

# Module 3: Understanding and Using Adjusted Age With Infants Born Prematurely



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In this presentation, we will discuss using adjusted age with infants born prematurely. This is the third in a series of five modules relevant to infants and toddlers born prematurely.

## Objectives...



To understand  
COMAR  
changes related  
to adjusted age



To learn how to  
calculate  
adjusted age

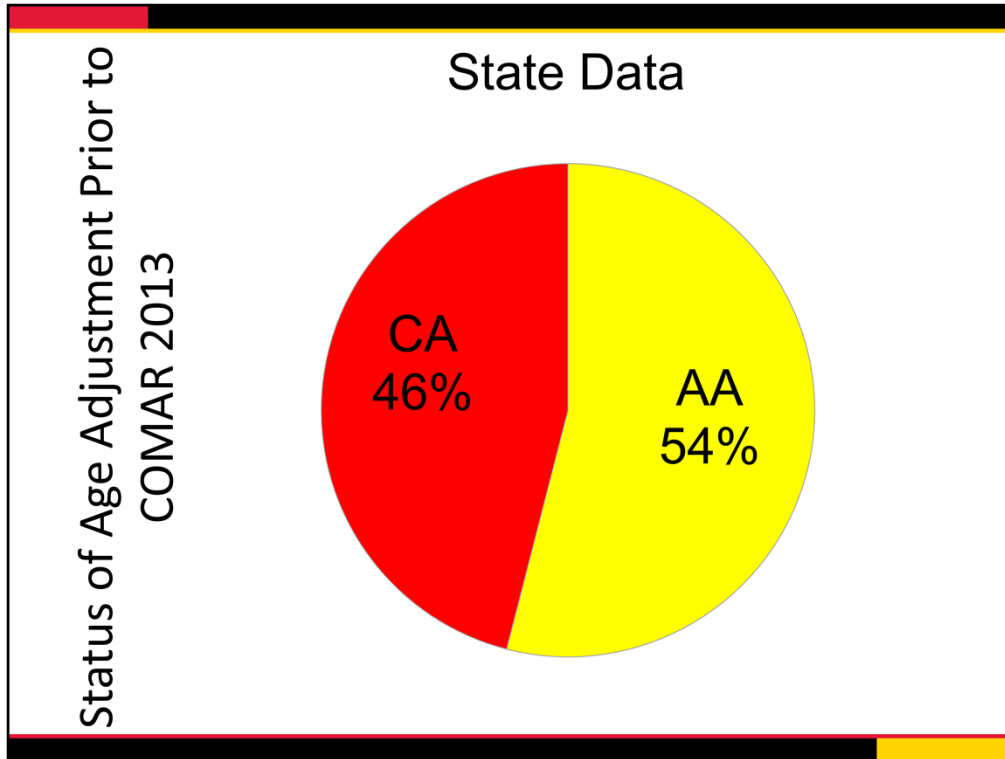
There are two objectives of this presentation. The first objective is to help you understand COMAR changes, related to adjusted age, that went into effect on July 1, 2013. The second objective is to teach you how to calculate adjusted age.



To understand COMAR changes related to adjusted age

## **COMAR**

COMAR is the acronym for Code of Maryland Regulations. Let's begin by discussing age adjustment as it relates to COMAR.



Prior to COMAR, the Maryland State Department of Education surveyed all local jurisdictions regarding their use of chronological versus adjusted age. At the time of the survey, 54% of the jurisdictions were using adjusted age for children born prematurely and 46% were using the child's chronological age.

COMAR

**Title 13A  
STATE BOARD OF  
EDUCATION**

**Subtitle 13 MARYLAND INFANTS AND  
TODDLERS PROGRAM**

**13A.13.01 *Provision of Early Intervention  
Services to [Eligible] Infants and Toddlers and  
Their Families***

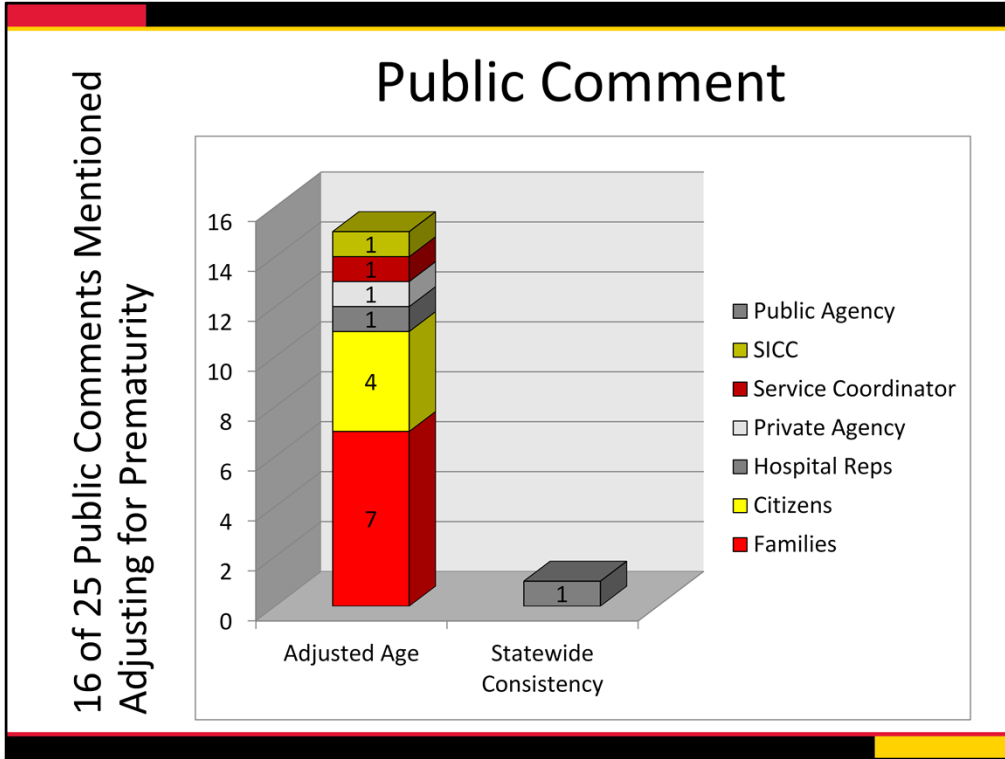
Authority: Education Article, §8-416, Annotated Code of Maryland  
Federal Regulatory Reference: 34 CFR 99, 300, 303

