

Advanced Template Programming
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First Project: Clean up the interface of the shipped “Soap: Single or Multi Problem” template in 8.2.1.

Section 1:

Issue: The «S-...» Drop-down menu can chose multiple selections by holding down the Control Key while selecting, but if the patient comes up with another problem after you have chosen a few, you have to go to quick text to chose the «S-...» again.

Solution: Make a Recursive Quick Text to replace the «S-...»
A Recursive Quick Text is a quick text that includes itself at the end. In this case, we will call the recursive quick text «*Subjective List»

This will expand to: “

«*S Chronic.. .» «Subjectives ...»

«*Subjective List» “

«*S Chronic.. .» will expand to a drop-down menu of chronic conditions with more sophisticated templating designed to bring forward saved data from previous exams, while

«Subjectives ...» will expand to two drop down menus that bring in the Practice Partner pre-built subjective templates which ship with the system. One of the menus is called «Subjectives Alphabetical...» and the other is called «Subjectives by Category...»

«Subjectives Alphabetical ...» brings up the original «S-...» menu, and «Subjectives by Category...» brings up a menu of problems by body system.

Finally, «*Subjective List» will bring itself up again.

Section 2:

Issue: The options to insert patient data such as past medical history, family history, and so on are quick texts that are messy. Currently, they look like this:

«Insert Past Medical History»
«Insert Social History»

«Insert Family History»
«Insert Current Medications»
«Insert Allergies»

It would be nice to improve functionality of this by adding more options, and also to make it neater and less cluttered. So, we will turn this into a Drop-Down Menu, and add some options to the menu.

We will call this new menu «*Insert Patient Data ...» , and we will make the choices recursive.

The first choice will be to expand all of the above choices, reordered because I prefer to list the allergies and current medications at the top. We will call it:

*Insert Patient Data 1

And it will expand to: «** Insert All **»/.IAL:/ICM:/IPH:/ISH:/IFH:/ «*Insert Patient Data ...»

It is named Insert Patient Data 1 so it comes up first in the drop down menu, and we add «*Insert Patient Data ...» at the end to make it recursive.

We will have the next choice pull in the Past Medical History, and will call it

*Insert Patient Data 2

And it will expand to : «** Past Medical History **»/.IPH:/ :/ «*Insert Patient Data ...»

Similarly the other menu choices can be named by incrementing the number in the name, and the other insert codes can be added.

Finally, let's add some additional choices to the menu. For labs, we can do

*Insert Patient Data 7

Which will expand to «** Laboratory Results **» /«*InsLab...» :/ «*Insert Patient Data ...»
/«*InsLab...»

Will expand to: a drop-down menu that gives the choice of a BMP, a Hepatic Panel, or a Lipid Panel. You can add any panel you wish by making quick-text and naming it appropriately.

If you want to add Health Maintenance Data, you can add that, or . . .

Section 3:

Issue: We want to make this master template smarter, by only offering an age and sex appropriate exam for the patient.

Currently, the template just offers quick text for a male and female exam:

Objective:

[«PEMale»](#)

[«PEFemale»](#)

Let's use a little bit of conditional logic to give us just one choice:

```
||IF PATIENT_SEX = "" { «** WARNING: Patient Sex has not been entered – please do so in Demographic Section ...» / «PEMale»  
«PEFemale» } ELSE IF PATIENT_SEX = "male" { «PEMale» } ELSE { «PEFemale» }||
```

The above conditional logic statement first checks if there is an entry for the built-in variable PATIENT_SEX. If not, it gives the user a bright red (and in larger font) warning that this needs to be filled out. Then it lets the user choose the Male or the Female Exam. If there is an entry for PATIENT_SEX, it presents the user with just the valid choice only.

A more advanced treatment of this problem would be to put in the entire physical exam in place of the two [«PEMale»](#) and [«PEFemale»](#) choices, with conditional logic making the appropriate choice to bring in the sex-appropriate Breast and GU exam.

Section 4:

Issue: the following section in the chart is cluttered,

Patient Education:

[«Diet»](#)

[«Exercise»](#)

[«Smoking»](#)

[«Alcohol»](#)

and leaves the **Patient Education:** Line in the chart, even if nothing below it is clicked, which requires obsessive-compulsive providers to go to the trouble of deleting the line in those cases.

