

Conditional Logic in Templates – A Tutorial

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Introduction:

Conditional logic is something that can easily be confusing. The documentation in Practice Partner is mostly accurate (find it by searching for “Using conditional logic in letter templates”), but it is not easily understood if you are not used to programming. Issues where the documentation is lacking are addressed later in this tutorial.

This is my attempt to simplify the use of conditional logic for the average Practice Partner user. .

Chapter 1 – The Basics

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.

We can make this more sophisticated by adding an ELSE phrase:

```
|| IF PAT_SEX = “male” {he} ELSE {she}||
```

In an ideal world, this would substitute the appropriate pronoun for the patient wherever it was placed in a template. But, what if someone forgot to enter the patient sex in the demographics? In that case, the snippet of code would evaluate to “she,” even if the patient was really a male, because PAT_SEX would evaluate to “” (nothing). To fix this, we might do the following:

```
|| IF PAT_SEX = “” {he or she} ELSE { IF PAT_SEX = “male” {he} ELSE {she} } ||
```

We can format this to make it more understandable as follows:

```
|| IF PAT_SEX = “” {he or she}
   ELSE { IF PAT_SEX = “male” {he}
          ELSE {she}
        }
||
```

Lining up the || vertically and the {} vertically helps understand how the logic goes.

In general, you can keep from being confused by using the following as your basic construct:

```
|| IF something compares somethingelse {      } ELSE {  } ||
```

You can fill in the blanks between the curly braces{ } with a phrase you want to be substituted, you can enter another conditional statement between the curly braces, or you can even leave the space between the curly braces blank { } and it will not change how the statement is evaluated.

In other words, the following two statements evaluate the same:

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

The only logical operators Practice Partner understands are IF, ELSE, AND, and OR. They must be capitalized, and you can not use them except in conditional statements. Thus, capitalized they are "reserved words."

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

For example

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

or

```
|| IF PAT_SEX = "male" OR PAT_AGE > "95" {the patient probably doesn't need a  
screening Pap smear} ||
```

You can use lab values for doing comparisons. For example,

```
|| 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}  
        }  
||
```

You can construct these compound statements by using the basic statement

```
|| IF something compares somethingelse {xxxxxxx} ELSE {yyyyyyy} ||
```

and pasting it into the space between the curly braces. For example, paste it into itself (without the double bar || characters) where the xxxxxxx is:(the pasted text will be in blue):

```

|| IF something compares somethingelse { IF something compares somethingelse
{xxxxxxx} ELSE {yyyyyyy}
}
ELSE {yyyyyyy}
||

```

We can add another conditional to the last set of curly braces above, replacing the last yyyyyyy: with the basic statement (this time in **red**)

```

|| IF something compares somethingelse { IF something compares somethingelse
{xxxxxxx} ELSE {yyyyyyy}
}
ELSE { IF something compares somethingelse {xxxxxxx} ELSE
{yyyyyyy}
}
||

```

You can continue making more and more complex statements by simply replacing the xxxxxxx or yyyyyyy statements between the curly braces with the basic statement. The following has two more substitutions (in **green**).

```

|| IF something compares somethingelse
{ IF something compares somethingelse {xxxxxxx}
ELSE
{ IF something compares somethingelse {xxxxxxx}
ELSE
{yyyyyyy}
}
}
ELSE { IF something compares somethingelse
{ IF something compares somethingelse {xxxxxxx}
ELSE
{yyyyyyy}
} ELSE
{yyyyyyy}
}
||

```

If one fails to format this with the curly braces lined up, it can be much more difficult to read and understand:

```

|| IF something compares somethingelse {IF something compares somethingelse
{xxxxxxx} ELSE { IF something compares somethingelse {xxxxxxx} ELSE
{yyyyyyy}} } ELSE {IF something compares somethingelse {IF something compares
somethingelse {xxxxxxx} ELSE {yyyyyyy} } ELSE {yyyyyyy}}||

```

Or, with the colors removed:

```
|| IF something compares somethingelse {IF something compares somethingelse  
{xxxxxxx} ELSE {IF something compares somethingelse {xxxxxxx} ELSE  
{yyyyyyy}} } ELSE {IF something compares somethingelse {IF something compares  
somethingelse {xxxxxxx} ELSE {yyyyyyy}} ELSE {yyyyyyy}}||
```

The point of all this is that you should make your templates easy to understand by formatting your conditional logic statements appropriately. It will save you lots of headaches.

