Case Study**

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Delia Conley was born 4 months ago to Janice Conley. There were no problems at birth, and Delia's birth weight and other medical characteristics were typical. Delia and her family qualified for participation in Steps-Ahead because Janice was 19 at the time of Delia's birth, and she had not completed high school. Janice also has another child, Jamie, who is 2 years old. Delia's scores on the ASQ are well above the cutoff points in all areas, and Janice did not list any concerns in the Overall section. Steps-Ahead will continue to monitor Delia's development, mailing the 8 month questionnaire in approximately 4 months.

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YES	SOMETIMES	NOT YET	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>10</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>10</u>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>5</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>10</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>0</u>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>0</u>
COMMUNICATION TOTAL			<u>35</u>

Figure 17. The child's scores for each item should be totaled by developmental area. Totals should be recorded on the indicated lines for easy translation to the bar graphs on the Information Summary Sheet.

For a child whose scores on a questionnaire fall just above the cutoff point in one or more areas, a follow-up contact with the parents is recommended. This follow-up contact consists of a telephone call or visit to talk about items not yet scored and discuss any parental concerns. This child may continue to be monitored using the *Ages & Stages Questionnaires* or may be referred for assessment, depending on the parents' concerns and information. If several areas of development receive scores that are low but not below the cutoff points, the child may need to be referred for assessment. In this case, it is important to contact parents to discuss the results and possible referral.

Regardless of a child's scores, when a parent records a concern in the Overall section of the questionnaire, program staff should respond. For example, a child may miss many of the expressive items in the communication area on the 16 month ASQ and still not receive scores that fall below the cutoff point. If, however, the parents have noted a concern in response to the question, "Do you think your child talks like other toddlers his [or her] age?" in the Overall section, the possibility of a referral for further assessment should be discussed with the parents.

**Overall Section** The Overall section, which contains questions such as "Do you think your child hears well?" and "Does anything about your child worry you?" is not scored but should serve as a general indicator of parental concerns. This section is important because parents may indicate a concern that is not addressed in the developmental areas of the questionnaire. Parents answer these questions by checking *yes* or *no*, and when appropriate explaining the response.

On the 4, 6, 8, 10, and 12 month questionnaires, the Overall section includes questions about whether the child uses both hands equally well and stands flat on surfaces most of the time. These questions are included as a means of detecting cerebral palsy. A *no* answer to either of these questions indicates that a follow-up telephone call or visit is necessary. In general, any concern about development noted by the parents in the Overall section should be discussed with parents, and a referral made if appropriate.

**Cutoff Points** As mentioned above, the ASQ system uses cutoff points to determine whether a child's score on a questionnaire indicates that the child should be referred for an in-depth evaluation. The cutoff points have been generated for each area of development on each questionnaire based on more than 7,900 completed questionnaires. The cutoff points were derived by subtracting 2 standard deviations from the mean for each area of development (e.g., fine motor). (The communication areas on the 14, 16, 18, 20, 22, 24, 27, 30, and 33 month questionnaires were excepted from this guideline. For these cutoff scores, one item [10 points] was added.) Therefore, the mean for each area represents the average performance of a large number of children. The standard deviation represents the amount of variance for each mean score, or how much scores are likely to vary in a particular area. The cutoff points listed in Table 4 were generated to minimize the percentage of children overreferred and underreferred. The cutoff points vary by area of development and by questionnaire interval. Appendix F at the end of this volume provides a more thorough discussion of the analyses used to balance the percentage of overreferral and underreferral based on the cutoff points.

It is possible for programs using the ASQ system to adjust the cutoff points they use, although this adjustment should be made thoughtfully. Chapter 4 provides a discussion of the basis on which programs may choose to adjust cutoff points. To adjust a cutoff point, the standard deviation is subtracted from the mean for each developmental area using the means and standard deviations provided in Table 3 on page 41. This number is then multiplied by 10 (to eliminate calculations using decimal points). For example, a program may choose to adopt a cutoff point that represents 1 standard deviation from the mean. One standard deviation would then be subtracted from the mean area scores.

$$\text{Mean area score} - \text{standard deviation} \times 10 = \text{cutoff score}$$

For the communication area on the 8 month ASQ, the standard deviation of .86 would be subtracted from the area mean, 5.35, and multiplied by 10, resulting in a new cutoff point of 44.9.

$$5.35 - .86 = 4.49 \times 10 = 44.9$$

Programs that use this strategy should be aware that by changing the cutoff points, one also changes the sensitivity, specificity, overreferral and underreferral rates, and other related variables. Table 19 in Appendix F at the end of this guide provides the sensitivity, specificity, true positive, false positive, and overreferral and underreferral rates when the cutoff points are adjusted.

