

## How to complete the 2009 Statistical Report from your Access data

### Overview

In order to complete the new Statistical Report, we are assuming that you enter the following data in your Access database:

- Referral Date
- Enrollment Date
- Did patient have past formal education? (new vs. returning)
- Did patient complete education plan?
- Gender
- Race
- Age
- Type of diabetes (diagnosis)

If you are missing one of these data items, please contact MDCH and let us know.

We will be building queries to complete the Statistical Report, but not full printable reports.

**Before you begin working in your Access database to get your reporting data, you should make a copy of your Access database and only WORK IN THE COPY.** This way you will not accidentally change or delete your real data.

Note: If you are using the old MDCH/Botsford database, you should download and use the “Botsford\_Instructions.doc” instead.

You should have also downloaded the Excel file “2009 Statistical Report.xls” from the MDCH website. These instructions will provide you with the steps for producing the report numbers and where to type those numbers into the Statistical Report Excel file. You are encouraged to save your data in the Statistical Report Excel file after you complete each step.

Remember, the date range for your reporting period is 10/1/2008 to 9/31/2009.

### Locating the Variables in your Tables

Before you can start building queries, you will need to know where your data is stored. An Access database contains one or more tables to store the data you enter. If you don't already know in which table each variable listed above is stored (some databases will have documentation that gives you this information), you will need to open each table to search for them. Make notes as to which table houses which variable because you will need to know this to build queries. It is also helpful to make notes about numeric values stored in some variables. For example, the variable “Gender” may store two values: 1 and 2, where 1 = “Male” and 2 = “Female”.

**Note:** If you enter date of birth instead of age, note where date of birth is stored and you can use the query to calculate age.

In the example below, you would note that the variables referral date (fax\_date), date of birth (dob), gender (sex) and race are located in tblDemo. Do this for all reporting variables.

tblDemo : Table							
	chart_number	fax_date	last_name	first_name	dob	sex	race
▶ +	12345	10/2/2008	Smith	Sally	7/1/1977	F	White

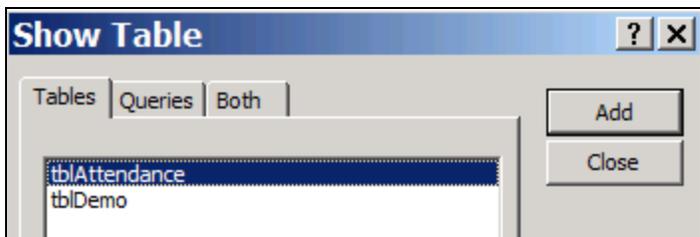
### Starting a New Query

Each time you create a new query for the report, you will use these beginning steps. If you are not already in the Queries section of your Main Database window, click on “Queries” in the Object menu on the left side of the window.

Click on the first option in the Queries section, “Create query in Design View”.

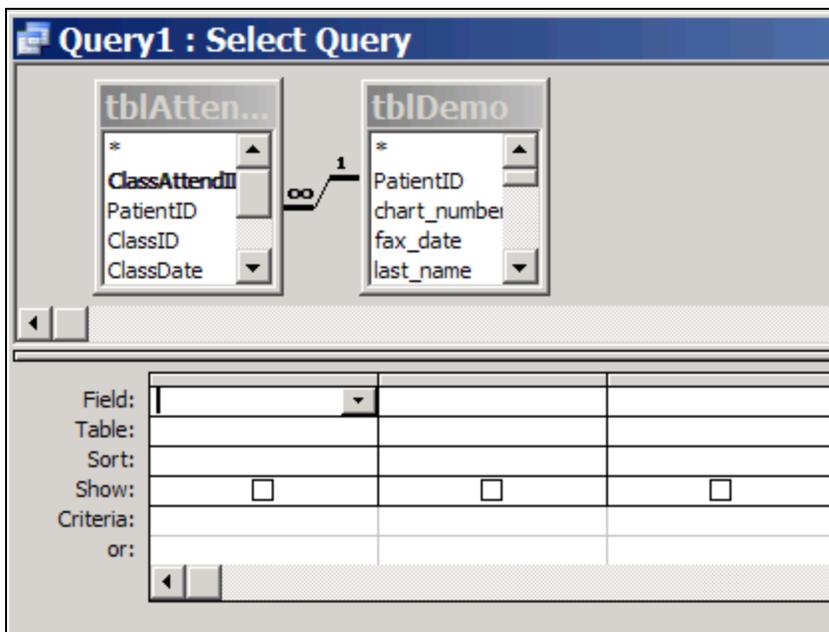


This will open a new window which asks you for the tables to include in your query. For the example, I only have two tables, but you likely have many more. Click on each table needed and click the Add button. You will know which tables are needed by reviewing the list of variables given in the query setup sections below and selecting the tables that contain those variables from your notes. Click the Close button when you are done adding tables.



The Query Design window will show you the tables you selected in the top part of the window. If the database is well designed, there will automatically be a link between the tables. The '1' and '∞' symbols in the example are interpreted as "for every 1 patient, they can attend many classes". The data are stored in this 1-to-many relationship but Access can match up data between different tables by the link between "PatientID" to "PatientID". In the example, PatientID is the internal database variable that identifies who the patient is in each table. However, your database may use a different name, such as: ID, chartID or MRN.

If the link does not automatically establish itself, then you will need to declare it. To do this in the example, you would simply click on "PatientID" in table tblAttendance to highlight it, then hold the mouse button down and drag on top of "PatientID" in tblDemo and release it. When you do this, you will not get the fancy '1' or '∞' symbols because it is considered a temporary link rather than a pre-programmed one.



 If you need to edit queries that you have saved and closed, use the "Design" button on the Main Database window. Access may change the appearance of some of things you entered. Don't panic. It will still do the same thing.