**Notice of Proposed Action**

[13-016-P]

The Maryland State Board of Education proposes to repeal existing Regulations .01—.13 and adopt new Regulations .01—.14 under **COMAR 13A.13.01 Provision of Early Intervention Services to Infants and Toddlers and Their Families**. This action was considered at the Maryland State Board of Education meeting held on October 31, 2012.

The proposed Code of Maryland Regulations 13A.13.01 Provision of Early Intervention Services to Infants and Toddlers with Disabilities and Their Families was published on January 25, 2013, in Volume 40, Issue 2, pages 132 through 145, of the Maryland Register. The public then had until February 20, 2013 to comment on the proposed regulations. During this time, the Maryland State Department of Education (MSDE) held five public hearings to give the public an opportunity to comment orally. Other methods of commenting on the regulations included email, fax, and postal mail.



MSDE received 18 public comments regarding the proposed regulations. Sixteen of the public comments received mentioned adjusting for prematurity. Fifteen of the comments recommended using adjusted age and one comment requested consistency throughout the State.

## Adjusted Age for Prematurity

### COMAR 13A.13.01.03B(2) and (12)(a)

(2) "Adjusted Age" means, for children born before 37 weeks gestation, the number of weeks born prematurely subtracted from the infant's chronological age. An infant's adjusted age is used until the infant's adjusted age is twelve months.

(12) "Developmental Delay" means the presence of:

(a) A 25 percent delay, using a child's adjusted or chronological age, and as measured and verified by appropriate diagnostic instruments and procedures, in one or more of the following developmental areas:

- (i) Cognitive development,
- (ii) Physical development, including vision and hearing,
- (iii) Communication development,
- (iv) Social or emotional development, or
- (v) Adaptive development;

When finalized, COMAR included the following policy related to adjusted age for prematurity. Code of Maryland Regulations 13A.13.01.03B(2) reads as follows: "Adjusted Age" means, for children born before 37 weeks gestation, the number of weeks born prematurely subtracted from the infant's chronological age. An infant's adjusted age is used until the infant's adjusted age is twelve months. Related to this statement, COMAR (12)(a) states: "Developmental Delay" means the presence of: (a) A 25 percent delay, using a child's adjusted or chronological age, and as measured and verified by appropriate diagnostic instruments and procedures, in one or more of the following developmental areas: (i) Cognitive development; (ii) Physical development, including vision and hearing; (iii) Communication development; (iv) Social or emotional development; or (v) Adaptive development.