Another point about conditional logic is that *spaces* 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 should have 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.

Also, remember that Practice Partner can only compare string values. Although the lab values appear to be numbers, they are stored and treated by Practice Partner as characters or string values. This means that you have to put quote marks around a value you want to compare. You do not need to put the quote marks around lab values or letter codes, because they are understood to be string values.

Chapter 2—Advanced Issues

“Gotchas” in the conditional logic process – documentation errors:

The following was pointed out to me by Larry Lindquist, discovered when he tried to create a logic statement that compared one lab value to another.

Quoting from the on-line help:

=====

The base syntax of the conditional logic system is as follows:

- <letter code> : any of the [letter codes](#)
- <operator> : any of the following operators: =,<>,<,<=,>,>=
- <string> : any string; must be surrounded by double **straight** quotes (“”)
- <compare value> : either a <string> or a <letter code>
- <instructions> : any combination of text, letter codes, and logical conditions
- <condition> : <letter code> <operator> <compare value>

The logic must begin and end with ||.

To build a conditional statement, you can structure the statement like this:

```
|| IF <letter code> <operator> <compare value> [AND | OR <condition>]
    {<instructions>}
ELSE
    {<instructions>} ||
```

=====

The above is not totally correct, unfortunately. One exception is that the <compare value> can not be a <letter code>. Letter codes simply do not work as of 8.2.1. I have not tried all possible letter codes, but I can verify that lab values and vitals values do not work as <compare values>.

Another documentation error with respect to conditional logic is with the Health Maintenance codes. At this time, HM codes can not be meaningfully used within a conditional logic statement. For example:

```
|| IF HM<Colonoscopy> <> "X" { «*Colonoscopy» }
ELSE {HM<Colonoscopy>[-Date]} ||
```

The above *ought* to work, but it simply doesn't.

Using the [AND | OR <condition>] :

While we may not be able to compare one letter code to another, we are able to “work around” this limitation by using the [AND | OR <condition>] phrase in our conditional logic statements.

Note that the [AND | OR <condition>] part of the conditional logic phrase only allows for one instance of [AND | OR <condition>] before the {<instructions>}. In other words, you can *not* make a statement with multiple [AND | OR <condition>] phrases for a single IF statement. .

For another example, let's say we want to set different goals for LDL cholesterol for people of different risk stratifications. It would be nice to simply enter the patient's LDL goal as a lab value, and compare to it.

```
|| IF LAB<LDL CHOLESTEROL> < LAB<LDL GOAL> { Your LDL Cholesterol is to goal.} ELSE { Your LDL Cholesterol is too high.} ||
```

However, *comparison between two letter codes not work (see above)*. So, we need to come up with another strategy. One such strategy is to create a new lab value called “CV Risk”

We can have several possible values for LAB<CV Risk>: “” would mean it had never been set. The other values might be “low,” “moderate,” and “high.” We can use multiple [AND | OR <condition>] statements within nested IF statements, as long as each IF statement has only one [AND | OR <condition>] statement. For example:

The following works adequately:

```
|| 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]} ||
```

(The above logic statement tests to see if the lab data item “CV Risk” has a value, and then provides the opportunity for the provider to assign a value if it doesn't. This concept is important, because it is easy to forget that a lab data item might not have a value, and if this is not addressed in our logic statement, the statement will not work the way we expect it to. We cannot use the newly assigned value in the same instance of the

template to test further, however, because the “CV Risk” lab value will not be saved until the note is saved. A FEATURE REQUEST would be the ability to set VARIABLES or FLAGS within a template that we could use to control actions of the template after they had been set.