### Query 1 – Number of Referrals

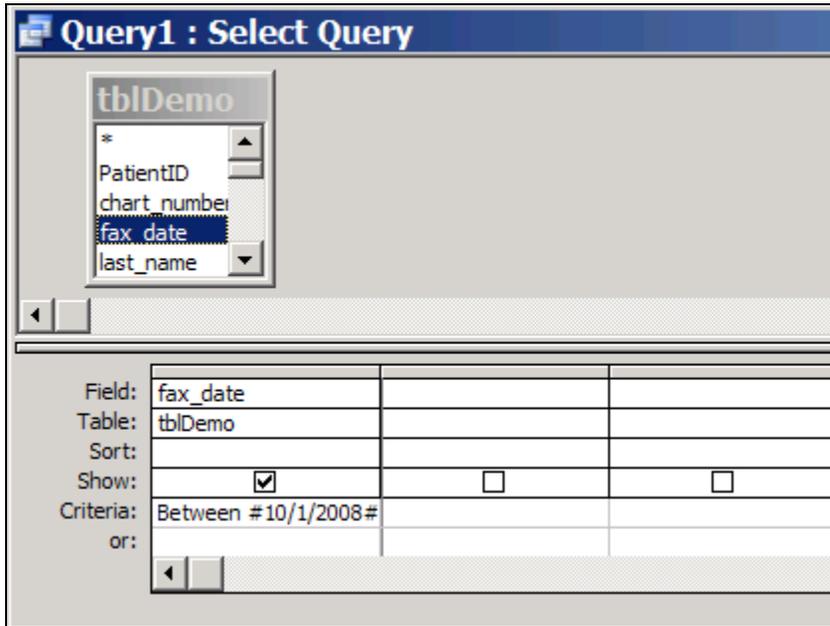
Start a new query using only the table that has:

- Referral date

In the top part of the Query Design window, find the referral date variable in the table (fax\_date in the example) and double-click on it. This will transfer that variable to the bottom of the Query

Design window. In the first “Criteria” row under the referral date variable, type “Between 10/1/2008 and 9/30/2009”. This tells Access to only select patients where the referral date is in the reporting period.

Save the query. You can keep the default name of “Query1” or rename it to something that will help you know what it is later, like “MDCH\_referrals”.



Run the query using the exclamation point button in the toolbar. 

The total number of referrals can be found at the bottom of the Query Results window as part of “Record: x of y”. In this example, 24 is the total number.



Type the results of the query in the referral totals box (denoted by red arrow in the example below) of the Statistical Report Excel file.

Number of referrals received:				
	→ Total:		No Shows:	

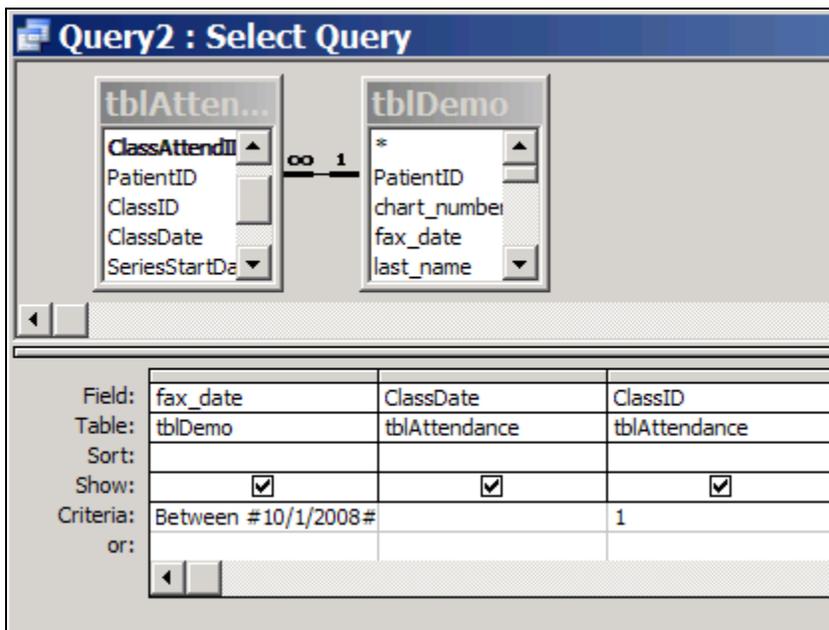
**Note:** Some programs may enter all cases (referrals and enrollment), while others enter *only* those patients that are enrolled. If your program enters only the enrolled patients into a database, then you will need to count referrals and no shows either by hand or download another instruction file from the MDCH website (i.e. Excel) to help you calculate these numbers from the other electronic file you are using.

## Query 2 – No Shows

Start a new query using tables that have:

- Referral date
- Enrollment date

In this example, data are coming from two tables. First, add the variable for referral date variable (fax\_date) and give it the criterion of “Between 10/1/2008 and 9/30/2009”. Then add the variable for enrollment date (ClassDate). If your class data uses a scheduler, you will likely need to also specify that the class was the initial assessment. In the example, this is done by adding the variable for class type (ClassID) and setting the criterion to ‘1’ (which happens to be the value for ‘Initial Assessment’ in the example). Otherwise the 1-to-many relationship will look at all classes and their dates. It is important that the criteria you set for both the referral date and the class type are in the same Criteria row. Save the query.



Run the query.  The total number in the results is the number of referrals that actually enrolled in your program. Use a calculator to subtract this number from the number of referrals you got in the last query. The remaining number is your number of no shows.

Type the remaining number in the no shows box (denoted by red arrow in the example below) of the Statistical Report Excel file.

