How to Customize Your Templates & Quick Text with Conditional Logic

Donald T. Stewart, MD

Sammamish Diabetes & Lipid Clinic

DonS@SDALC.org

McKESSON

MIX.2013

McKesson Innovation Experience

The Journey to Better Health

Omni Orlando Resort at ChampionsGate

Goals

- Demonstrate how conditional logic works in Practice Partner
- Point out common errors and difficulties with using conditional logic
- Show examples of conditional logic use in templates and quick text
- Answer questions about conditional logic

The Journey to Better Health

Resources

- Practice Partner Help
  - Search on "Conditional Logic," then choose "Letter Templates"
- EMR Village File Sharing Site
  - http://emrvillage.com/m/files/home/
  - Look in folder 2, "Templates, QText, Clinical Elements, Conditional Logic"

What You Can Do with Conditional Logic

- Conditional logic is a powerful tool built into Practice Partner that *enables the user to build and design templates and quick text that change based upon patient information.*

- The information can be age, sex, lab values, vital signs, patient defined data, and clinical element values.

- The information you are comparing is usually in letter codes:
    - ||HM<HM Name>[-Status]||
    - ||EST_CREATININE_CLEARANCE||
    - ||BODY_MASS_INDEX||
    - ||PAT_RACE||

Letters to Patients

- An obvious use of conditional logic would be to design lab letters that convey different messages to the patient based upon whether a lab value was normal or not.
- In fact, the Practice Partner Help file has traditionally discussed conditional logic under "Letter Templates."

How Conditional Logic Works

The most basic statement is in this form:

|| IF <something> <is related to> <something else> {this happens}||

For example

|| IF PAT_SEX = "male" {he} ||

In the above, everything between the two || delimiters will be replaced with the word "he" if the patient is a male, and the phrase will evaluate to nothing if the patient is not a male.

MCKESSON

Nomenclature

- Conditional logic statements are delimited by "pipes"
  - || <conditional logic statement> ||
- Certain words are "reserved" in a conditional logic statement. They are always printed in ALL CAPS. If Practice Partner sees these words between pipes, it will treat them as logic elements.
  - IF, AND, OR, ELSE
- Curley braces delineate the result of a logical comparison
  - {   }

M^cKESSON

IF <something>

- The <something> is a letter code.
- PP Help has a list of letter codes, but it may be easier to see more examples by going to the Task Menu, select QuickText, then press the letter code radio button
- You can use values like PAT_SEX, PAT_AGE, LAB<AnyLab>, CE<AnyClinicalElement>, HM<HM name>[-Status], BODY_MASS_INDEX, VITAL_HGT, as well as the other vital signs, including any custom vital signs

\<is related to\>

- \<is related to\> is a Logical Operator
  - =   means "equal to"
  - \<\>   means "not equal to"
  - \<   means "less than"
  - \<=   means "less than or equal to"
  - \>   means "greater than"
  - \>=   means "greater than or equal to"
- Comparisons are done as Strings, not Numbers
  - This is quite important, and we will discuss it later

\<something else\>

- \<something else\> is a string. The on-line documentation says it can be a letter code, but *this does not work*
- \<something else\> has to be quoted, e.g.
  - ||IF PAT_SEX = "male" {he} ||
  - ||IF LAB\<CHOLESTEROL\> > "260" {high } ||
- The Quote Marks can't be curly (""), must be straight ("")
  - Be careful if copying clinical logic statements from documents with curly quotes
- "Nothing" or "No Value Found" = ""

MCKESSON

How Comparisons Work with Characters

- PP will compare the characters within the quote marks with the characters at the beginning of the <something> letter code.

- If ||PAT_SEX|| evaluates to "male" then *all* of the following evaluate as true, and "he" is returned:
  - ||IF PAT_SEX = "male" {he}||
  - ||IF PAT_SEX = "mal" {he}||
  - ||IF PAT_SEX = "ma" {he}||
  - ||IF PAT_SEX = "m" {he}||

How Comparisons Work with Numbers

- If the characters between the quote marks are numbers, PP will make an appropriate numerical comparison, but may not give the result you expect when decimal points are involved.