*The
 code used above is necessary in conditional logic statements if you want to start a new line, which is necessary in this case to assign a value to “CV Risk.” The logic parser gets rid of any carriage return or new line characters it comes across, so the
 code is used to determine where a new line will start.)*

```
|| IF LAB<LDL CHOLESTEROL> < "70" (Your LDL Cholesterol is to goal.)  
ELSE  
    {IF LAB<LDL CHOLESTEROL> < "100" AND LAB<CV Risk> = "moderate"  
    { Your LDL Cholesterol is to goal}  
    ELSE  
        {IF LAB<LDL CHOLESTEROL> < "130" AND LAB<CV Risk> = "low"  
        { Your LDL Cholesterol is to goal}  
        ELSE  
            { Your LDL Cholesterol is too high The goal for you is IF LAB<CV  
Risk> = "low" {less than 130. }  
            ELSE  
                {IF LAB<CV Risk> = "moderate" {less than 100.}  
                ELSE  
                    {IF LAB<CV Risk> = "high" {less than 70.}  
                    }  
                }  
            }  
        }  
    }  
}
```

The above statement uses embedded IF statements sort through the matrix of possibilities and determine whether an LDL CHOLESTEROL is to goal.

Additional uses of conditional logic (how to make your templates smarter):

- Customize your templates for the patient’s sex. *In all of the following examples, please remember to test that PAT_SEX <> "".*

- The following conditional logic statement puts the appropriate pronoun in a sentence: `||IF PAT_SEX = "male" {his}ELSE {her}||`. This could be helpful in the Subjective part of a note, by making the note read more conversationally.
- The following statements in an exam template provides the opportunity to include sex-appropriate exam elements: : `||IF PAT_SEX = "male" { «*MaleGUexam» }ELSE { «*FemaleGUexam» }||` or, `||IF PAT_SEX = "male" { } ELSE { «*BreastExam» }||`
- Customize your templates for the patient's illness: *In the following example, assume that the lab value DiabetesDxDate contains a date if the patient has diabetes, and is blank if the patient does not.*
 - This one requires the provider to consider the foot exam if the patient is a diabetic: `||IF LAB<DiabetesDxDate> <> "" { «REQ» «*FootExam»`
`} ELSE { «*FootExam» } ||`

Note that you need to have a line break before the "}" since Practice Partner will not save a template that has any unexpanded characters after a «REQ» marker.

- This one requires the provider to consider tobacco counseling if the patient is a smoker: `||IF LAB<SMOKING STATUS> = "current smoker" { «REQ» «*TobaccoCounseling»`
`} ELSE { } ||`
- Customize your templates for a patient's age or Health Maintenance status:
 - `||IF PAT_AGE > "49" AND LAB<ColonoscopyDate> <> "never" { «REQ» «*Colonoscopy»`
`} ||`

where «*Colonoscopy» could be a quick text that would prompt you to document or order a colonoscopy.

- Automatically update your diagnoses based on Body Mass Index:

```
||IF BODY_MASS_INDEX > "30.0" {<BR>.MP: OBESITY}||
```

- Flag abnormal lab values that are imported into a note:

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


- Apply different formatting to comments in a lab letter based on whether a patient's value is abnormal or not:

```

||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). } ||

```

In conclusion:

The above gives many examples of how conditional logic can be used in templates and quick texts in Practice Partner. As you can see, this is a very rich environment for creating tools for patient care and clinical documentation. Coming versions of the product will include many more enhancements, but there is no reason not to start enhancing and customizing your templates now.