Number of referrals received:					
	Total:			No Shows:	

### Query 3 – New vs Return Attended

Start a new query using tables that have:

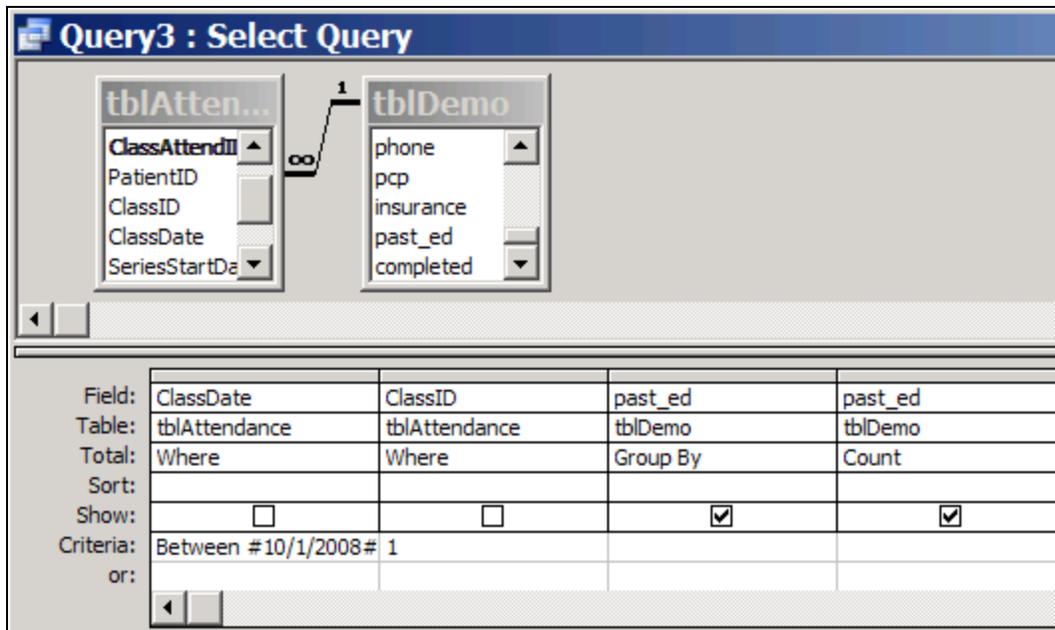
- Enrollment date
- Did patient have past formal education?

The rest of the queries are slightly more complex, but make the resulting data easier to read. First click the Totals button  $\Sigma$  in the toolbar. This will add a nother row to the lower half of the Query Design window called “Totals”. This feature will allow you to aggregate your data.

Add the variable for enrollment date (ClassDate) and set the criterion for the reporting period, “Between 10/1/2008 and 9/30/2009”. Then specify the class type as initial assessment in the scheduler by adding the variable for class type (ClassID) and setting the criterion. Next add the variable for past education (past\_ed) **twice**.

Finally, set the options in the Totals row. Set the first past education variable to “Group By” and the second past education variable to “Count”. Set the remaining variables to “Where”. When you select “Where”, it will uncheck the Show checkbox for that variable. That’s okay. Save the query.

In essence, this query is telling Access that you want the count grouped by each past education value where the date for the initial assessment is in the reporting period.



Run the query.  The Query Results window will now aggregate your data. In the example below, the data is entered as a checkbox, so there are 5 “yes, had past education” and 13 “no past education” (there is no category for “unknown”). However, the Group By command will aggregate your data by whatever values you happen to have entered for the past education variable.

	past_ed	CountOfpast_ec
▶	<input checked="" type="checkbox"/>	5
	<input type="checkbox"/>	13

Type the results of the query into the different categories New, Returned and Unknown boxes for enrolled patients section (denoted by red arrow in the example below) of the Statistical Report Excel file.

Number of patients attended initial assessment:								
	 New:	<input type="text"/>	 Returns:	<input type="text"/>	 Unk:	<input type="text"/>	Total:	<input type="text"/>

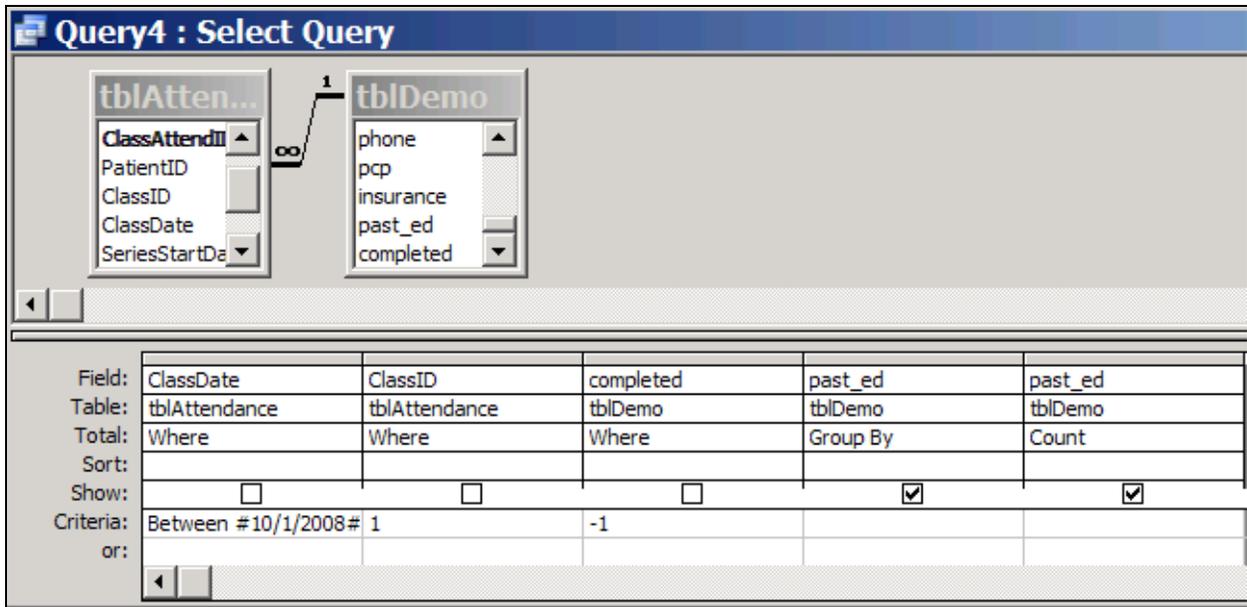
#### Query 4 – New vs Return Completed

Start a new query using tables that have:

- Enrollment date
- Did patient have past formal education?
- Did patient complete education plan?