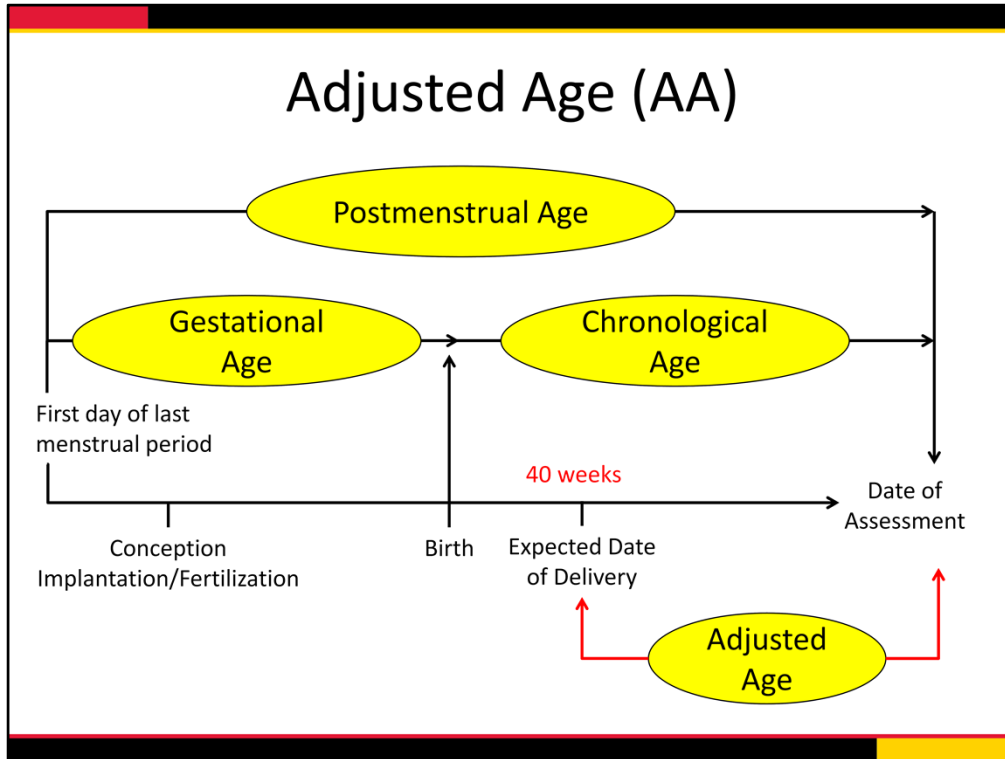


To learn how to calculate adjusted age

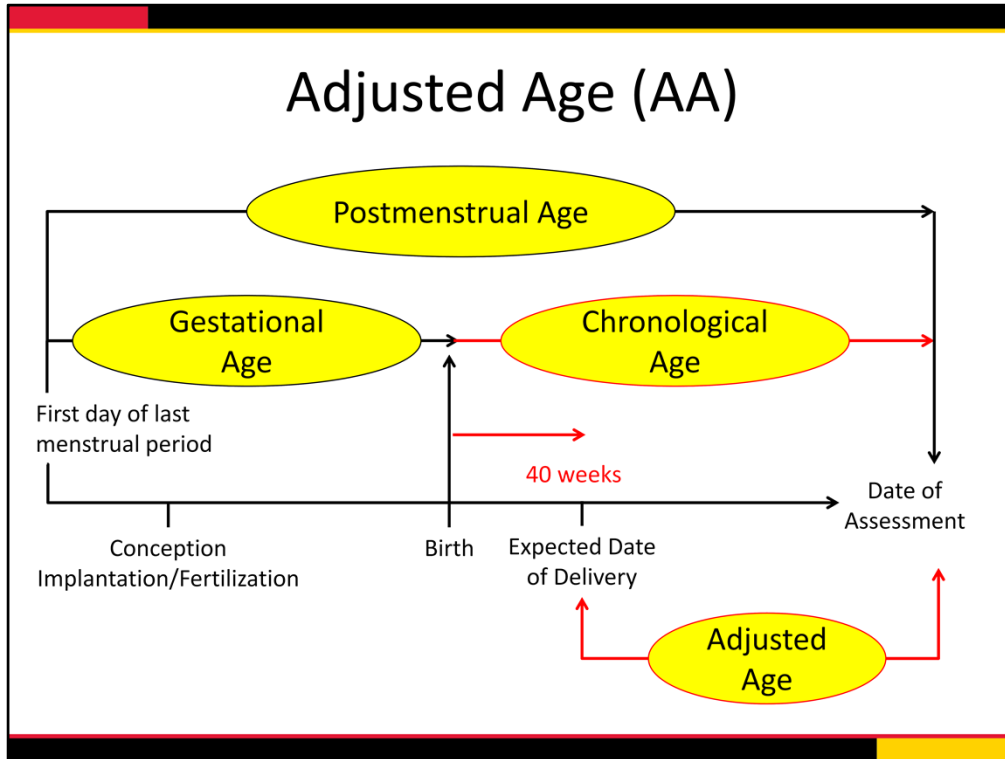
## **CALCULATING ADJUSTED AGE**

As COMAR designates the use of adjusted age for children born prematurely, until an adjusted age of 12 months, it is important that everyone knows how to calculate a child's adjusted age.

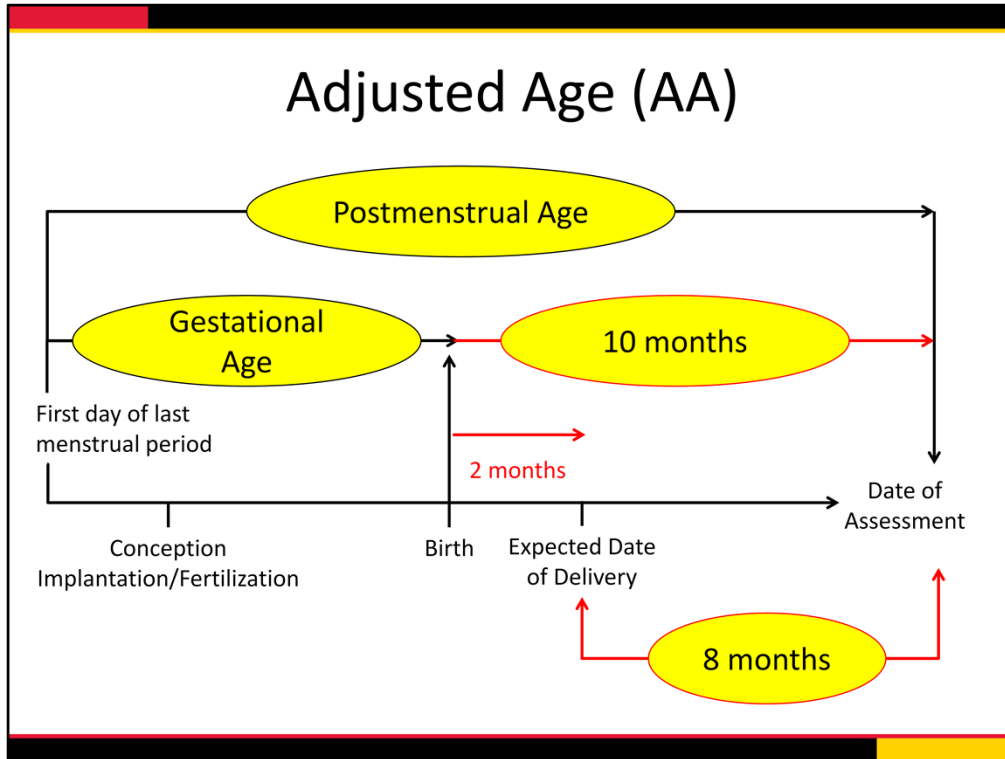




As a reminder, a child's adjusted age begins at the expected date of delivery, not the date of birth, and continues until the date of assessment.