- For example, if ||LAB<Digoxin>|| evaluates to 12.0, then
  - ||IF LAB<Digoxin> = "12" {therapeutic}|| will be "therapeutic"

- However, if ||LAB<Digoxin> evaluates to 12, then
  - ||IF LAB<Digoxin> = "12.0" {therapeutic}|| will not

MᶜKESSON

Watch Out for Mixed Comparisons

- Letter codes for Height, Weight, and Age may give results in feet and inches, pounds and ounces, and years and months.

- PP will compare the first numerical values it encounters, but will ignore second values. So, only the number of feet, pounds and years will be compared. There is a letter code ||PAT_AGE_IN_MONTHS|| which helps a bit.

- More details on these comparison issues are found on the EMR Village File Sharing Site in a paper by Robert Pierce.

MCKESSON

{this happens}

- {this happens} means that whatever is between the curly braces { } is printed or evaluated if the conditional logic statement preceding it evaluates to "TRUE"

- If the conditional logic statement preceding the { } does not evaluate to "TRUE," then nothing is done with whatever is between the braces.

MCKESSON

AND and OR

- To get more complex, you can use AND or OR after your first comparison and before your first "{" .

- || IF PAT_SEX = "male" AND PAT_AGE > "50" {he might just need a prostate exam} ||

- You can chain multiple AND comparisons or multiple OR comparisons, but be careful if mixing AND and OR comparisons

- IF, ELSE, AND and OR used in conditional logic must be capitalized

MCKESSON

Logical Statements within { }

You can put a complete logical statement within a pair of { }

|| IF LAB<HDL CHOLESTEROL>[-Date] < "40" AND
PAT_SEX ="male" { The HDL is too low.}
ELSE

{IF LAB<HDL CHOLESTEROL>[-Date] < "50"
AND PAT_SEX = "female" {The HDL is too low}
ELSE

{The HDL is OK}

}

||

Spaces: the Necessary Nothings

- *S*paces are important in some situations. For example,
  ||IF PATIENT_AGE >"65" {bill Medicare}||
  will **not** evaluate correctly because there is no space between the > and the "65".

- You need a space before and after the keywords AND, OR, and ELSE.

- You need a space after the keyword IF, but it is OK not to have a space in front of it if a curly brace ({) or double bars (||) are in front of it.

- You need a space between the last set of double bars in one expression and the first set in the next. For example
  ||IF LAB<CHOLESTEROL> > "130" {Too High}||||IF LAB<HDL> > "160" {GOOD}||
  Will not evaluate due to lack of a space between the two expressions, but
  ||IF LAB<CHOLESTEROL> > "130" {Too High}|| ||IF LAB<HDL> > "160" {GOOD}||
  will evaluate just fine.

The
 Code

- The <BR> code will insert a carriage return when it is inserted between the { }

- Without a <BR> code, no carriage return will be recognized

- This is necessary if you want to load something within the { } with a dot code, since dot codes must be at the beginning of a line

\<BR\> Code Example

|| IF LAB\<CV Risk\> = ""

   {Your cardiovascular risk stratification is \<BR\>.L: CV Risk: «*Low» «*Moderate»} «*High» \<BR\>}

   ELSE

   {Your cardiovascular risk stratification is LAB\<CV Risk\>[- Date]}

||

Uses of Conditional Logic

- Customize templates or quick text for
  - Sex
  - Disease Status (using clinical elements)
  - Habits
  - Recent lab values
  - Age or HM Status
  - Update Problem List automatically based on Vitals
  - Change font or color of text based on conditions
  - Modify your Physical Exam template based on Sex and previous findings

Customize Templates for Disease

- *Create a set of CE names for the chronic illnesses you will modify your templates for.*

- The following *requires* the provider to consider the foot exam if the patient is a diabetic:

||IF CE<DxDM1> = "Y" OR CE<DxDM2> = "Y"

　　　　{«REQ» «*FootExam»

