An Introduction to ODS Markup and Tagsets

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Markup History

- HTML was the original markup language of the web
  - There are set tags and attributes
  - It is difficult to change styles quickly
- CSS allows developers to construct their own styles
- XML allows developers to construct their own tags and attributes

The SAS Solution: ODS Markup

- Release 8.1 provided limited capacity to export SAS output to HTML and XML documents
- Release 8.2 extends this facility to incorporate a wide variety of markup languages:
  - CHTML
  - PHTML
  - CSV
  - DTDs
  - XSL
  - LATEX
  - GTABLEAPPLET
  - WML

The SAS Solution: ODS Markup

- There are several *actions* available in the ODS Markup Statement:
  - CLOSE
  - EXCLUDE
  - SELECT
  - SHOW
- The syntax for the statement is:

```
ods markup action ;

ods markup file-specification(s) <options> ;
```

The SAS Solution: ODS Markup

- To export SAS procedural output to a specific markup language, use the TAGSET | TYPE option
- Example:

```
ods markup tagset = phtml ;
```

The SAS Solution: ODS Markup

- You may also develop your own tagsets, suited to your own requirements
- Sample SAS code:

```
ods _all_ close;
ods markup tagset = tagset_name
           body  =_webout (no_top_matter no_bottom_matter)
           style =minimal
           ;
```

Tagsets

- A tagset is a kind of template
- Tagsets are defined using Proc Template
- They are particularly useful in altering a large group of web pages

Tagsets

- To get a list of the SAS-supplied tagsets included in the general template, use the following code:

```
proc template;
     list tagsets;
```

- These tagsets were downloaded from:

http://www.sas.com/rnd/base/index-ods-resources.html

Tagsets

- To see the source for a tagset definition, specify the two-level name of the tagset within Proc Template.
- The code will then appear in the SAS log.

```
proc template ;
     source tagsets.chtml;
```

Writing the Tagset to the SASHELP Catalog

- Problem: the SASIntrNet Server SASUSER catalog may be read-only
- Solution: write the tagset to the SASHELP catalog instead
- Use ODS Path (Update and Read options)

Code for this Solution

```
ODS PATH SHOW;
ODS PATH SASHELP.TMPLMST(UPDATE) SASUSER.TEMPLAT(UPDATE);
proc template;
define tagset test;
       parent=tagsets.htmlcss;
        define event data;
               trigger header /if cmp(htmlclass,"colhd");
               break /if cmp(htmlclass,"colhd");
               put "<td";
              putq " class=" HTMLCLASS;
               trigger align;
              put "><font color=blue>";
               put VALUE CR;
        end;
end;
run;
ODS PATH SASHELP.TMPLMST(READ)   SASUSER.TEMPLAT(UPDATE);
ODS PATH SHOW;
ODS LISTING CLOSE;
```

Events

- A tagset consists in a series of events
- An event is a creative addition to output
- Events are defined using “start” and “finish” statements
- Prevent events from happening by using “break” and conditional processing

Triggers

- An event may be triggered from within another event
- Example:

```
define event headalign;
            break / when !any(JUST, VJUST);
            trigger valign / when !exists(JUST);
            trigger hhalign / when !exists(VJUST);
            break / when !exists(JUST, VJUST);
            trigger valign / when cmp("l", JUST);
            trigger hhalign / when cmp("c", VJUST);
            break / when cmp("l", JUST);
            break / when cmp("c", VJUST);
            put ' id="' JUST / when !cmp("d", JUST);
            put ' id="l' / when cmp("d", JUST);
            put VJUST;
            put '"';
end;
```

Conditions on Events

- There are new SAS statements for assigning conditions on events:
  - PUTQ places text, or the value of a variable, into the output, and puts quotation marks around it
  - PUTL places text, or the value of a variable, into the output, and moves down one line