This query is set up the same way as the last query except that you are adding the variable for completed education. Add the same variables as in *Query 3* the same way and add the Totals row.  Then add the variable for completed education (completed). Set the criterion for completed education to the “yes” value. It is important that the criteria you set for the enrollment date, class type and completed education are all in the same Criteria row. Then set the option in the Totals row for completed education to “Where”. Save the query.

**Note:** In the example below, completed education is saved as a checkbox in Access. For whatever reason, Microsoft made a checkbox “yes” = -1 and a checkbox “no” = 0. Keep this in mind when using checkbox data in queries.



Run the query.  The Query Results window will show similar aggregate results as *Query 3* did; however, these numbers will be for only patients who completed their education plan. Therefore, these numbers should be equal to or less than the results of *Query 3*.

	past_ed	CountOfpast_ed
	<input checked="" type="checkbox"/>	4
	<input type="checkbox"/>	11

Type the results of the query into the different categories New, Returned and Unknown boxes for patients completing education (denoted by red arrow in the example below) of the Statistical Report Excel file.

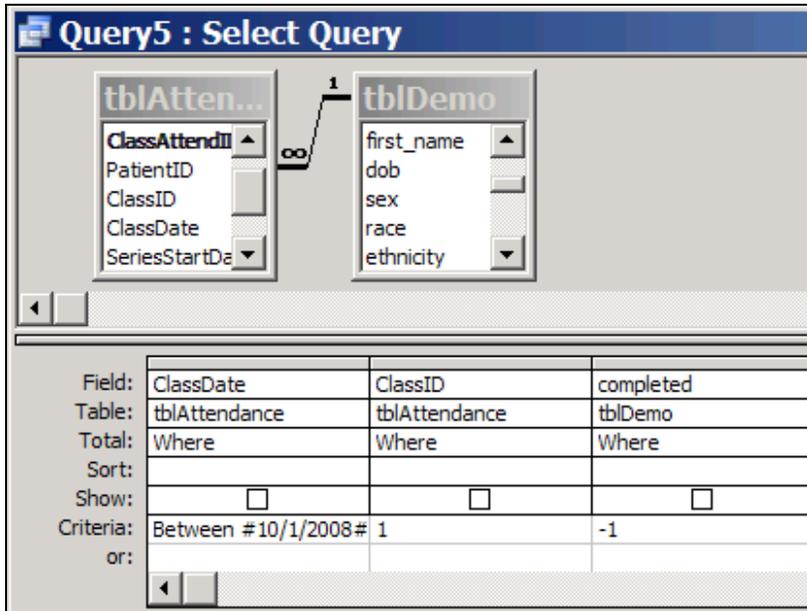
Number of patients completing education:						
	New:		Returns:		Unk:	Total: ☆

### Query 5 – Race by Gender

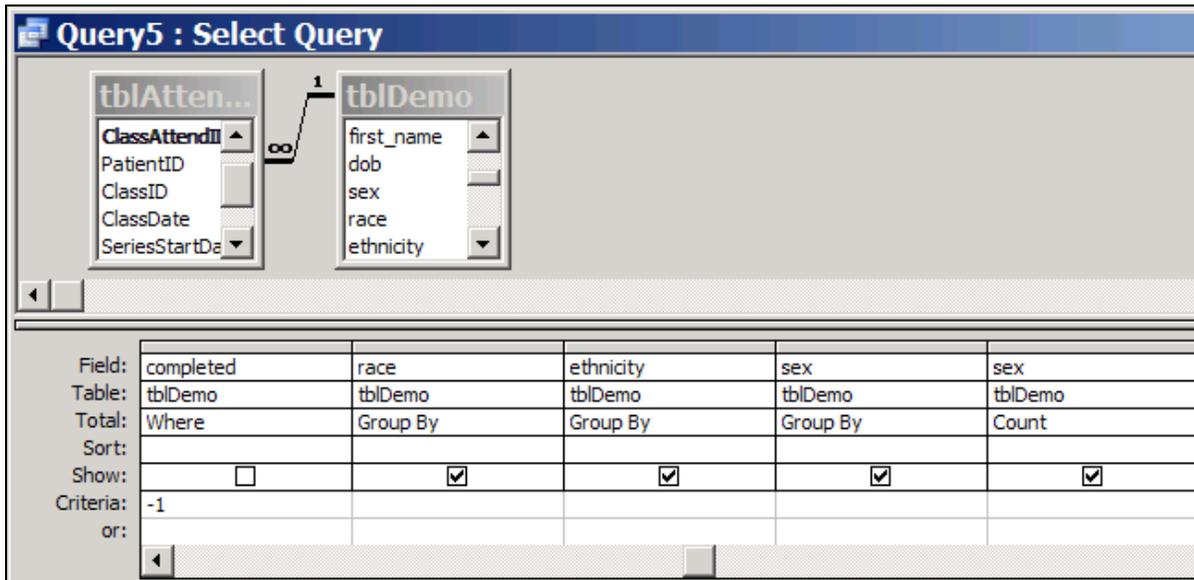
Start a new query using tables that have:

- Enrollment date
- Did patient complete education plan?
- Race
- Gender

The first part of the query is set up the same as *Query 4* where you add the variables for enrollment date, class type and completed education. Set the Criteria for these variables like you did in *Query 4*. Add the Totals row.  $\Sigma$  Then set all of these variables in the Totals row to “Where”.



Next, add the variable for race/ethnicity. In the example below, these are two separate variables (race and ethnicity) and both are added to the query. The example query is also scrolled to the right to see the additional variables. Then add the variable for gender (sex) twice. Set the Totals row to “Group By” for race, ethnicity and the first gender variable. Set the second gender variable to “Count”. Save the query.