The formula for calculating adjusted age is as follows: chronological age, minus the degree of prematurity equals adjusted age.



If a child's chronological age is 10 months and the child was born 2 months early, the child's adjusted age is 8 months as 10 minus 2 equals 8.

## Age Adjustment: Calculation Steps

### 1. Calculate Chronological Age

Chronological Age = Date of Testing – Date of Birth

	Year	Month	Day
DOT			
- DOB			
CA			

The first step in calculating a child's adjusted age is to calculate the chronological age. Chronological age equals the date of testing minus the date of birth. To calculate this, set up your math problem as follows:

- date of testing minus
- date of birth equals
- chronological age.
- When writing dates, list
- year first,
- then month, and
- then day.

## Age Adjustment: Calculation Steps

1. Calculate CA (DOT = 6/20/13, DOB = 1/18/13)

	Year	Month	Day
DOT			
- DOB			
CA			

Let's calculate the chronological age for a child being tested on June 20, 2013 who was born on January 18, 2013. Set up your mathematical formula to read date of testing, minus date of birth, equals chronological age.

## Age Adjustment: Calculation Steps

1. Calculate CA (DOT = 6/20/13, DOB = 1/18/13)

	Year	Month	Day
DOT	2013	6	20
- DOB			
CA			

Record the date of testing: the year is 2013, the month is 6 and the day is 20.

## Age Adjustment: Calculation Steps

1. Calculate CA (DOT = Today, DOB = 1/18/13)

	Year	Month	Day
DOT	2013	6	20
- DOB	2013	1	18
CA			

Record the child's date of birth: the year is 2013, the month is 1 and the day is 18.

## Age Adjustment: Calculation Steps

1. Calculate CA (DOT = Today, DOB = 1/18/13)

	Year	Month	Day
DOT	2013	6	20
- DOB	2013	1	18
CA			2 days

Begin by calculating days. Twenty days minus 18 days equals 2 days.



## Age Adjustment: Calculation Steps

1. Calculate CA (DOT = Today, DOB = 1/18/13)

	Year	Month	Day
DOT	2013	6	20
- DOB	2013	1	18
CA		5 months	2 days

Next, calculate the month. Six months minus 1 month equals 5 months.

## Age Adjustment: Calculation Steps

1. Calculate CA (DOT = Today, DOB = 1/18/13)

	Year	Month	Day
DOT	2013	6	20
- DOB	2013	1	18
CA	0 years	5 months	2 days

Then, calculate the year: 2013 minus 2013 equals 0 years.

## Age Adjustment: Calculation Steps

1. Calculate CA (DOT = Today, DOB = 1/18/13)

	Year	Month	Day
DOT	2013	6	20
- DOB	2013	1	18
CA	0 years	5 months	2 days

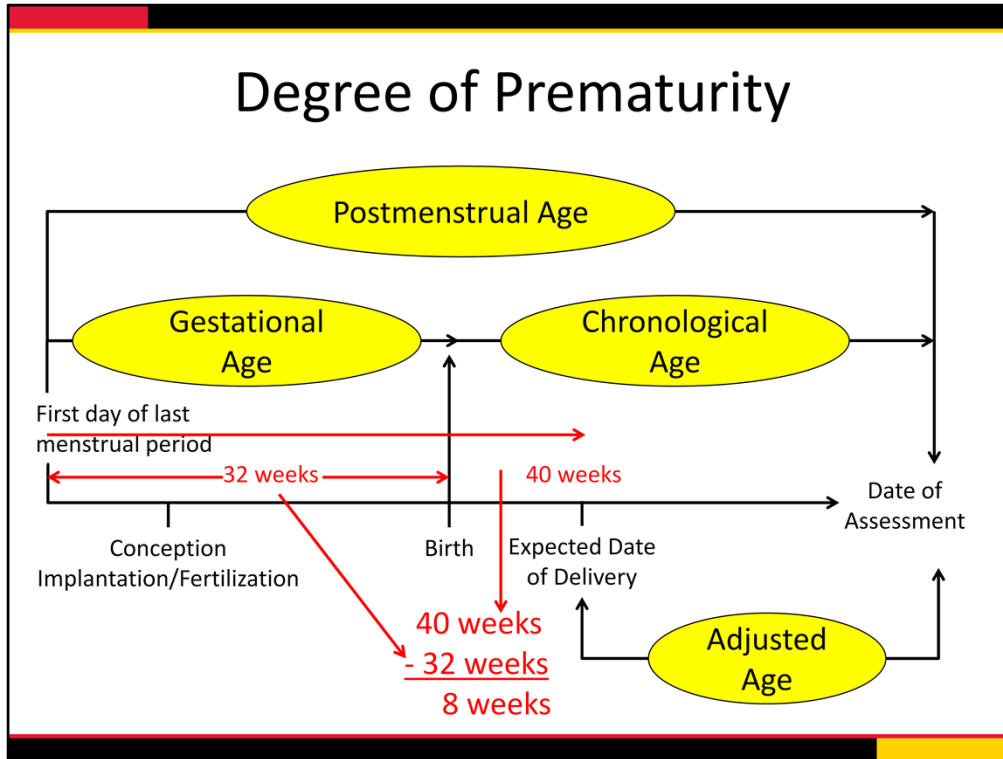
As such, the child's chronological age is 0 years, 5 months, 2 days.

