Journey Forward Survivorship Care Plan Builder

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[EXPORTING A CARE PLAN]

This document explains how to export a SCPB Survivorship Care Plan from your Cancer Registry System. © 2014. NearSpace, Inc. All rights reserved.

Technical Discussion
How to Export an SCPB Care Plan from a Cancer Registry System

It is important to realize that an SCPB care plan is just a text file. It can be read and written by text editors or by programs.

The easiest way to provide a registry system with the ability to generate a valid care plan file is to craft a template for it.

To export a survivorship care plan, a cancer registry system needs to generate the plan in the form of a .scpb file just like those produced by the Survivorship Care Plan Builder (SCPB) itself. The easiest way to do this is to make a template file that can be read, modified, and written out by the cancer registry system.

The use of template files can be illustrated by a simple example: suppose the only information the cancer registry system had about a patient were the patient's name and medical record number. To create a template file for, say, a breast cancer patient, start the SCPB and create a new breast cancer care plan. Now, as a first step, save this care plan immediately, before entering any information into it, with a name of, say, BreastPlanEmpty. Save the resulting file (BreastPlanEmpty.scpb) in a convenient place for later use. Then fill in the Patient name and Medical record number fields with easily-recognized values such as "@Patient name@" and "@Medical record number@". Save the care plan again, with a name such as BreastPlanTemplate.scpb.

Then, in the cancer registry system, when a user requests that a care plan be exported for a breast cancer patient, the system would read this template file into memory, replace the string @Patient name@ with the patient's name, replace the string @Medical record number@ with the patient's record number, and write it out to a new file named something.scpb. This would constitute a valid care plan file, which could be opened, viewed, and further edited by the SCPB.

This technique works for all fields of a care plan that are plain strings of text, such as the names, phone numbers, and email addresses of the members of the patient's care team. But other kinds of fields are a little more complicated. Before discussing these complications, let us back up to another aspect of the export process: selecting the fields of interest.

Start a new breast cancer care plan in the SCPB. With a pad of paper at hand, look through all of the fields in all sections of the care plan editor and decide which ones the cancer registry system will be able to supply. In each such field, enter some distinctive value,, like, say, @Patient name@ for patient name, 99 for Age at diagnosis, 12/12/2222 for Date of birth, etc. (Well, the "etc." may include some fields whose response is simply Yes or No; hard to make that look "distinctive" in the care plan, but at least it will differ from an empty care plan). Record this information on the notepad as well, and make a note of how the value for each field will be retrieved from the cancer registry system, maybe the name of the corresponding field in the cancer registry system or an SQL

query.

Just leave blank any fields for which the cancer registry system will not be able to provide values.

Save this special care plan in a handy directory with a name of your choosing (BreastPlanTemplate.scpb would do fine).

Before looking inside a .scpb file, it would be useful to review a section of the SCPB User Guide: "Working with Field Types" under "Editing a Care Plan" in the section "Working with Survivorship Care Plans."

Open the care plan file in a text editor, and also open the empty care plan from earlier, BreastPlanEmpty.scpb, in an adjacent editor window. The task now will be to turn BreastPlanTemplate.scpb into a real, conveniently usable, template for use by the cancer registry system. To do so, read through BreastPlanTemplate.scpb and examine each line for which you previously entered a special value in the SCPB. For instance, if you entered a value of 99 for Age at diagnosis, you will see the following line in BreastPlanTemplate.scpb:

```
<ageAtDiagnosis>99</ageAtDiagnosis>
```

Also look at the corresponding line in BreastPlanEmpty.scpb. It (like many fields into which no data has been entered) looks like this:

```
<ageAtDiagnosis xsi:nil="true" />
```

What we want to do is enter into the template file both an indication of what this field should look like when it's empty, and what it looks like when it is populated. The trick to doing this depends on the fact that .scpb files are actually XML files, and there is a way to put comments into XML files. Edit the line in the template file and put XML comment markers around it:

```
<!--    <ageAtDiagnosis>99</ageAtDiagnosis>-->
```

Copy the corresponding line from the empty care plan file and past it into the template file right after this line, so you have

```
<!--    <ageAtDiagnosis>99</ageAtDiagnosis>-->
    <ageAtDiagnosis xsi:nil="true" />
```

If you do this with all the "populated" fields in the template file (replace them with a comment line followed by the corresponding line from an empty care plan file), you will have what looks to the SCPB like an empty care plan: it will ignore all the comments and only see the empty values.