Appendix

The following pages list a lab letter that shows some of these techniques:

=====

PGSETUP<PLFM2>

```

||PAT_FNAME|| ||PAT_LNAME||
||PAT_ADDR1||
«delb»||PAT_ADDR2||
||PAT_CITY|| ||PAT_STATE|| ||PAT_ZIP||

```

```

||DATE||

```

Dear ||IF PAT_SEX = "male" {Mr.} ELSE {Ms.} PAT_LNAME||,

The following are your recent blood results. Also included may be some tests done previously.

```
«del»||LAB<HEMATOCRIT>[-Date]||
«del»||IF LAB<HEMATOCRIT>[-Date] >= ".001"
    {IF PAT_SEX = "male"
        {IF LAB<HEMATOCRIT>[-Date] < "40.0"
            {You are «*a_little» anemic. «*»}
        ELSE
            {IF LAB<HEMATOCRIT>[-Date] > "50.0"
                {Your blood count is «*a_little» too high. «*»}
            ELSE
                {You are not anemic.}
            }
        }
    ELSE
        {IF LAB<HEMATOCRIT>[-Date] < "35.0"
            {You are «*a_little» anemic. «*»}
        ELSE
            {IF LAB<HEMATOCRIT>[-Date] > "46.0"
                {Your blood count is «*a_little» too high. «*»}
            ELSE
                {You are not anemic.}
            }
        }
    }
||
«del»
«del»||LAB<CHOLESTEROL>[-Date]||
«del»||IF LAB<CHOLESTEROL>[-Date] >= ".001"
    {Your total cholesterol is
        IF LAB<CHOLESTEROL>[-Date] <= "200"
            { normal.}
        ELSE
            {IF LAB<CHOLESTEROL>[-Date] > "200"
                {abnormal. The goal is less than 200.
                    IF LAB<LDL CHOLESTEROL>[-Date] > "130"
                        { You can improve this by lowering the
saturated fats in your diet. }
                ELSE
                    {IF LAB<TRIGLYCERIDES>[-Date] < "151"
                        { You don't have to worry about this
because your good cholesterol (HDL) is the main reason for this elevation. }
                    ELSE
```

```

    {}
  }
}
}
}
||
«del»
«del»||LAB<TRIGLYCERIDES>[-Date]||
«del»||IF LAB<TRIGLYCERIDES>[-Date] >= ".001"
    {Your Triglyceride level is
      IF LAB<TRIGLYCERIDES>[-Date] <= "150"
        {normal. }
      ELSE
        {too high. The goal for triglycerides is less than 150. If you
        did not go without eating for at least 8 hours before this was drawn,
        however, the number is meaningless. If you were fasting when the
        blood was drawn, you can lower your triglycerides by reducing the
        starches (bread, potatoes, rice, noodles) and alcohol in your diet.}
    }
||
«del»
«del»||LAB<HDL CHOLESTEROL>[-Date]||
«del»||IF LAB<HDL CHOLESTEROL>[-Date] >= ".001"
    {IF PAT_SEX = "male"
      {IF LAB<HDL CHOLESTEROL>[-Date] < "40.0"
        {Your good cholesterol is «*a_little» too low. An HDL of less
        than 40 is considered a risk factor for heart disease. Ideally, it should be over 65.
        You can raise your HDL cholesterol by exercising more and perhaps by eating
        more fish and monosaturated oils such as olive oil and peanut oil. }
      ELSE
        {IF LAB<HDL CHOLESTEROL>[-Date] >= "65.0"
          {Your good cholesterol is excellent.}
        ELSE
          {Your good cholesterol is normal, but it
          would be better if it were greater than 65. You can raise your HDL cholesterol by
          exercising more and perhaps by eating more fish and monosaturated oils such
          as olive oil and peanut oil. }
        }
      }
    ELSE
      {IF LAB<HDL CHOLESTEROL>[-Date] < "50.0"
        {Your good cholesterol is «*a_little» too low. Ideally, it
        should be over 75. You can raise your HDL cholesterol by exercising more and
        perhaps by eating more fish and monosaturated oils such as olive oil and peanut
        oil. }
      ELSE