Run the query.  The Query Results window shows the aggregate count for each race and gender group. The last three rows of the example show there are 3 white females, 2 white male and 2 Hispanic males. Your results may show up as numbers under race, ethnicity or the first gender (sex) column. If that happens, you will need to check your tables to figure out which answer option those number values represent.

	race	ethnicity	sex	CountOfsex
▶	Am. Ind		F	1
	Asian		F	1
	Asian		M	1
	Black		F	3
	Black		M	1
	Other		F	1
	White		F	3
	White		M	2
	White	Hispanic	M	2

Type the results into the corresponding race and gender boxes in the Statistical Report Excel file (rows denoted by red arrow in the example below). If a race/gender group is missing in your results, then you can assume that it is 0. Use a calculator to add up the numbers in each column and enter those column totals into the blue row.

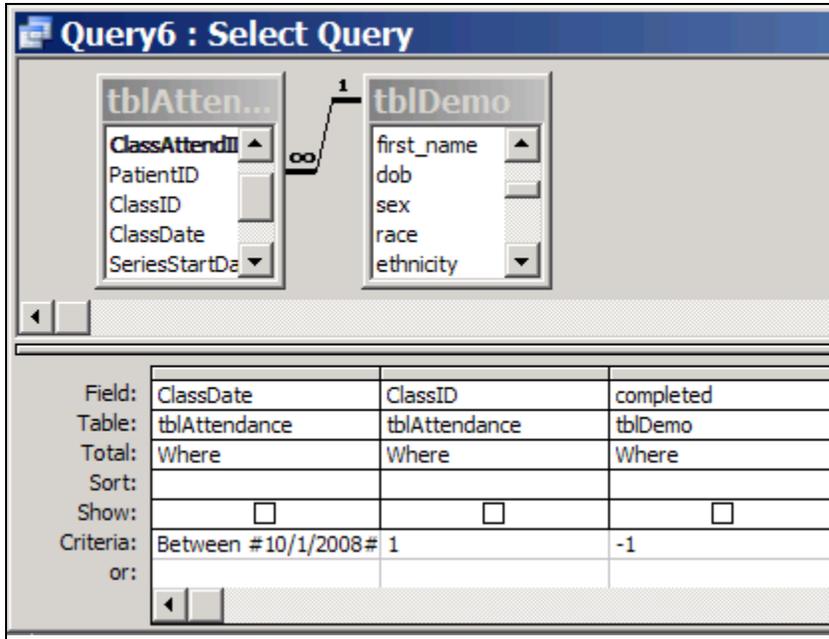
	White	Black	Hispanic	Am. Ind.	Asian	Other	Unknown
Male 							
Female 							
Unknown 							
<b>Gender Total</b>							

### Query 6 – Race by Age Group

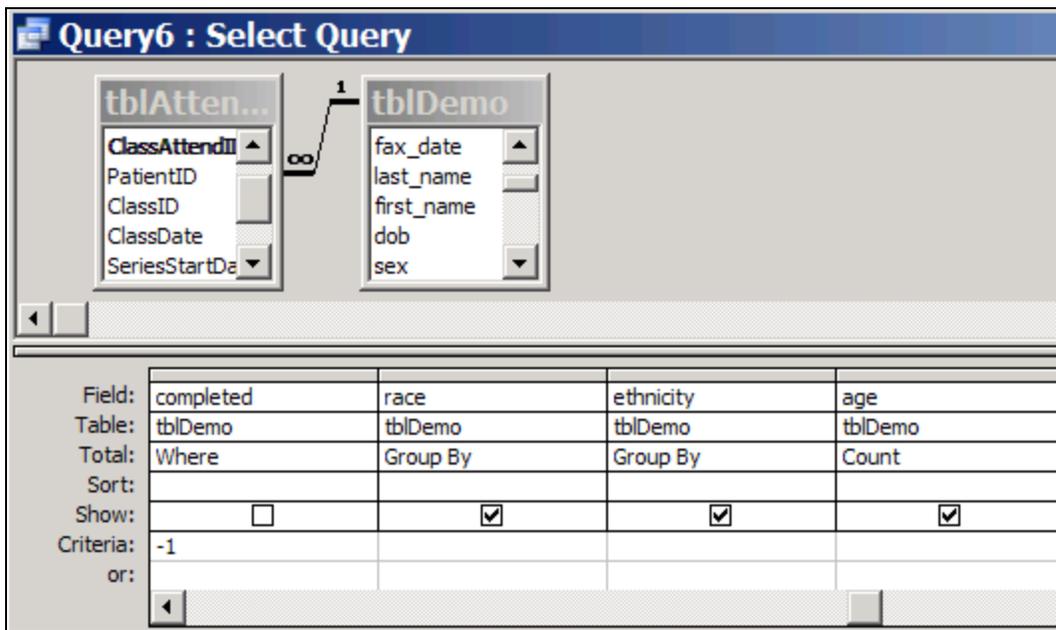
Start a new query using tables that have:

- Enrollment date
- Did patient complete education plan?
- Race
- Age *or* Date of Birth

The first part of the query is set up the same as *Query 4* and *Query 5* where you add the variables for enrollment date, class type and completed education. Set the Criteria for these variables like you did in the previous queries. Add the Totals row.  Then set all of these variables in the Totals row to “Where”.



Next, add the variable(s) for race/ethnicity. Then add the variable for age or date of birth only once. Instead of going through a bunch of complex programming to specify the age groups for the “Group By” command in the Totals, we will set the age groups “by hand” in the next step and run this query once for each age group. If your program is collecting a ge, then your query should look similar to the example below. Set the Totals row to “Group By” for race/ethnicity and to “Count” for age.