## Adjusted Age: Calculation Steps

### 2. Calculate Adjusted Age

Adjusted Age = Chronological Age – Degree of Prematurity

Adjusted age equals chronological age minus the degree of prematurity. The child's degree of prematurity represents the number of weeks a child was born early.



Going back to our age chart, we can visualize the degree of prematurity as follows:

- 40 weeks minus
- gestational age equals degree of prematurity.
- In this scenario, 40 weeks
- minus 32 weeks
- equals 8 weeks. As such the degree of prematurity is 8 weeks.

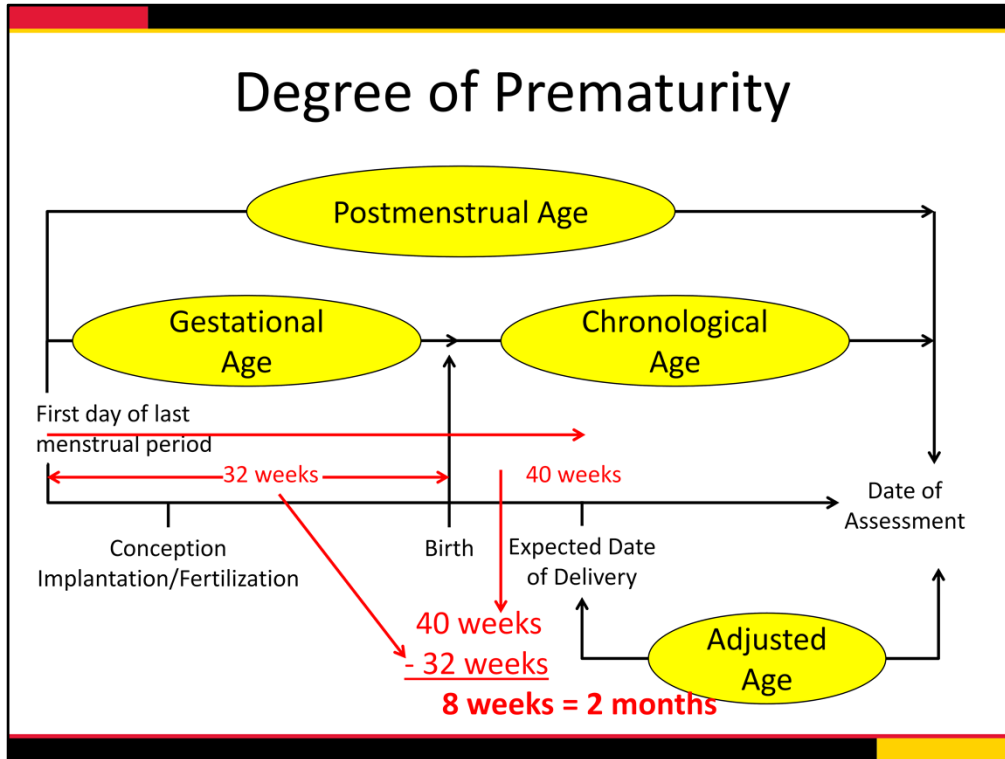
## Adjusted Age: Calculation Steps

### 2. Calculate Adjusted Age

Adjusted Age = Chronological Age – Degree of Prematurity

	Year	Month	Day
DOT	2013	6	20
- DOB	2013	1	18
CA	0 years	5 months	2 days
- DP			
AA			

Mathematically, write the formula as chronological age minus degree of prematurity equals adjusted age. When recording the degree of prematurity, you must do so in months and days so that the units of measure remain constant.



Going back to our age chart, and given the fact that there are 4 weeks in a month, the degree of prematurity of 8 weeks equals a degree of prematurity of 2 months.

## Adjusted Age: Calculation Steps

2. Calculate AA (Born at 32 weeks or 8 weeks early)

	Year	Month	Day
DOT	2013	6	20
- DOB	2013	1	18
CA	0 years	5 months	2 days
- DP		2	0
AA			

Record the degree of prematurity as 2 months and 0 days.



## Adjusted Age: Calculation Steps

2. Calculate AA (Born at 32 weeks or 8 weeks early)

	Year	Month	Day
DOT	2013	6	20
- DOB	2013	1	18
CA	0 years	5 months	2 days
- DP		2	0
AA			2 days

Begin by calculating days. Two days minus 0 days equals 2 days.