**Scoring Complete Questionnaires** When parents have answered the items on a questionnaire, the following scoring steps should be used:

1. Review the questionnaire for unanswered items. If all items are answered, proceed to Step 2. If any questions were left unanswered, try to contact the parents to score unanswered questions. If this is not possible, see the procedures outlined in the next section for Scoring Questionnaires with Unanswered Items.
2. Correct items marked *not yet* or *sometimes* if more advanced items are scored *yes*. (There are reminders on the questionnaires to do this where necessary.)
3. Score each item on the questionnaire using the following values:

- *Yes* = 10 points
  - *Sometimes* = 5 points
  - *Not yet* = 0 points
4. Total the points in each area.
  5. Plot the area totals on the bar graph provided on the Information Summary Sheet.
  6. Note any area score(s) falling in the shaded portion of the bar graph. The child may require further assessment in these areas.
  7. Read the responses in the Overall section carefully. Contact the parents for clarification if the answers suggest potential problems. Transfer the *yes* and *no* responses, along with comments when they are relevant, to the top portion of the Information Summary Sheet.

**Recording Individual Item Responses** The grid at the bottom of the Information Summary Sheet provides space to record responses to individual questionnaire items, as well as area total scores. If program staff wish to return the questionnaires to parents, the Information Summary Sheet provides a one-page summary of all questionnaire information, including individual questionnaire item responses. This information may be valuable at a later time if staff must determine whether a child needs a more in-depth developmental evaluation. In addition, programs with the resources to mechanically scan questionnaire data may use the grids as computer-ready forms.

### Determine Follow-Up

#### **For Children Whose Scores Indicate Typical Development**

Most scored questionnaires will indicate that the child is developing without problems; that is, the child's totals in the developmental areas are above the cutoff points indicated on the Information Summary Sheet bar graph. For these children, a letter can be sent to parents explaining that their child appears to be developing without problems and also indicating when the next questionnaire will need to be completed. Figure 20 is a sample feedback letter to parents of children whose scores indicate they are developing without problems. A Spanish translation of this letter is provided in Appendix C.

**For Children Whose Scores Indicate a Need for Further Assessment** For children whose scores on a questionnaire meet the referral criteria defined during the planning stage of the ASQ process (see Chapter 4), some action should be taken. Available options include the following:

- *Refer* a child whose score in one or more developmental areas is below the established cutoff point (i.e., 2 standard deviations below the mean) for that questionnaire interval.
- *Follow up* with a child whose score in a particular area is close to the cutoff point.
- *Follow up* with a child whose scores are above the cutoff points for each area but whose parent has indicated a concern in the Overall section of the questionnaire.

	YES	SOMETIMES	NOT YET
<b>ADAPTIVE BEHAVIORAL-SOCIAL (continued)</b>			
Do you smile or talk to him, does your baby smile when he sees baby?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In front of a large mirror, does baby smile or coo at herself?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PERSONAL-SOCIAL TOTAL 55			
11 Parents and providers may use the space below or the back of this sheet for additional comments.			
Do you think your child hears well?	YES <input checked="" type="checkbox"/>		NO <input type="checkbox"/>
Do you help your child hear well? explain:			
Do your baby use both hands equally well?	YES <input checked="" type="checkbox"/>		NO <input type="checkbox"/>
Do you explain:			
Do you help your baby stand, are his feet flat on the surface most of the time?	YES <input checked="" type="checkbox"/>		NO <input type="checkbox"/>
Do you explain:			
Do either parent have any family history of childhood deafness or hearing impairment? explain:	YES <input type="checkbox"/>		NO <input checked="" type="checkbox"/>
Do you have concerns about your child's vision? explain:	YES <input type="checkbox"/>		NO <input checked="" type="checkbox"/>
Do your child have any medical problems in the last several months? explain:	YES <input type="checkbox"/>		NO <input checked="" type="checkbox"/>
Do you have anything about your child worry you? explain:	YES <input type="checkbox"/>		NO <input checked="" type="checkbox"/>