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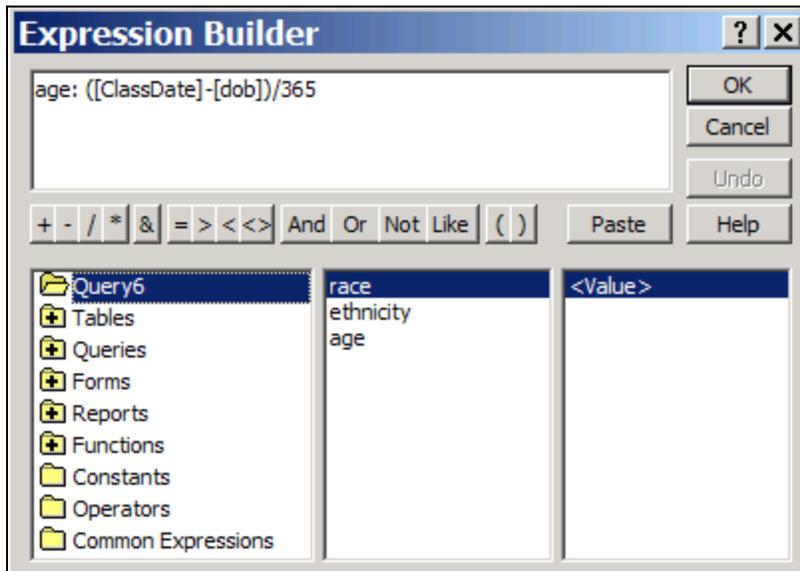
If your program is collecting date of birth only, then you will need to do an additional step to calculate age. Add the variable(s) for race/ethnicity. Next, click on the “Field” row in the next empty column to the right. When the cursor is in the new column, click the  button in the toolbar at the top of the window.

This will open a new window where you will build your calculation. In the top part of this window, type the following:

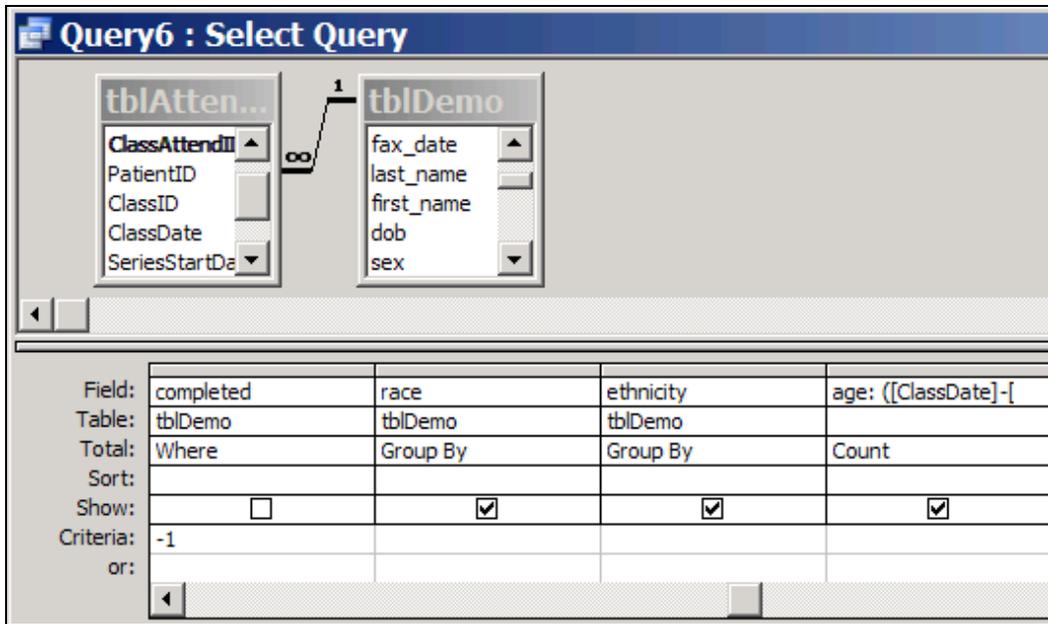
age: ( [Name of enrollment date variable] – [Name of date of birth variable] ) / 365

Type in the actual names of your variables inside the brackets where indicated. In the example below, the name of the enrollment variable is “ClassDate” and the name of the date of birth variable is “dob”. You don’t have to specify the class type as the initial assessment because the first part of the query already limits data to the initial assessment and those who completed their education plan.

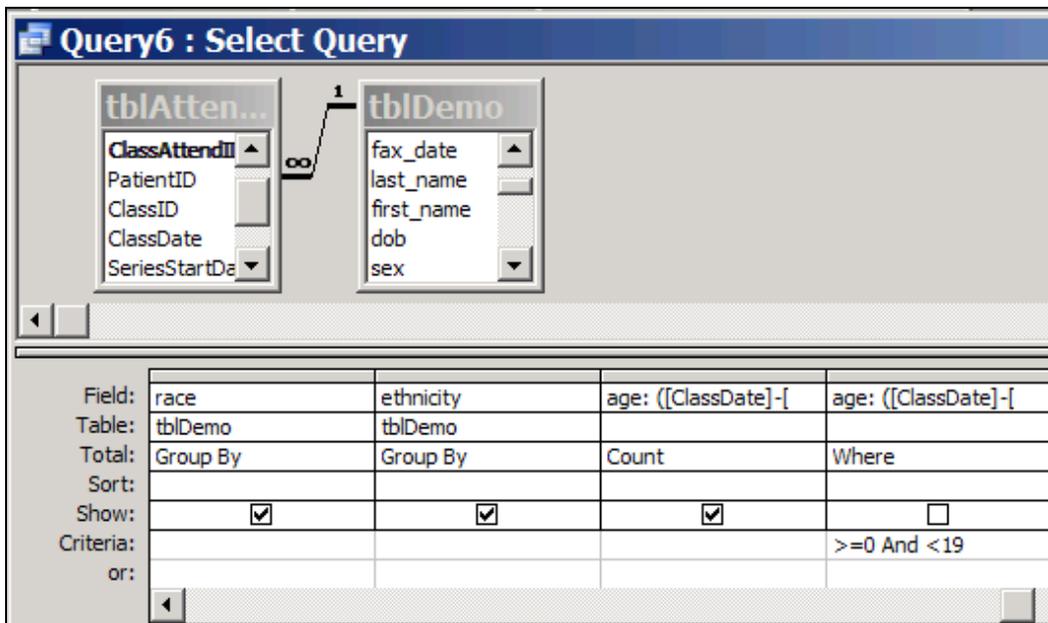
In essence, this is telling Access that for the new variable “age” subtract the date of birth from the date of enrollment. Since the results are in days, you also divide this by 365 days in a year to get the age in years.