Conditions on Events

- CMP compares text with the value of a variable
- IF and WHEN are generally equivalent; they are used with CMP to determine when a PUT statement will be invoked
- EXISTS determines if the variable has any value at all
- ! is used as the boolean negation; read as "not"

Variables

- Variables are data-driven
- There are style variables and event variables
- Event variables are unique to tagsets; eg.
  - date, time, names, ods path, value, url
  - width, colstart, colcount, row, rowspan
- Style variables control the appearance of your output

Examples of Style Variables

Style Variable	Holds the value for…
BACKGROUND	color of the background.
BODYSCROLLBAR	whether to put a scrollbar in the frame for the body file.
CELLHEIGHT	height of the cell.
CELLPADDING	amount of white space on each of the text in a cell.
FLYOVER	text to show in a tool tip for the cell.
FONT	font definition.
FONT_SIZE	size of the font.
FONT_STYLE	style of the font.
FRAME	type of frame to use on a table.
HREFTARGET	window or frame in which to open the target of the link.
HTMLCLASS	name of the stylesheet class to use for the table or cell.
HTMLID	id for the table or cell.
JUST	horizontal justification.
HTMLSTYLE	individual attributes and values for the table or cell.

Examples of Event Variables

Event Variable	Holds the value for ...
AUTHOR	author of the output. Set from the ODS statement or is the user that is running SAS.
BASENAME	BASE= option as set in the ODS statement.
COLCOUNT	number of columns in the current table.
COLSPAN	number of columns that the cell spans.
COLSTART	column number for which the cell starts.
COL_ID	column ID to identify columns. Used for the OIMDBM format type by the XML LIBNAME engine.
DATE	date.
NAME	name of the variable. Set with the VARNAME= attribute
PATH	path as set by the ODS statement.
REF_ID	reference ID for references to columns. Used for the OIMDBM format type by the XML LIBNAME engine.
ROW	current table row, which includes headers.
VALUE	current value.

Applications: Online Government Standards

- Metadata
- Accessibility
- Privacy

Applications: Accessibility

PRIORITY ONE:

1.1 -- Provide a text equivalent for every non-text element

We put the title of all gifs into "alt=" tags. This was difficult only in one case, which used a format.

5.1 -- For data tables, identify row and column headers.

This was achieved with tagsets.

5.2 -- Use markup to associate data cells and header cells.

Also achieved with tagsets.

Code for Accessibility

```
proc template;
     define tagset access;
     parent=tagsets.htmlcss;
        define event data;
            trigger header_art /if cmp(htmlclass,"colhd");
            break /if cmp(htmlclass,"colhd");
            put "<td";
            trigger pre_post;
            putq " class=" HTMLCLASS;
            trigger align;
            trigger style_inline;
             trigger data_art;
            trigger rowcol;
            put ">";
            put VALUE CR;
        finish:
            trigger header_art /if cmp(htmlclass,"colhd");
            break /if cmp(htmlclass,"colhd");
            trigger pre_post;
            put "</td>" CR;
        end;
```

Code for Accessibility

```
define event header_art;
       start:
          put "<th";
          put " id='header1' " / when cmp("2",COLSTART);
          put " id='header2' " / when cmp("3",COLSTART);
          put " id='header3' " / when cmp("4",COLSTART);
          put " id='header4' " / when cmp("5",COLSTART);
          put " id='header5' " / when cmp("6",COLSTART);
          put " id='header6' " / when cmp("7",COLSTART);
          put " id='header7' " / when cmp("8",COLSTART);
          put " id='header8' " / when cmp("9",COLSTART);
          put " id='header9' " / when cmp("10",COLSTART);
          put " id='header10' " / when cmp("11",COLSTART);
          trigger rowcol;
          put ">";
          put VALUE;
       finish:
          put "</th>" CR;
end;
```