```

```

        {IF LAB<HDL CHOLESTEROL>[-Date] >= "75.0"
        {Your good cholesterol is excellent.}
        ELSE
        {Your good cholesterol is normal, but it
would be better if it were greater than 75. You can raise your HDL cholesterol by
exercising more and perhaps by eating more fish and monosaturated oils such
as olive oil and peanut oil}
        }
    }
||
«del»
«del»||LAB<LDL CHOLESTEROL>[-Date]||
«del»||IF LAB<LDL CHOLESTEROL>[-Date] >= ".001"
    { IF LAB<LDL Goal>[-Date] <> ""
        {IF LAB<LDL CHOLESTEROL>[-Date] <= LAB<LDL Goal>
        {Your bad cholesterol is to goal. The LDL Goal for you is
LAB<LDL Goal>}.
        ELSE
        {IF LAB<LDL CHOLESTEROL>[-Date] > LAB<LDL Goal>
        {Your bad cholesterol is not to goal. The LDL
Goal for you is LAB<LDL Goal>. You can reduce your LDL cholesterol by
reducing the saturated fats in your diet.}
        }
    }
}
ELSE
    {Your bad cholesterol is «del» «*too high» «*fine» «*better»
«*worse» «*not_meas» Your goal is an LDL cholesterol that is «*LT_130»
«*LT_100» «*LT_70» <BR>You can reduce your LDL cholesterol by reducing the
saturated fats in your diet. }
    }
||
«del»
«del»||LAB<CREATININE>[-Date]||
«del»||IF LAB<CREATININE>[-Date] >= ".001"
    { IF LAB<CREATININE>[-Date] > "1.5"
        {Your kidney function is somewhat decreased. «*Comp-Last» }
    ELSE
        {Your kidney function is normal.}
    }
||
«del»||LAB<GLUCOSE, RANDOM>[-Date]||
«del»||IF LAB<GLUCOSE, RANDOM>[-Date] >= ".001"
    {Your random blood sugar is «del» «*normal» «*borderlin» «*abnormal»}
||

```

```

«del»||LAB<GLUCOSE, FASTING>[-Date]||
«del»||IF LAB<GLUCOSE, FASTING>[-Date] >= ".001"
    {Your fasting blood sugar is
        IF LAB<GLUCOSE, FASTING>[-Date] >= "70" AND
        LAB<GLUCOSE, FASTING>[-Date] < "100"
            {normal.}
        ELSE
            {IF LAB<GLUCOSE, FASTING>[-Date] <= "125"
                {too high. Normal is less than 100. Diabetes is
defined as over 125. Your glucose puts you in the impaired fasting glucose
category «*Comp-Last» }
            ELSE
                {IF LAB<GLUCOSE, FASTING>[-Date] >= "126"
                    {in the diabetic range, which is defined as over
125. «*Comp-Last»}
                }
            }
        }
    }
||
«del»||LAB<HEMOGLOBIN A1C>[-Date]||
«del»||IF LAB<HEMOGLOBIN A1C>[-Date] >= ".001"
    {Your 90-day average blood sugar is
        IF LAB<HEMOGLOBIN A1C>[-Date] <= "5.8"
            {normal.}
        ELSE
            {IF LAB<HEMOGLOBIN A1C>[-Date] <= "6.5"
                {to goal. The goal is less than 6.5. «*Comp-
Last» }
            ELSE
                {not to goal. The goal is less than 6.5. «*Comp-Last»
}
            }
        }
    }
||
«del»||LAB<AST>[-Date]||
«del»||LAB<ALT>[-Date]||
«del»||LAB<GGT>[-Date]||
«del»||LAB<ALK>[-Date]||
«del»||LAB<LDH>[-Date]||
«del»||IF LAB<ALT>[-Date] >= ".001"
    {Your liver tests were«del» «*normal» «*abnormal»}
||
«del»||LAB<HEP B SURF AB>[-Date]||
«del»||IF LAB<HEP B SURF AB>[-Date] <> ""
    {IF LAB<HEP B SURF AB>[-Date] = "Positive"
        {You are immune to Hepatitis B}
    }
}