Click “OK” when you are done. Set the Totals row for the new age variable to “Count”. Your query should look similar to the example below.



Now you should have an age variable, either entered or calculated, and we need to specify the age groups for reporting. We will add a second age variable to the query to do that. If your program collected age, simply add the age variable again. If your program collected date of birth, then you need to add the age calculation variable again. ( You can also make a copy of the first calculated age variable by clicking on the thin gray bar at the top of that column to highlight the column, Ctrl-C to copy, click on the “Field” row of the next empty column, and Ctrl-V to paste). Set the Totals row of the second age variable to “Where”. The Criteria row for the second age variable is where we will specify the age groups. Save the query.



The age groups in the Criteria row will need to be specified with the following text:

- $\geq 0$  and  $< 19$
- $\geq 19$  and  $< 45$
- $\geq 45$  and  $< 65$
- $\geq 65$
- Is null

Start by typing in “ $\geq 0$  and  $< 19$ ” in the Criteria row of the “Where” age. Run the query.  The Query Results window will show the count of race/ethnicity for the 0-18 age group only. Type the results into the first row of race/gender part of Statistical Report Excel file.

Go back to the Design Query window.  Change the Criteria row of the “Where” age to “ $\geq 19$  and  $< 45$ ”. Run the query.  Do this for each of the remaining age group criteria defined above. So, you will be running this query a total of 5 times. The last criterion “Is null” is to check for unknown ages.

Type the results of each query into the Statistical Report Excel file (rows denoted by red arrow in the example below) as you go. Use a calculator to add up the numbers in each column and enter those column totals into the blue row. These totals should be the same as the blue row for Race/Gender.

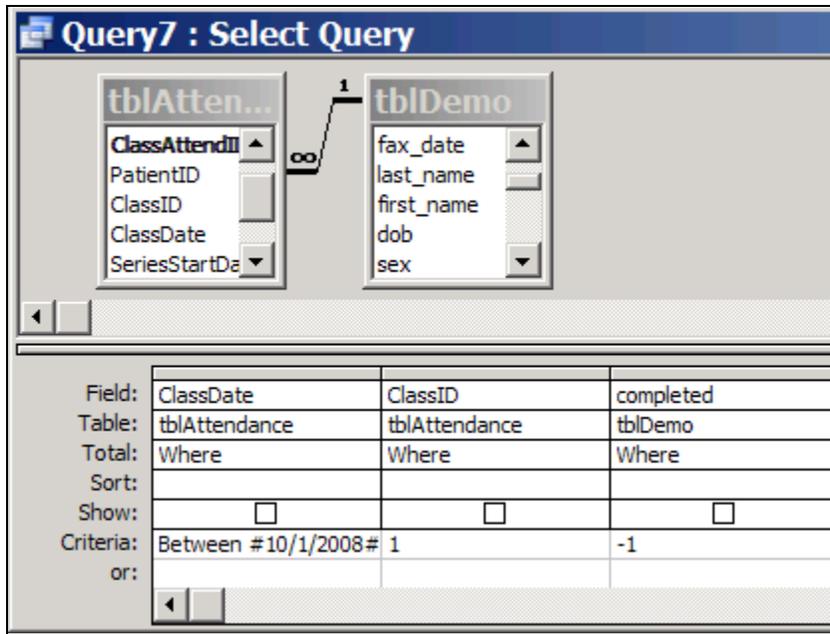
0-18 yrs									
19-44 yrs									
45-64 yrs									
65 & older									
Unknown									
<b>Age Total</b>									

### Query 7 – Race by Type of Diabetes

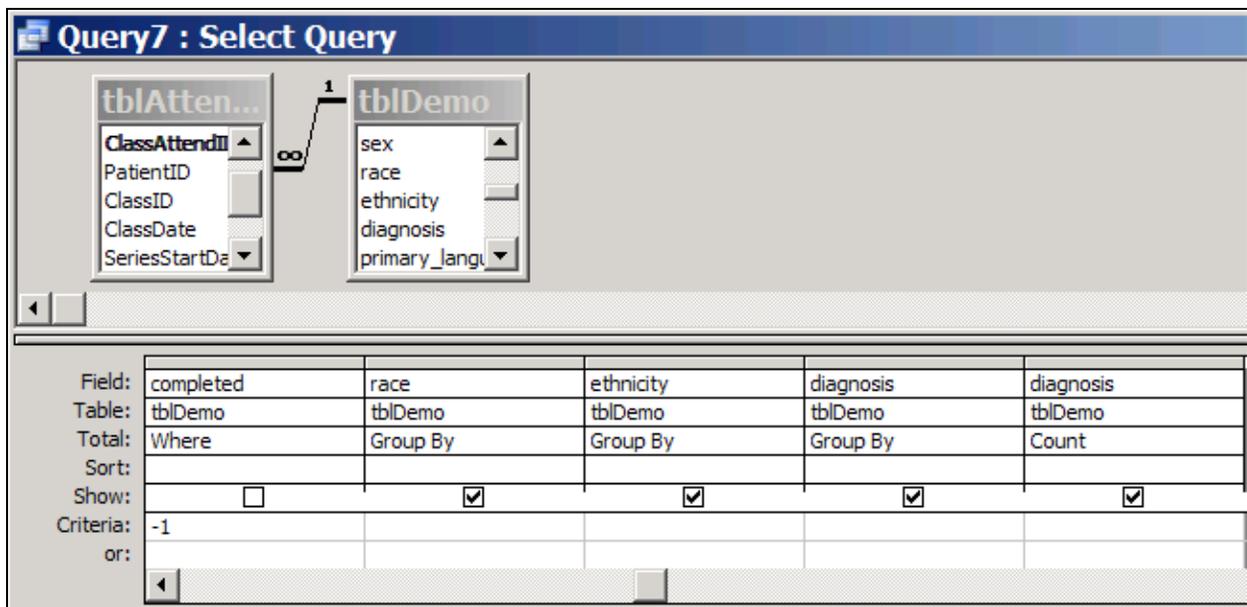
Start a new query using tables that have:

- Enrollment date
- Did patient complete education plan?
- Race
- Age *or* Date of birth
- Type of diabetes (diagnosis)

The first part of the query is set up the same as *Query 4* and *Query 5* and *Query 6* where you add the variables for enrollment date, class type and completed education. Set the Criteria for these variables like you did in the previous queries. Add the Totals row.  Then set all of these variables in the Totals row to “Where”.