The solution:

Patient Education: [«DEL»](#) [«*PatientEducation»](#) [«*RE: PossibleHospitalization»](#)

The Quick Text [«*PatientEducation»](#) can expand to:

“.

[«DEL»](#) [«Diet»](#)

[«DEL»](#) [«Exercise»](#)

«DEL» «Smoking»
«DEL» «Alcohol»
«DEL» «*PreVasectInstr» «*PostVasectInstr»”

The “.” On the first line above makes sure that the «DEL» marker will not cause the **Patient Education:** to disappear if a choice is made.

The Quick Text «*RE: PossibleHospitalization» will expand to:

“Discussed the potential need for hospitalization if the symptoms fail to improve or if they worsen, and the need to contact us or to go to the Emergency Room in this event.”

Other things that could be done with this include:

Adding pre-op or post-op instructions for conditions other than vasectomy, including a list of patient handouts that are commonly given, etc. Of course, you could also put these things in a drop-down, recursive menu.

Second Project: make the subjective parts of our templates for chronic disease more helpful, by bringing in historical data. We will use Type II diabetes as an example.

First Step: Decide what data you want to bring into your template, and create lab data names for these data. I happen to use the following lab data names:

.L: DiabetesDxDate: *The date of Dx. of diabetes. Can be “not yet” for patients with glucose intolerance but not meeting the criteria for diabetes, or the approximate date of diagnosis.*

.L: DiabetesEduDate: *The date the patient last saw a diabetes educator. Can be “not yet”*

.L: *Endocrinologist: *The name of the patient’s endocrinologist, if he has one, or “none”*

.L: Does Glucose Test?: *How often does the patient check his blood sugar?*

.L: Last FBS : *What are the most typical recent values for fasting blood sugars at home?*

.L: Checks BP?: *How often does the patient check his blood pressure?*

.L: HomeBPreadings: *What are the typical BP measures at home?*

.L: LastEyeExam: *Date of last eye exam.*

.L: *Ophthalmologist: *Name of Ophthalmologist*

.L: *Optometrist: *Name of Optometrist*

.L: LastFootExam : *Date of last foot exam*

.L: Takes Aspirin?: *How much aspirin does the patient take, or why doesn’t he?*

.L: DiabetesConcerns: *What are the things that the patient fears most about diabetes?*

*Answers might be: «*VisionProblems», «*KidneyProblems», «*Stroke», «*HeartAttack», «*Amputations», or «*InsulinShots»*

.L: SelfManagementGoal: *What type of activity is the patient working on to better manage his diabetes? Examples might be: «*Diet»«*Exercise»«*CheckBlood»*

.L: SelfManageSpecific: *From the above choices, a specific goal.*
.L: SelfManageTime: *The time frame for the above goal*

Also, what symptoms has the patient had since the last visit?

.L: HypoglycemicEpisod: «del»«*none»«*some»«*often»
.L: LowerExtrPains: «del»«*none»«*some»«*often»
.L: LowerExtrNumbness: «del»«*none»«*some»«*often»
.L: Polyuria: «del»«*none»«*some»«*often»
.L: Polydipsia: «del»«*none»«*some»«*often»
.L: Blurred Vision: «del»«*none»«*some»«*often»
.L: Erectile Dysfunct: «del»«*none»«*some»«*often»«*always»«*NotActive»}||

What about the status of the patient's habits?

Smoking History:

.L: SMOKING STATUS: *Can be "never smoked," "ex-smoker," or "smoker"*
.L: PACKS PER DAY:
.L: SMOKE # YEARS:
.L: SMOKE YEAR QUIT:
.L: Alcohol Consumed: *How many servings a week*

Regular Exercise:

.L Exercise: *How many minutes at a time and how many times a week?*

Diet:

.L: Diet: *could be "nothing special," "low fat," "low carb," "vegetarian," "ADA," "WeightWatchers," or a free-form response.*

Second Step: Design a template that brings in the above lab values, and offers you a chance to update them if you wish. Since this will be one of many choices on a drop down pick list, we will make this "template" as a quick text. We might not be able to get everything we want within the number of characters allowed in a quick text, so we may have to "chain" the quick text to other quick texts.