	YES	SOMETIMES	NOT YET
Did he/she get onto it for anything?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she reach in front of him when he is playing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she reach for something that he/she may not touch it?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FINE MOTOR TOTAL 60			
12 Play with your child.			
Did he/she point to his face or touch his eyes?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she look at the front of her face or play with her eyes?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she look at a toy on the table or floor?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she look at it?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she pick it up?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she play with the toy in his hand?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she play with your child?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she play with her hand?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she know he is about to drop it?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she know he is about to pick it up?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PROBLEM SOLVING TOTAL 50			

	YES	SOMETIMES	NOT YET
13 Play with your child.			
Did he/she cry or fuss when he/she is playing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she cry or fuss when he/she is playing with you?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she cry or fuss when he/she is playing with other people?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COMMUNICATION TOTAL 55			
14 Play with your child.			
Did he/she play from side to side?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she play with your baby?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she drop or fall off?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she look at his feet?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she hold his hand?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she play with his hand?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she play with your child?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she play with her hand?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she know he is about to drop it?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did he/she know he is about to pick it up?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GROSS MOTOR TOTAL 60			

ASQ 4 months

ASQ 4 months

ASQ 4 months

Figure 19. Delia Conley's scores on the 4 month ASQ indicated typical development, and her mother had not listed any concerns in the Overall section. Steps-Ahead will continue to monitor Delia's developmental progress.

Figure 19. (continued)

## 4 Month ASQ Information Summary

Child's name: Delia Conley Date of birth: July 4, 1998  
 Who is filling out the ASQ? Janice Conley Corrected date of birth: \_\_\_\_\_  
 Mailing address: 39078 Lana Ave. Relationship to child: Mother  
 Telephone: \_\_\_\_\_ City: Eugene State: OR ZIP: 97402  
 Today's date: November 4, 1998 Assisting in ASQ completion: \_\_\_\_\_

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**OVERALL:** Please transfer the answers in the Overall section of the questionnaire by circling "yes" or "no" and reporting any comments.

1. Hears well? Comments: <input checked="" type="radio"/> YES <input type="radio"/> NO	4. Family history of hearing impairment? Comments: <input type="radio"/> YES <input checked="" type="radio"/> NO
2. Uses both hands equally well? Comments: <input checked="" type="radio"/> YES <input type="radio"/> NO	5. Vision okay? Comments: <input checked="" type="radio"/> YES <input type="radio"/> NO
3. Baby's feet flat on the surface? Comments: <input checked="" type="radio"/> YES <input type="radio"/> NO	6. Recent medical problems? Comments: <input type="radio"/> YES <input checked="" type="radio"/> NO
	7. Other concerns? Comments: <input type="radio"/> YES <input checked="" type="radio"/> NO

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**SCORING THE QUESTIONNAIRE**

- Be sure each question has been answered. If a question cannot be answered, refer to the ratio scoring procedure in *The ASQ User's Guide*.
- Score each item on the questionnaire by writing the appropriate number on the line by each item answer.  
 YES = 10    SOMETIMES = 5    NOT YET = 0
- Add up the item scores for each area and record these totals in the space provided for area totals.
- Indicate the child's total score for each area by filling in the appropriate circle on the chart below. For example, if the total score for the Communication area was 50, fill in the circle below 50 in the first row.

Total	0	5	10	15	20	25	30	35	40	45	50	55	60
Communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Gross motor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Fine motor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Problem solving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal-social	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Total	0	5	10	15	20	25	30	35	40	45	50	55	60

Examine the blackened circles for each area in the chart above.

- If the child's total score falls within the  area, the child appears to be doing well in this area at this time.
- If the child's total score falls within the  area, talk with a professional. The child may need further evaluation.

**OPTIONAL:** The specific answers to each item on the questionnaire can be recorded below on the summary chart.

		Score	Cutoff	Communication			Gross motor			Fine motor			Problem solving			Personal-social			
4 months	Communication	55	33.3	1	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Gross motor	60	40.1	2	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	2	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	2	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	2	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Fine motor	60	27.5	3	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	3	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	3	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	3	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Problem solving	50	35.0	4	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	4	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	4	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	4	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	Personal-social	55	33.0	5	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	5	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	5	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	5	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
				6	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	6	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	6	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	6	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
					Y	S	N		Y	S	N		Y	S	N		Y	S	N

Administering program or provider: STEPS-AHEAD

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Ages & Stages Questionnaires, Bricker et al.  
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