Next, add the variables for race/ethnicity and add type of diabetes (diagnosis) twice. Set the Totals row to “Group By” for race, ethnicity and the first type of diabetes variable. Set the second type of diabetes variable to “Count”. Save the query.

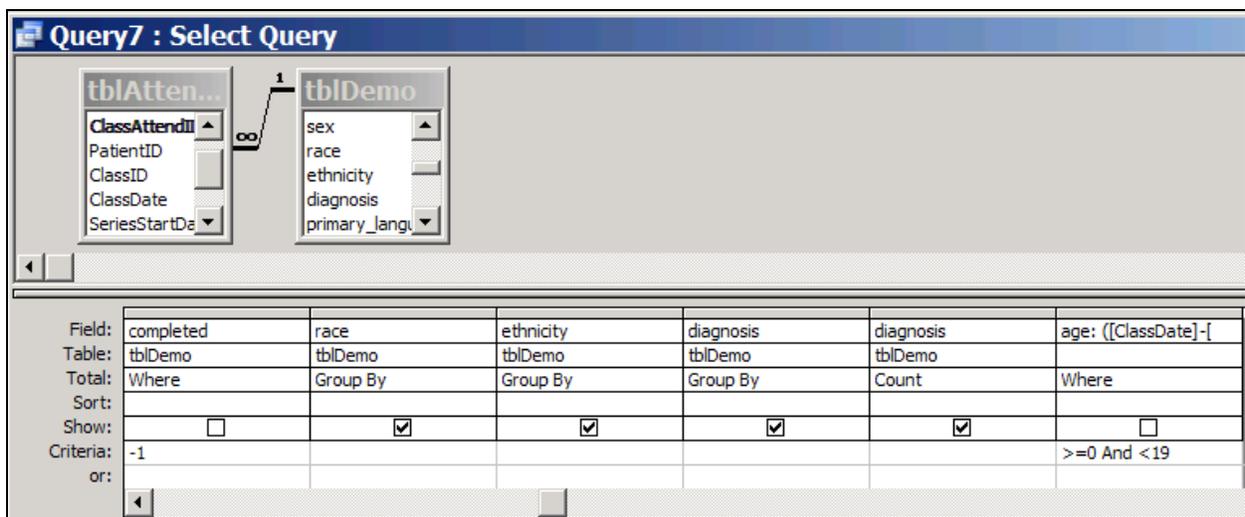


Run the query.  If your program **did not** see any patients younger than 19 years of age (which you should know from *Query 6*), then the results in the Query Results window are the final numbers that you will type into the Statistical Report Excel file. In the example below, there is 1 American Indian with Type 2 diabetes, 1 Asian with prediabetes, and so on.

	race	ethnicity	diagnosis	CountOfdiagnos
	Am. Ind		Type 2	1
	Asian		Pre-Diabetes	1
	Asian		Type 1	1
	Black		Other	1
	Black		Type 1	1
	Black		Type 2	2
	Other		Type 2	1
	White		Gestational	1
	White		Pre-Diabetes	2
	White		Type 2	2
▶	White	Hispanic	Type 2	2

If your program **did** see patients younger than 19 years of age, then you will need to add the age variable to the query to split out the reporting of Type 1 and Type 2 diabetes in different age groups. Before you do this, type the results in the Query Results window for gestational diabetes, prediabetes, other type of diabetes and unknown into the Statistical Report Excel file.

Go back to the Design Query window.  Add the variable for age. If your program only collects date of birth, then set up an age calculation variable per the instructions under *Query 6*. Set the Totals row for the age variable to “Where”. Type “>= 0 and < 19” in the Criteria row of age. Run the query.  The Query Results window will show the count for the 0-18 age group only. Type the results into the Statistical Report Excel file under “Type 1 (0-18)” and “Type 2 (0-18)”. Ignore the results returned for gestational, prediabetes, other and unknown.



Field:	completed	race	ethnicity	diagnosis	diagnosis	age: ([ClassDate]-[...])
Table:	tblDemo	tblDemo	tblDemo	tblDemo	tblDemo	
Total:	Where	Group By	Group By	Group By	Count	Where
Sort:						
Show:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:	-1					>=0 And <19
or:						

Go back to the Design Query window.  Change the Criteria row under the age variable to “> 19”. Run the Query.  The Query Results window will show the count for the 19 and up age group only. Type the results into the Statistical Report Excel file under “Type 1 (19&up)” and “Type 2 (19&up)”. Ignore the results returned for gestational, prediabetes, other and unknown.

After you have typed the results of the Query Results window into the corresponding area in Statistical Report Excel file (rows denoted by red arrow in the example below), use a calculator to add up the numbers in each column and enter those column totals into the blue row. These totals should be the same as the blue row for Race/Gender and Race/Age.

Type 1 (0-18)									
Type 1 (19 & up)									
Type 2 (0-18)									
Type 2 (19 & up)									
Gestational									
Prediabetes									
Other									
Unknown									
<b>Diagnosis Total</b>									

### Race Totals

Enter these numbers for race totals in the Statistical Report Excel file (rows denoted by red arrow in the example below). These numbers should be the same as the column totals you calculated for all of the other blue rows.

<b>Race Total</b>										<b>Grand Total</b>
										=
										same as total # of patients completing education (☆)
* All numbers in shaded rows should be the same in each column.										

Use a calculator to add up these numbers and enter that total into the Grand Total box. The Grand Total should be the same as the patients completed total you calculated earlier (denoted by red arrow in the example below).

Number of patients completing education:										
		New:		Returns:		Unk:			Total:	☆