The following is such a "template" quick text.:

=====

AODM SUBJECTIVE: «*NewOnset»«*Follow*Up»
«DEL»||LAB<DiabetesDxDate>[-Date] ||
.L: DiabetesDxDate: «DEL»
«DEL»||LAB<DiabetesEduDate>[-Date] ||
.L: DiabetesEduDate: «DEL» «*NotYet»
«DEL»||LAB<*Endocrinologist>[-Date]||
.L: *Endocrinologist: «DEL» «*none»
«del»|| LAB<Does Glucose Test?>[-Date] ||
«*ChkSugar?»
«del»|| LAB<Last FBS>[-Date] ||
.L: Last FBS : «del»
«*Insulin»

```

«del»|| LAB<Checks BP?>[-Date] ||
.L: Checks BP?: «del» «*inMonths»«*inWeeks» «*inDays»«*XaDay»
«del»||LAB<HomeBPre readings>[-Date]||
.L: HomeBPre readings: «del»
«REQ»«*CardiacData»
«del»|| LAB<LastEyeExam>[-Date] ||
.L: LastEyeExam: «del»
«del»|| LAB<*Ophthalmologist>[-Date] ||
.L: *Ophthalmologist: «del»
«del»|| LAB<*Optometrist>[-Date] ||
.L: *Optometrist: «del»
«del»|| LAB<LastFootExam>[-Date] ||
«del».L: LastFootExam : «del»«*at»
«del»||LAB<Takes Aspirin?>[-Date]||
«del»«*TakesASA?»
Recent Lab Tests:
«REQ»«*CVLabs»
«**Click the following after you have entered today"s labs: ..».«*DiabLabs»
«REQ» «*DiabROS»
«REQ» «*HabitEntr»
«DEL» «*HCMEntr»
«DEL»||LAB<DiabetesConcerns>[-Date] ||
.L: DiabetesConcerns: «DEL» «*none» «*VisionProblems» «*KidneyProblems»
«*Stroke» «*HeartAttack» «*Amputations»«*InsulinShots»
«DEL»||LAB<SelfManagementGoal>[-Date] || ||LAB<SelfManageSpecific>[-Date] ||
||LAB<SelfManageTime>[-Date]||
.L: SelfManagementGoal: «DEL»«*Diet»«*Exer»«*CheckBlood»
.L: SelfManageSpecific: «DEL»
.L: SelfManageTime: «DEL»
=====

```

«*ChkSugar?» expands to:

```

.L: Does Glucose Test?: «*never» «*<1/month» «*<1/week» «*<4/week» «*most
days» «*daily» «*bid» «*tid» «*qid» «*>qid»

```

«*Insulin» expands to:

```

«DEL»||LAB<Insulin Start Date>[-Date]||
.L: Insulin Start Date: «DEL»
«DEL»||LAB<InsulinLantusDose>[-Date]||
.L: InsulinLantusDose: «DEL»
«DEL»||LAB<InsulinHumalogDose>[-Date]||
.L: InsulinHumalogDose: «DEL»

```

«DEL»||LAB<Insulin NPH Dose>[-Date]||
.L: Insulin NPH Dose: «DEL»
«DEL»||LAB<Insulin Reg Dose>[-Date]||
.L: Insulin Reg Dose: «DEL»
«DEL»||LAB<Humulin 70/30 Dose>[-Date]||
.L: Humulin 70/30 Dose: «DEL»
«DEL»||LAB<Humalog Mix 75/25>[-Date]||
.L: Humalog Mix 75/25 : «DEL»

«*CardiacData» expands to:

.
«DEL»||LAB<*Cardiologist>[-Date]||
.L: *Cardiologist: «DEL»«*none»
«DEL»||LAB<Coronary Calcium>[-Date]||
.L: Coronary Calcium: «DEL»«*never»
«DEL»||LAB<StressTestDate>[-Date]||
.L: StressTestDate: «DEL»«*never»
«DEL»||LAB<AngiogramDate>[-Date]||
.L: AngiogramDate: «DEL»«*never»
«DEL»||LAB<EchocardiogramDate>[-Date]||
.L: EchocardiogramDate: «DEL»«*never»
«DEL»||LAB<SPECT Scan>[-Date] ||
.L: SPECT Scan: «DEL»«*never»
«DEL»||LAB<EjectionFraction>[-Date]||
.L: EjectionFraction: «DEL»«*unknown»
«DEL»||LAB<Has CHF?>[-Date]||
.L: Has CHF?: «DEL»«*yes»«*no»«*unknown»
«DEL»||LAB<Carotid US Date>[-Date]||
.L: Carotid US Date: «DEL»«*never»
«DEL»||LAB<AAA Screen Type>[-Date]||
.L: AAA Screen Type: «DEL»«*never» «*Abdominal US»«*Abdominal CT»
«DEL»||LAB<AAA Screen Date>[-Date]||
.L: AAA Screen Date: «DEL»«*never»
«DEL»||LAB<Abdominal US Date>[-Date]||
.L: Abdominal US Date: «DEL»«*never»

«*CVLabs» expands to:

.
«del»||LAB<HEMOGLOBIN A1C>[-Date]|| || IF LAB<HEMOGLOBIN A1C> > "6.5"
{ «***WARNING Not to Goal of less than 6.6 WARNING***...» } ||
«del»||LAB<GLUCOSE, FASTING>[-Date]||
«del»||LAB<CHOLESTEROL>[-Date]||
«del»||LAB<HDL CHOLESTEROL>[-Date]|| || IF LAB<HDL CHOLESTEROL> <
"45" { «***WARNING Not to Goal of greater than 44 WARNING***...» } ||
«del»||LAB<LDL CHOLESTEROL>[-Date]|| || IF LAB<LDL CHOLESTEROL> > "71"
{ «***WARNING Not to Goal of less than 71 WARNING***...» } ||

```

«del»||LAB<TRIGLYCERIDES>[-Date]|| ||IF LAB<TRIGLYCERIDES> > "150" {
«*WARNING Not to Goal of less than 150 WARNING*...»} ||
«DEL»||IF LAB<VAP TOT CHOL> <> "" {«*VAPResult»}||
«del»||LAB<ALT>[-Date]||
«del»||LAB<AST>[-Date]||
«del»||LAB<MICROALBUMIN, UR>[-Date]||
«del»||LAB<MICROALB/CREAT>[-Date]||
«del»||LAB<CREATININE>[-Date] ||
«del»||LAB<BUN>[-Date] ||
«del»||LAB<SODIUM>[-Date] ||
«del»||LAB<POTASSIUM>[-Date] ||
«del»||LAB<URIC ACID>[-Date] ||

```

«*DiabROS» expands to:

Diabetes-Specific ROS:

```

«del»|| LAB<HypoglycemicEpisod>[-Date] ||
.L: HypoglycemicEpisod: «del»«*none»«*some»«*often»
«del»|| LAB<LowerExtrPains>[-Date] ||
.L: LowerExtrPains: «del»«*none»«*some»«*often»
«del»|| LAB<LowerExtrNumbness>[-Date] ||
.L: LowerExtrNumbness: «del»«*none»«*some»«*often»
«del»|| LAB<Polyuria>[-Date] ||
.L: Polyuria: «del»«*none»«*some»«*often»
«del»|| LAB<Polydipsia>[-Date] ||
.L: Polydipsia: «del»«*none»«*some»«*often»
«del»|| LAB<Blurred Vision>[-Date] ||
.L: Blurred Vision: «del»«*none»«*some»«*often»
«DEL»||IF PAT_SEX = "male" { «del» LAB<Erectile Dysfunct>[-Date]
.L: Erectile Dysfunct: «del»«*none»«*some»«*often»«*always»«*NotActive»}||

```

«*HabitEntr» expands to:

Smoking History:

```

«del»|| IF LAB<SMOKING STATUS>[-Date] <> "" {LAB<SMOKING STATUS>[-
Date]} ||
«del»|| IF LAB<PACKS PER DAY>[-Date] <> "" {LAB<PACKS PER DAY>[-Date]} ||
«del»|| IF LAB<SMOKE # YEARS>[-Date] <> "" {LAB<SMOKE # YEARS>[-Date]} ||
«del»|| IF LAB<SMOKE YEAR QUIT>[-Date] <> "" {LAB<SMOKE YEAR QUIT>[-
Date]} ||