## Adjusted Age: Calculation Steps

2. Calculate AA (Born at 32 weeks or 8 weeks early)

	Year	Month	Day
DOT	2013	6	20
- DOB	2013	1	18
CA	0 years	5 months	2 days
- DP		2	0
AA		3 months	2 days

Next calculate months, 5 months minus 2 months equals 3 months. As such, this child's adjusted age is 3 months, 2 days.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
DOT			
- DOB			
CA			
- DP			
AA			

Now that we have determined how to calculate a child's adjusted age, let's review the process. You are participating on an eligibility evaluation team on June 20, 2013. Calculate the age at which you will test a child born on December 23, 2012 at 25 weeks gestation. The first step is to set up your mathematical formula: Date of testing minus date of birth equals chronological age. Chronological age minus degree of prematurity equals adjusted age.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
DOT	2013	6	20
- DOB			
CA			
- DP			
AA			

Record the date of testing as follows:

- the year is 2013,
- the month is 6 and
- the day is 20.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
DOT	2013	6	20
- DOB	2012	12	23
CA			
- DP			
AA			

Record the date of birth as follows:

- the year is 2012,
- the month is 12 and
- the day is 23.
- Begin by calculating days.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
DOT	2013	6	20
- DOB	2012	12	23
CA			
- DP			
AA			

As you can't subtract 23 from 20, you need to borrow some days from the months.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
DOT	2013	5 <del>6</del>	20
- DOB	2012	12	23
CA			
- DP			
AA			

Go to the months column to borrow 1 month. Cross out the 6 and make it 5.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
DOT	2013	5 6	20 + 30
- DOB	2012	12	23
CA			
- DP			
AA			

As 1 month equals 30 days, add 30 days to the 20 days.



## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
DOT	2013	5 6	50 <del>20 + 30</del>
- DOB	2012	12	23
CA			
- DP			
AA			

Cross out the 20 plus 30, and write 50 as 20 days plus 30 days equals 50 days. Next subtract 23 from 50.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
DOT	2013	5 6	50 20
- DOB	2012	12	23
CA			27 days
- DP			
AA			

50 days minus 23 days equals 27 days. Next calculate months.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
DOT	2013	5	50
- DOB	2012	6	20
CA		12	23
- DP			27 days
AA			

As you can't subtract 12 from 5, you need to borrow some months from the years. Go to the years column to borrow 1 year.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
	2012	5	50
DOT	<del>2013</del>	6	20
- DOB	2012	12	23
CA			27 days
- DP			
AA			

Cross out 2013 and make it 2012.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
DOT	2012 2013	5 + 12 6	50 20
- DOB	2012	12	23
CA			27 days
- DP			
AA			

As 1 year equals 12 months, add 12 months to the 5 months.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
DOT	2013	17	50
- DOB	2012	<del>5</del> + 12 6	20
	2012	12	23
CA			27 days
- DP			
AA			

Cross out the 5 plus 12 and write 17 as 12 months plus 5 months equals 17 months. Next subtract 12 from 17.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
	2012	17	50
DOT	2013	6	20
- DOB	2012	12	23
CA		5 months	27 days
- DP			
AA			

17 months minus 12 months equals 5 months. Next, calculate years.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
	2012	17	50
DOT	2013	5	20
- DOB	2012	12	23
CA	0 years	5 months	27 days
- DP			
AA			

2012 minus 2012 equals 0 years. This child's chronological age is 5 months and 27 days. Next record the child's degree of prematurity.



## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks <sup>40 weeks</sup>

	Year	Month	Day
DOT	2012 2013	17 5 6	50 20
- DOB	2012	12	23
CA	0 years	5 months	27 days
- DP			
AA			

<sup>15 weeks</sup>  
= 3 months,  
<sup>21 days</sup>

The degree of prematurity equals 40 minus 25 or 15 weeks. To keep our mathematical units consistent, we need to convert 15 weeks to months and days. As there are four weeks in a month and 7 days in a week, 15 weeks equals 3 months and 21 days.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
	2012	17	50
DOT	2013	6	20
- DOB	2012	12	23
CA	0 years	5 months	27 days
- DP		3	21
AA			

Record the degree of prematurity as 3 months, 21 days. Next calculate days by subtracting 21 from 27.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
	2012	17	50
DOT	<del>2013</del>	6	20
- DOB	2012	12	23
CA	0	5 months	27 days
- DP		3	21
AA			6 days

27 days minus 21 days equals 6 days. Next calculate months.

## Age Calculation: Review

DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
	2012	17	50
DOT	2013	6	20
- DOB	2012	12	23
CA	0	5 months	27 days
- DP		3	21
AA		2 months	6 days

5 months minus 3 months equals 2 months

## Age Calculation: Review

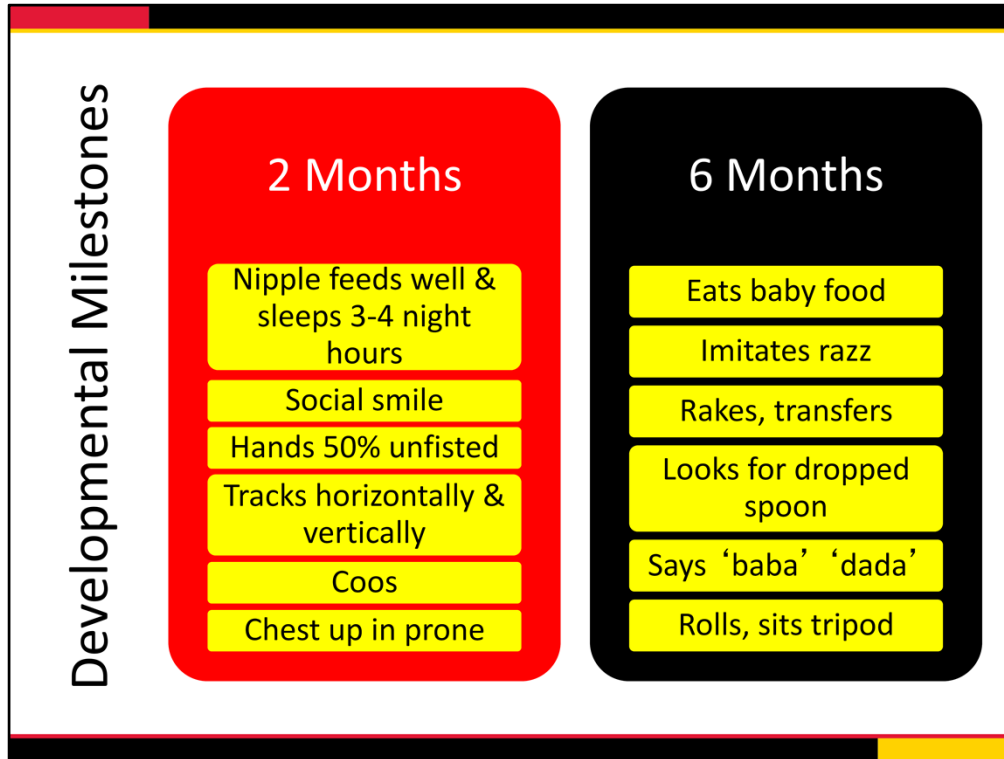
DOT: June 20, 2013    DOB: December 23, 2012    GA: 25 weeks