```

```

ELSE
    {You are not immune to Hepatitis B}
}
||
«del»||LAB<TSH>[-Date]||
«del»||IF LAB<TSH>[-Date] >= ".001"
    {Your thyroid level is
        IF LAB<TSH>[-Date] < "0.4"
            {too high. «*»}
        ELSE
            {IF LAB<TSH>[-Date] > "5.5"
                {too low. «*Comp-Last» }
            ELSE
                {normal. }
            }
        }
    }
||
«del»||LAB<TESTOSTERONE>[-Date]||
«del»||IF LAB<TESTOSTERONE>[-Date] >= ".001"
    {IF LAB<TESTOSTERONE>[-Date] > "1195"
        {Your Testosterone level is higher than normal. «*Comp-Last» }
    ELSE
        {IF LAB<TESTOSTERONE>[-Date] < "270"
            {Your Testosterone level is lower than normal. «*Comp-Last» }
        ELSE
            {Your Testosterone level is normal.}
        }
    }
||
«del»||LAB<TESTOSTERONE FREE>[-Date]||
«del»||IF LAB<TESTOSTERONE FREE>[-Date] >= ".001"
    {IF LAB<TESTOSTERONE FREE>[-Date] > "48"
        {Your Free Testosterone level is higher than normal. «*Comp-Last» }
    ELSE
        {IF LAB<TESTOSTERONE FREE>[-Date] < "5.0"
            {Your Free Testosterone is lower than normal. «*Comp-Last» }
        ELSE
            {Your Free Testosterone is normal.}
        }
    }
||
«del»||LAB<FSH>[-Date]||
«del»||IF LAB<FSH>[-Date] >= ".001"

```

```

{You are«del» «*notmen» «*premen» «*postmen»}||
«del»||LAB<URIC ACID>[-Date]||
«del»||IF LAB<URIC ACID>[-Date] >= ".001"
    {IF LAB<URIC ACID>[-Date] > "8.1"
        {Your Uric Acid level is too high. High levels of uric acid can lead to
gout, kidney stones, and other problems. We can discuss this next time I see
you. In the mean time, you can improve things by drinking more water. «*Comp-
Last»}
    ELSE
        {Your Uric Acid level is normal}
    }
||
«del»||LAB<POTASSIUM>[-Date]||
|| IF LAB<POTASSIUM>[-Date] >= ".001"
    {IF LAB<POTASSIUM>[-Date] > "5.3 "
        {Your Potassium level is too high. «*»}
    ELSE
        {IF LAB<POTASSIUM>[-Date] < "3.5"
            {Your Potassium level is too low. «*»}
        ELSE
            {Your Potassium level is normal.}
        }
    }
||
«del»||LAB<SODIUM>[-Date]||
«del»||IF LAB<SODIUM>[-Date] >= ".001"
    { IF LAB<SODIUM>[-Date] > "145"
        {Your Sodium level is too high. «*Comp-Last»}
    ELSE
        {IF LAB<SODIUM>[-Date] < "135"
            {Your Sodium level is too low. «*»}
        ELSE
            {Your Sodium level is normal.}
        }
    }
||
«del»||LAB<MAGNESIUM>[-Date]||
«del»||IF LAB<MAGNESIUM>[-Date] >= ".001"
    { IF LAB<MAGNESIUM>[-Date] > "2.4"
        {Your Magnesium level is too high. «*»}
    ELSE
        {IF LAB<MAGNESIUM>[-Date] < "1.5"
            {Your Magnesium level is too low. «*»}
        ELSE
            {Your Magnesium level is normal.}
        }
    }