```

To update Smoking History: «del» «Never Smok» «*Ex-smoker» «*Smoker»
«del»

Alcohol Consumption:

```

«del»|| IF LAB<Alcohol Consumed>[-Date] <> "" {LAB<Alcohol Consumed>[-Date]} ||
«del»To update Alcohol Consumption: «del» «NeverDrank» «Ex-Drinker» «Drinker»
«del»

```

Caffeine Consumption:

```

«del»|| IF LAB<Caffeine Consumed>[-Date] <> "" {LAB<Caffeine Consumed>[-Date]}
||
«del»To update Caffeine Consumption,: «del» «Non Drinke» «Caf Drinke»
«del»
Regular Exercise:
«del»|| IF LAB<Exercise>[-Date] <> "" {LAB<Exercise>[-Date]} ||
«del»To update Regular Exercise: «del» «MinimalEx» «SomeEx»
«del»
Diet:
«del»|| IF LAB<Diet>[-Date] <> "" {LAB<Diet>[-Date]} ||
«del»To update Diet: «del» «NothingSP» «LowFat» «LowCarb» «Vegetar»
«Diabetic» «ADA» «Other»

```

«*HCMEntr» expands to:

HEALTH CARE MAINTENANCE:

```

«del»||LAB<Takes Aspirin?>[-Date]||
«del»To update aspirin use: «del»«*TakesAsp»
«del»||LAB<Influenza>[-Date]||
«del»To Update Influenza, Click the following: «del» «*LastFlu»
«del»||LAB<Td>[-Date]||
«del»To Update Td, Click the following: «del» «LastTd»
«del»||LAB<Pneumovax>[-Date]||
«del»To Update Pneumovax, Click the following: «del» «LastPneumo»
«del»||LAB<HepBStatus>[-Date]||
«del»To Update Hepatitis B Status, Click the following: «del» «HepBStatus»
«del»||LAB<HepAStatus>[-Date]||
«del»To Update Hepatitis A Status, Click the following: «del» «HepAStatus»
«del»||{LAB<VaricellaStatus>[-Date]}||
«del»To Update Varicella Status, Click the following: «del» «VaricellaS»
«del»||LAB<OCCULT BLOOD>[-Date]||
«del»To Update OCCULT BLOOD, Click the following: «del» «OccultBloo»
«del»||LAB<Sigmoidoscopy>[-Date]||
«del»To Update Sigmoidoscopy, Click the following: «del» «SigEntry»
«del»||LAB<Colonoscopy>[-Date]||
«del»To Update Colonoscopy, Click the following: «del» «ColonEntry»
||IF PAT_SEX = "female" {
«DEL»||LAB<Last Pap Smear>[-Date]||<BR>
.L: Last Pap Smear: «DEL»<BR>
«DEL»||LAB<MammogramDate>|| <BR>
||LAB<LastMammogram>|| «DEL»«*.»<BR>
.L: MammogramDate: «DEL» <BR>
«DEL»||LAB<DEXA>[-Date]|| <BR>
«DEL»||LAB<LastDEXADate>[-Date]|| <BR>
.L: LastDEXADate: «DEL»<BR>
«DEL»||LAB<Hip T-Score>[-Date]|| <BR>
.L: Hip T-Score: «DEL» <BR>

```

«DEL»||LAB<Lumbar T-Score>[-Date]||

.L: Lumbar T-Score: «DEL»} ||

Third Project: Make the Objective part of your Super Template smarter so that you are required to document a foot exam and vibration sense if the patient has diabetes.

Solution: Use the lab value *DiabetesDxDate* to test for whether the patient has diabetes and to bring the appropriate exam parts into your physical exam.

We will create our exam as a chained quick text, called *ExamS1. The diabetic-required parts of the exam are in bold.