　　　　} ELSE { «*FootExam»}

　　　　||

Update Your Major Problem List Automatically Based on BMI

||IF BODY_MASS_INDEX > "30.0" {
.MP: OBESITY}
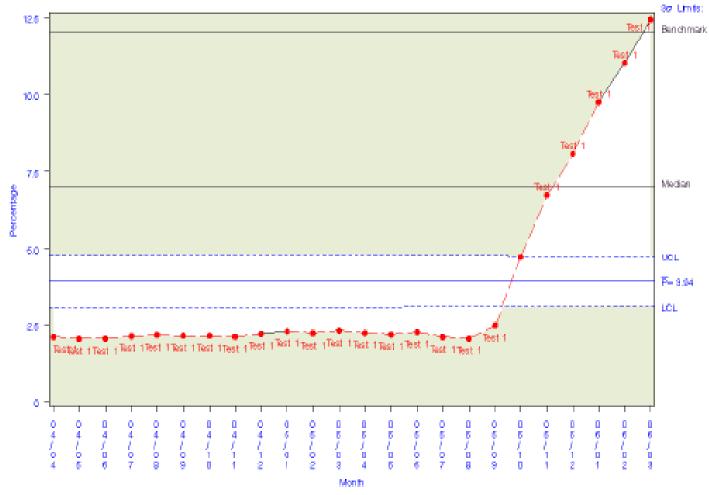||
(PPRnet members can profit from this)

Adults: Diagnosis of Obesity

practid= 200316

Flag Abnormal Lab Values

«del»||LAB<HEMOGLOBIN A1C>[-Date]|| || IF
  LAB<HEMOGLOBIN A1C> > "6.5" {«***WARNING Not
  to Goal of less than 6.6 WARNING***...»}

  ||

*Because the warning is between the «», it will not show
  when the note is saved.*

Recent Lab Tests:

«REQ» .

«del»HEMOGLOBIN A1C: 6.2 on 07/23/2006

«del»GLUCOSE, FASTING: 111 on 03/06/2006

«del»CHOLESTEROL: 123 on 07/23/2006

«del»HDL CHOLESTEROL: 79 on 07/23/2006

«del»LDL CHOLESTEROL: 136 on 07/23/2006   «***WARNING Not to Goal of less than 71 WARNING***...»

«del»TRIGLYCERIDES: 123 on 03/06/2006

«DEL» «DEL» VAP TOT CHOL: 202 on 11/10/2005 «***SHOULD BE < 130***...»

«DEL» VAP HDL CHOL: 48 on 11/10/2005

«DEL» VAP LDL CHOL: 122 on 11/10/2005 «***SHOULD BE < 100***...»

«DEL» VAP TOT VLDL: 31 on 11/10/2005 «***SHOULD BE < 31***...»

«DEL» VAP TRIGLYCERIDES: 205 on 11/10/2005 «***SHOULD BE < 150***...»

«DEL» VAP NON HDL CHOL: 153 on 11/10/2005

«DEL» VAP LP(a) CHOL: 7 on 11/10/2005

«DEL» VAP IDL: 7 on 11/10/2005

«DEL» VAP REAL LDL: 108 on 11/10/2005 «***SHOULD BE < 100***...»

«DEL» VAP LDL DENS PAT: A/B on 11/10/2005

«DEL» VAP REMNANT LIPO: 21 on 11/10/2005

«DEL» VAP HDL-2: 9 on 11/10/2005 «***SHOULD BE > 10***...»