The way this template will be used during the export process will be, as in the simple example above, the cancer registry system reads it into memory, modifies it, and writes it back out as a .scpb care plan file. The "modification" part of this will consist in looking

through the template for each comment line (recognizable by the fact that it begins with "<!--") and determining whether it represents a value that is available from the cancer registry system for this particular patient. If it is, the cancer registry system does the following:

- Insert the value for this patient at the appropriate place (between '>' and '<') in the comment line.
- Remove the comment markers ('<!--' and '-->').
- Delete the immediately following line.

Thus, when the cancer registry system comes across the above line in the template file, suppose that it determines that patient's age at diagnosis was 67. It would replace the above-shown pair of lines from the template file with this single line:

```
<ageAtDiagnosis>67</ageAtDiagnosis>
```

So how would the cancer registry system determine that it was the patient's age that was supposed to go into this line? That is largely up to you, the implementer, but there's a trick you might use to make it easier. Remember that the XML comment line can have anything at all in it. Suppose that determining the patient's age in your cancer registry system were done by running the SQL query

```
SELECT Age FROM PatientRecord WHERE RecordNumber=###
```
where ### is the patient's medical record number. Then, instead of a plain 99 in this line of the template file, you might put

```
<!--    <ageAtDiagnosis>SELECT Age FROM PatientRecord WHERE
RecordNumber=###</ageAtDiagnosis>-->
```

The export process would need to get the SQL query out of the comment line (it would be everything between the first '>' and the last '<' sign) and execute it for this patient, and if it comes up with a non-empty result, replace the query with the results of the query (in this case, replace the text between '>' and '<' with the patient's actual age). If no age had been recorded for this patient, the SQL query would get empty results, and this part of the template file could be left as-is (or, if desired, the comment line could be deleted).

Of course, if your cancer registry system did not use SQL queries to find items of patient information, the comment line would not contain an SQL query, but some other indication of how the requisite data could be fetched.

There are some other special considerations for particular SCPB field types:

Selection lists

Some of the fields in the SCPB are selection lists, where the user of the SCPB can select an answer from a drop-down list. Most of these controls allow the alternative of typing in a response instead. The cancer registry system has freedom to enter text of its own

choosing in the line of the care plan corresponding to such a field. For instance, the Pathologic stage in the Background information for a breast cancer can be given as 0, I, II, IiI, or IV from the drop-down list, and choosing, say, II in this list will result in this line in the .scpb:

```
<enumValues>II</enumValues>
```

If the cancer registry system has some other kind of text, say IIA, for Pathologic stage, this different text can simply be inserted into the line:

```
<enumValues>IIA</enumValues>
```

But some of the selection lists in the SCPB do not allow text to be typed in. For instance, the value in the Genetic testing field can only be empty or "Considered", "Ordered", or "Not applicable". If the cancer registry system exported a .scpb file with some text other than these in the line for Genetic testing, the SCPB would consider that .scpb file erroneous and would not load it. For a field of this type, a cancer registry system must either choose one of the values in the list, or omit the field entirely. The selection-only fields in the SCPB are indicated by a gray, rather than white, background.

Option, or radio, buttons have data values that are represented much like a selection list that doesn't provide the alternative of typing in a value.

Checklists

Several fields in the SCPB are pop-up checklists. When selected, such a control presents a list of checkboxes, any or all of which may be checked. The values from such a field are represented in a .scpb file in two lines. For instance, in the Other health concerns field (Background information), a user could check the boxes for Anemia and Osteoporosis, and in the "Other:" box type in "Shortness of breath". When saved to a .scpb file, these values would appear as

```
<enumValues>Anemia,Osteoporosis</enumValues>
<otherText>Shortness of breath</otherText>
```

The SCPB has some leniency in how these values are represented: Any term included in the first line (between `<enumValues>` and `</enumValues>`) which is not exactly the same as the label of one of the checkboxes will be automatically moved into the "Other: " box. So the above example could be exported to the .scpb file as

```
<enumValues>Anemia,Osteoporosis,Shortness of breath</enumValues>
<otherText></otherText>
```

which might be easier to accomplish.

Conclusion

The validity of the process of exporting patient data from a cancer registry system into a survivorship care plan file is verified by seeing 1) whether the file can be loaded by the Survivorship Care Plan Builder, and 2) once loaded, whether the values appearing in the care plan editor correctly reflect what it was intended to export from the cancer registry system. We have given some ideas about how this may be accomplished, but any technique that leads to the right results is just as good.