=====

*ExamS1:

- DESCRIPTION: Well developed, well nourished, in «*NoAcute» «*HowMuch...» distress
- HAND/SKIN: Skin had normal texture and color«*ExcptSkin». Hair was unremarkable. Nails had no clubbing or cyanosis.
- HEAD/EYES: Head AT/NC. Eyelids, sclerae, and conjunctivae were normal «*ExceptFor» «*ExceptEyes...»
- EARS/NOSE/THROAT: Pinnae were NL. «*WhichSi» «*TM Normal»«*WhichSi» «*TM Abn» Nose was unremarkable.«*NasalMM» «*NoseMMNormal»«*Phar Nl» «*Phar Ab» Lips NL.
- NECK/NODES: «DEL» «*NeckFindings»
- CHEST: || IF LAB<Chest Abnormal?> = "True" { «*ChestAbnormal»} ELSE {Thorax had no significant bony abnormalities «*ExcpChest»}. ||Ribs & sternum nontender«*ExcpTendr».
- LUNGS: «DEL» «*ClearLung» «Lungs...»
- CARDIAC: «DEL»«*CardiacExam»
«DEL»||IF PAT_SEX = "female" { «*BreastExa»}||
«REQ»«*ExamS2»

*ExamS2 is

=====

- **VASCULAR: Radial pulses were normal.** || IF LAB<DiabetesDxDate> <> "" {«REQ» «*FootPulses»} ELSE { «*FootPulses»} ||
- ABDOMEN: Soft and nontender «*ExcptAbdL» . Bowel tones were normal «*ExcptAbdL». There were no masses or organomegaly..
«DEL»«*BackExam»
- EXTREMITIES: Good color and pulses and no edema.
- NEUROLOGICAL:
 - Mental Status was alert & oriented.
 - Speech: NL pace. No aphasia noted.
 - CN: II - XII grossly intact «*IncVFs» «*AndFundis»

- Gait: NL. «*Coordinat»
- Motor: Grossly symmet. & intact strength. No tremor or tics.

«DEL» «*Reflexes»
 || IF LAB<DiabetesDxDate> <> "" {«REQ» «*Sensation»

 .L: LastFootExam: «DEL»«*X»} ELSE { «*Sensation»} ||

«DEL»
 «DEL»«*PsychExam»
 «DEL»||IF PAT_SEX = "male" {«ExamGUMale»} ELSE { «*ExamGUFem»}||
 «DEL»«*ExamRect»

The two sections of the exam that are highlighted insert the «REQ» marker in front of the foot pulses and foot sensation exam,

«*FootPulses» expands to:

.
 «DEL»||LAB<DP & PT Pulses>[-Date]|| «DEL»«*.»
 .L: DP & PT Pulses: «DEL»«*DP&PTPul»

«*DP&PTPul» expands to a drop-down pick list that includes “normal,” “slight decrease,” “moderate decrease,” and “absent.”

Note that the line:

«DEL»||LAB<DP & PT Pulses>[-Date]|| «DEL»«*.»

Brings in the previous pulse finding with the date to remind the provider what it was. It will automatically delete from the finished note unless the provider chooses to put a dot after the «DEL» marker.

«*Sensation» expands to:

- Sensation: «*LightTouc» «*Int&Symm» «*DecrAt» «*Vibrat»

«*Vibrat» expands to:

«DEL»||LAB<Vibration Sense>[-Date]|| «DEL»«*.»
 .L: Vibration Sense:«DEL» «*VibrSens...»

«*VibrSens...» expands to: a drop-down pick list that includes: “normal,” “slight decrease,” “moderate decrease,” and “absent to «*ankle» «*knee».”

In conclusion: The above projects and examples demonstrate a number of advanced techniques in template programming for Practice Partner. Specifically discussed were:

- Recursive Quick Text.
- How to clean up the user interface by creating recursive drop-down menus.
- How to create Quick Text “templates” for chronic problems that enable you to save and reuse historical information and subjective data that is saved as lab values.
- How to make your templates “disease aware” by using conditional logic to test for a disease state (saved as a lab value) and modify what the template presents to the provider based on this.
- How to save physical findings as lab values and bring them into your exam template to remind you of the previous findings.

Future releases of Practice Partner will have many enhancements to templating. Clinical Data Elements will provide a richer environment for storing and reusing clinical data. More options will be available for creating templates and for displaying data. The Problem List Module will be enhanced to allow the user to store and display additional information linked to the patient’s problems, and to update this from within the note.

However, even the current release of Practice Partner provides a very rich and robust environment for creating a sophisticated clinical note.