	Year	Month	Day
	2012	17	50
DOT	2013	6	20
- DOB	2012	12	23
CA	0	5 months	27 days
- DP		3	21
AA		2 months	6 days

As such, this child's adjusted age is 2 months, 6 days. At what age do you test this child:

- 5 months, 27 days or
- 2 months 6 days?

You test the child at 2 months, 6 days as COMAR states that you use a child's adjusted age until the child's adjusted age is 12 months.



As such you will be looking for developmental skills at the 2-month level. This includes milestones such as:

- nipple feeding well and sleeping 3 to 4 hours consecutively at night,
- having a social smile,
- keeping hands open half of the time,
- using eyes to track horizontally and vertically,
- cooing, and
- lifting chest up in prone. This set of milestones is dramatically different than those at 6 months of age.

Developmental milestones at the 6-month level include:

- eating baby food,
- imitating raspberries,
- using fingers to rake a Cheerio,
- transferring toys from one hand to another hand,
- demonstrating object permanence by looking for a dropped spoon,
- combining syllables to say "baba" or "dada,"
- rolling and sitting tripod.

## Age Calculation: Practice

DOT: June 20, 2013    DOB: April 15, 2012    GA: 32 weeks

Now, let's do a final practice example together. You are participating on an eligibility evaluation team on June 20, 2013. Calculate the age at which you will test a child born on April 15, 2012 at 32 weeks gestation.

# Age Calculation: Practice

DOT: June 20, 2013    DOB: April 15, 2012    GA: 32 weeks

	Year	Month	Day
DOT			
- DOB			
CA			
- DP			
AA			

Set up your formula.



## Age Calculation: Practice

DOT: June 20, 2013    DOB: April 15, 2012    GA: 32 weeks

	Year	Month	Day
DOT	2013	6	20
- DOB	2012	4	15
CA			
- DP			
AA			

Record the date of testing and the date of birth:

- date of testing year is 2013, month is 6 and day is 20;
- date of birth year is 2012, month is 4, and day is 15.

Next calculate chronological age.

## Age Calculation: Practice

DOT: June 20, 2013    DOB: April 15, 2012    GA: 32 weeks

	Year	Month	Day
DOT	2013	6	20
- DOB	2012	4	15
CA	1 year	2 months	5 days
- DP			
AA			

Start by calculating days: 20 days minus 15 days equals 5 days. Next calculate months: 6 months minus 4 months equals 2 months. Then calculate years: 2013 minus 2012 equals 1 year. Now record your degree of prematurity.

## Age Calculation: Practice

DOT: June 20, 2013    DOB: April 15, 2012    GA: 32 weeks

	Year	Month	Day
DOT	2013	6	20
- DOB	2012	4	15
CA	1 year	2 months	5 days
- DP	0		
AA			

DP = 40 weeks – GA

The degree of prematurity equals 40 weeks minus gestational age. In this case, the gestational age is 32 weeks.

## Age Calculation: Practice

DOT: June 20, 2013    DOB: April 15, 2012    GA: 32 weeks

	Year	Month	Day
DOT	2013	6	20
- DOB	2012	4	15
CA	1 year	2 months	5 days
- DP	0		
AA			

DP = 40 weeks – GA  
40 weeks - 32 weeks = 8 weeks = 2 months, 0 days

40 weeks minus 32 weeks equals 8 weeks or 2 months and 0 days. Next, record the degree of prematurity.

## Age Calculation: Practice

DOT: June 20, 2013    DOB: April 15, 2012    GA: 32 weeks

	Year	Month	Day
DOT	2013	6	20
- DOB	2012	4	15
CA	1 year	2 months	5 days
- DP	0	2 months	0 days
AA			

40 weeks – 32 weeks = 8 weeks = 2 months, 0 days

The degree of prematurity is 2 months and 0 days. Finally, subtract the degree of prematurity from chronological age to get adjusted age.

# Age Calculation: Practice

DOT: June 20, 2013    DOB: April 15, 2012    GA: 32 weeks

	Year	Month	Day
DOT	2013	6	20
- DOB	2012	4	15
CA	1 year	2 months	5 days
- DP	0	2 months	0 days
AA	1 year	0 months	5 days

Start with days: 5 days minus 0 days equals 5 days. Go to months: 2 months minus 2 months equals 0 months. Go to years: 1 year minus 0 years equals 1 year.