«DEL» VAP HDL-3: 39 on 11/10/2005

«DEL»

Change Formatting Based on Conditions

||LAB<VAP LP(a) CHOL>[-Date]|| <<---------- this is the worst of the total LDL subfractions. || IF LAB<VAP LP(a) CHOL> < "10" {Desirable is *less than 10.* Patients with an Lp(a) of 10 or above have a 2 - 3 times greater risk of cardiac event than average.} ELSE {**Desirable is *less than 10.* Patients with an Lp(a) of 10 or above have a 2 - 3 times greater risk of cardiac event than average. Elevations in Lp(a) tend to be inherited in an autosomal dominant pattern. This means that it would be wise for you to have your direct relatives ask to be tested for it. LP(a) is not affected by diet or exercise. It has not been proven that lowering Lp(a) will result in lower risk, though many people believe that this may be true. We *do* know that lowering the total LDL to *70 or below* does greatly reduce the risk of an elevated Lp(a).** } ||

*The above is from a lab letter I send explaining the VAP results, where I give more of an explanation and **bold** the text when a result is abnormal)*

Customizing Exam Based on Previous Findings

- For physical findings that may persist from one exam to another, you can create a set of clinical elements that you can use to carry these findings forward, if appropriate.

- In order for your documentation to read like a sentence, rather than an outline, you can use conditional logic to put the appropriate commas and spaces into your note.

- For example, assume you have the following CEs for a skin exam: *Skin_Turgor, *Skin_Color, *Skin_Lesions, *Lesion_Location, *Skin_Rash, *Rash_Location, *Skin_Tattoos, and *Tattoo_Location

The Journey to Better Health

MCKESSON

Putting in the Commas and Spaces

- A quick and dirty way to put this in the note would be:
- - SKIN: ||CE<*Skin_Turgor>, CE<*Skin_Color>, CE<*Skin_Lesions> CE<*Lesion_Location>, CE<*Skin_Rash> CE<*Rash_Location>, CE<*Skin_Tattoos> CE<*Tattoo_Location>||. «*Edit_Skin»«*DelLine»
- However, since many of these clinical elements may be empty when you open your note, you need to figure out how to put commas and spaces in when appropriate, so you won't have extra commas or spaces in your documentation, as shown in the next slide.

Conditional Logic for Commas and Spaces

- This solves the problem:

- - SKIN: ||CE<*Skin_Turgor>IF CE<*Skin_Turgor> <> "" {, }CE<*Skin_Color>IF CE<*Skin_Color> <> "" {, }CE<*Skin_Lesions>IF CE<*Lesion_Location> <> "" { }CE<*Lesion_Location>IF CE<*Skin_Lesions> <> "" {, }CE<*Skin_Rash>IF CE<*Rash_Location> <> "" { }CE<*Rash_Location>IF CE<*Skin_Rash> <> "" {, }CE<*Skin_Tattoos>IF CE<*Tattoo_Location> <> "" { }CE<*Tattoo_Location>||.«*Edit_Skin»«*DelLine»

How it Looks in the Note

- - SKIN: good turgor, normal color, few flesh colored papule(s) on the face, follicular rash on the arms, no obvious tattoos.«*Edit_Skin» «*DelLine»

- If you click on «*Edit_Skin» the next slide shows what you get

The Journey to Better Health

Editing the Skin Clinical Elements

- SKIN: good turgor, normal color, few flesh colored papule(s) on the face, follicular rash on the arms, no obvious tattoos.«DEL»
-SKIN: «*DELLine»
  Turgor: «DEL»good turgor «*Edit_Turgor»
  Color: «DEL» normal color «*Edit_Color»
  Lesions: «DEL»few flesh colored papule(s) «*Edit_Lesions»
  Lesion Location: «del»on the face «*Edit_Lesion_Location»
  Rash: «DEL»follicular rash «*Edit_Rash»
  Rash Location: «DEL»on the arms «*Edit_RashLocation»
  Tattoos: «DEL»no obvious tattoos «*Edit_Tattoos»
  Tattoo Location: «del» «*Edit_Tattoo_Location»

Summary

- You can do conditional logic on anything you can bring into a note with a letter code.

- Formatting is important, need spaces in the right places, no curly quotes

- Reserved Words: IF, AND, OR, ELSE, and characters: =, <, >, "

- Chain AND or OR statements, but be careful of mixing

- Every "{" needs a "}" to match it, and it has to be in the right place

    - * Understand how comparisons are done

Questions?

The Journey to Better Health

Remember the File Sharing Site