```

```

    }
    ||
«del»||LAB<PSA>[-Date]||
«del»||IF LAB<PSA>[-Date] >= ".001"
    {Your prostate blood test was
        IF LAB<PSA>[-Date] <= "4.0"
            {normal.}
        ELSE
            {abnormal. Normal is less than 4.0. «*Comp-Last»}
    }
    ||
«del»||LAB<VITAMIN B12>[-Date]||
«del»||IF LAB<VITAMIN B12>[-Date] >= ".001"
    {Your Vitamin B12 level was
        IF LAB<VITAMIN B12>[-Date] >= "200"
            {normal.}
        ELSE
            {too low. Normal is over 200. «*»}
    }
    ||
«del»||LAB<FOLIC ACID>[-Date]||
«del»||IF LAB<FOLIC ACID>[-Date] >= ".001"
    {Your Folic Acid was
        IF LAB<FOLIC ACID>[-Date] >= "3.0"
            {normal.}
        ELSE
            {too low. Normal is greater than 3.0. «*»}
    }
    ||
«del»||LAB<CRP-HI SENS>[-Date]||
«del»||LAB<CRP QUINTILE>[-Date]||
«del»||LAB<CVD RISK>[-Date]||
«del»||IF LAB<CRP-HI SENS>[-Date] >= ".001"
    {The test to asses your risk for heart disease based on inflammation puts
you at «del» «*LowRisk» «*AvgRisk» «*HighRisk»}
    ||
«del»||LAB<ANA>[-Date]||
«del»||IF LAB<ANA>[-Date] <> ""
    {Your test for anti-nuclear antibodies was
        IF LAB<ANA>[-Date] = "Negative"
            {normal.}
        ELSE
            {abnormal. This may indicate «*» .}
    }
    ||
«del»

```



```

«del»||LAB<INR>[-Date]||
«del»||IF LAB<INR>[-Date] >= ".001"
    {IF LAB<INR Goal>[-Date] <> ""
        { IF LAB<INR Goal>[-Date] = "2.0 - 3.0"
            { IF LAB<INR>[-Date] < "2.0"
                {Your warfarin level is too low. The goal is an INR
that is between 2.0 and 3.0. «*» }
            ELSE
                { IF LAB<INR>[-Date] > "3.0"
                    {Your warfarin level is too high. The goal is an
INR that is between 2.0 and 3.0. «*»}
                ELSE
                    {Your warfarin level is at goal. The goal is an
INR that is between 2.0 and 3.0. Please continue taking your warfarin at the
present dose. }
            }
        }
    ELSE
        {IF LAB<INR Goal>[-Date] = "2.5 - 3.5"
            {IF LAB<INR>[-Date] < "2.5"
                {Your warfarin level is too low. The goal is an
INR that is between 2.5 and 3.5. «*» }
            ELSE
                { IF LAB<INR>[-Date] > "3.5"
                    {Your warfarin level is too high. The
goal is an INR that is between 2.5 and 3.5. «*»}
                ELSE
                    {Your warfarin level is at goal. The goal
is an INR that is between 2.5 and 3.5. Please continue taking your warfarin at
the present dose. }
                }
            }
        }
    }
ELSE
    {Your warfarin level is «del» «*atgoal» «*too high» «*toolow»
«*INR_Goal»}
}
||
«del» «*PAP»
«del» «*HEMOCULT»
«del» «*MAMMO»
«del» «*CHESTXRAY»
«del» «*STOOL»

«del» «*INSTRUCT»

```

«del» «*BloodFine»
«del» «*WATCHFAT»
«del» «*EXERCISE»
«del» «*LOSEWGHT»
«del» «*RPTBDTEST»
«del» «*FOLLOWUP»

Please note that we now have the ability to conduct liver and cholesterol tests in house. Please come in fasting (no food for 8 hours) if you wish to have these tests performed at your next appointment«del» «*.»

Sincerely,

«req» «*STEW» «*PALMER» «*CHEN» «*HEATHER» «*EVA» «*CARLYN»
«*Liu»