## Age Calculation: Practice

DOT: June 20, 2013    DOB: April 15, 2012    GA: 32 weeks

	Year	Month	Day
DOT	2013	6	20
- DOB	2012	4	15
CA	1 year	2 months	5 days
- DP	0	2 months	0 days
AA	1 year	0 months	5 days

This child's adjusted age is 1 year, 5 days. At what age do you test this child: 1 year, 2 months, 5 days or 1 year, 0 months, 5 days? COMAR states that adjusted age is used until the child's adjusted age is 12 months. This child's adjusted age is over 12 months; as such, you use the chronological age of 1 year, 2 months, 5 days.

## Immunizations, Growth & Age

### Immunizations

At child's CA

All vaccines safe for preterm & LBW, side effects similar to FT

Hepatitis B at birth or before D/C

- First hours or days of life
- If BW < 2kg, may wait to older but prior to D/C

### Growth

BW  $\geq$  2.5kg: use FT growth charts

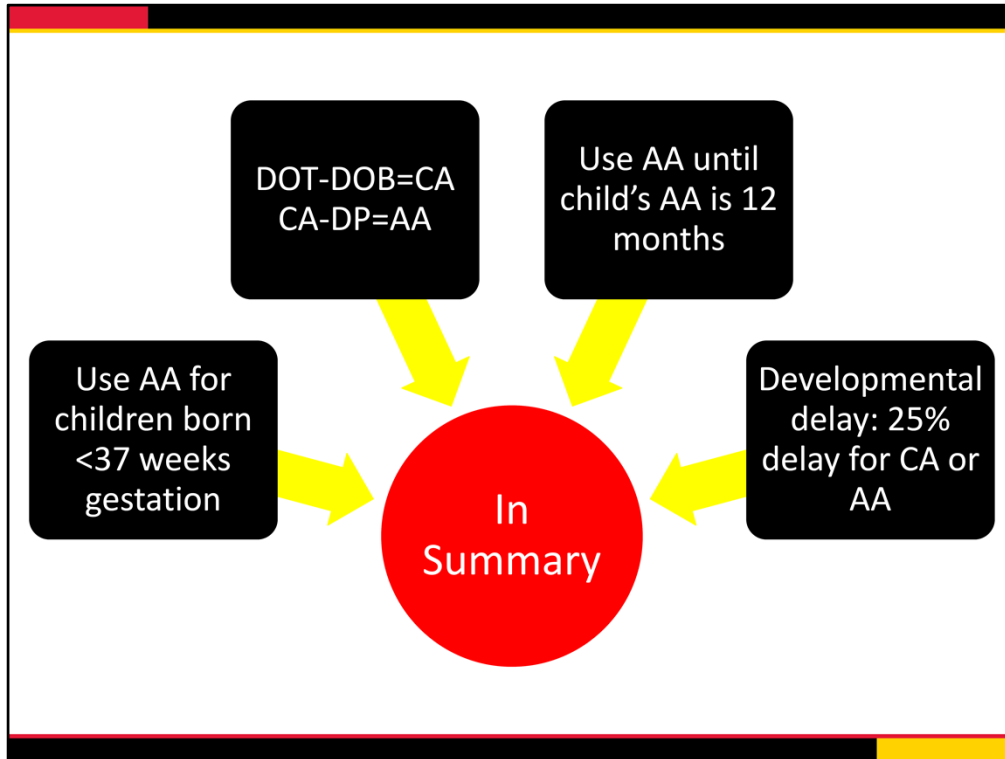
- WHO: birth to 2 years
- CDC: 2+ years

BW 1.5-2.5kg: use FT growth charts, plotting at AA to 3 years

BW < 1.5kg: use VLBW growth charts at AA to 3

While COMAR states that we use a child's adjusted age for developmental purposes until the child's adjusted age is 12 months; different guidelines exist for immunizations and growth. Immunizations are always given at a child's chronological age as an infant's exposure to germs, bacteria, and viruses begins at birth. All vaccines have been proven safe for preterm and low birthweight infants with side effects similar to infants born at full-term. The hepatitis B vaccination can be given at birth or before discharge from the NICU. Usually this vaccine is given the first hours or days of life; however, if an infant's birth weight is less than 2 kilograms (or 4.4 pounds) the immunization can wait until the infant is older but must be given prior to discharge. When evaluating a child's growth, primary health care providers use the full-term growth chart for infants born weighing at least 2.5 kilograms (or 5.5 pounds). The World Health Organization growth chart should be used for children until the age of 2 years; then the Centers for Disease Control growth chart should be used. If an infant was born weighing 1.5 to 2.5 kilograms (or 3.3 to 5.5 pounds) the same full-term growth charts should be used, but the child's growth should be plotted at the adjusted age until 3 years of age. If an infant was born weighing less than 1.5 kilograms (or 3.3 pounds), providers should use very low birthweight growth charts, plotting growth at the adjusted age, until 3 years of age.





In summary, COMAR states that we are to use a child's adjusted age when children are "...born before 37 weeks gestation..." COMAR defines adjusted age as "...the number of weeks born prematurely subtracted from the infant's chronological age." COMAR also states that "an infant's adjusted age is used until the infant's adjusted age is twelve months." Finally, COMAR defines developmental delay as "...the presence of: A 25 percent delay, using a child's adjusted or chronological age..."