Markup Output

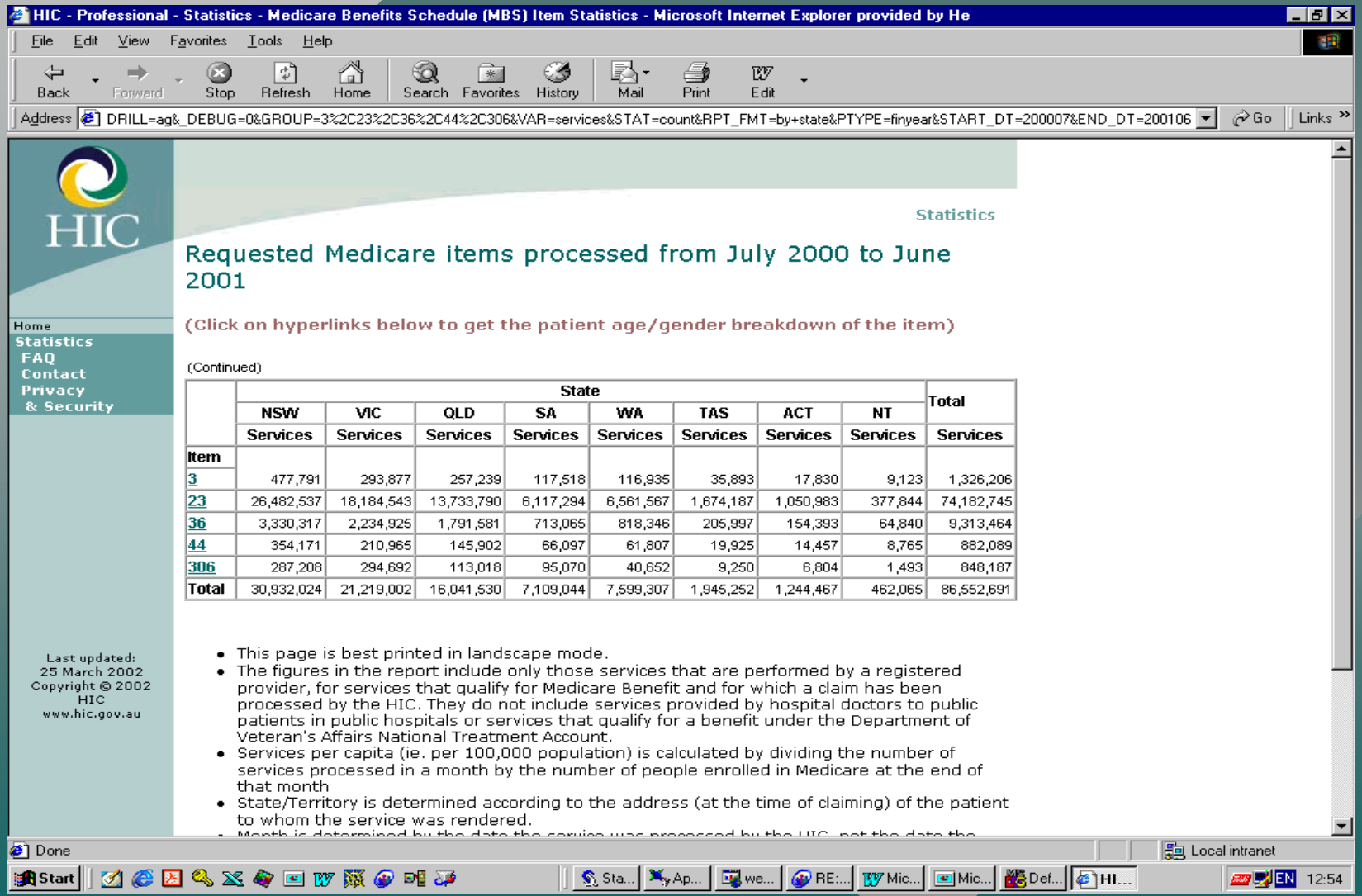
broker[11] - Notepad

File Edit Search Help

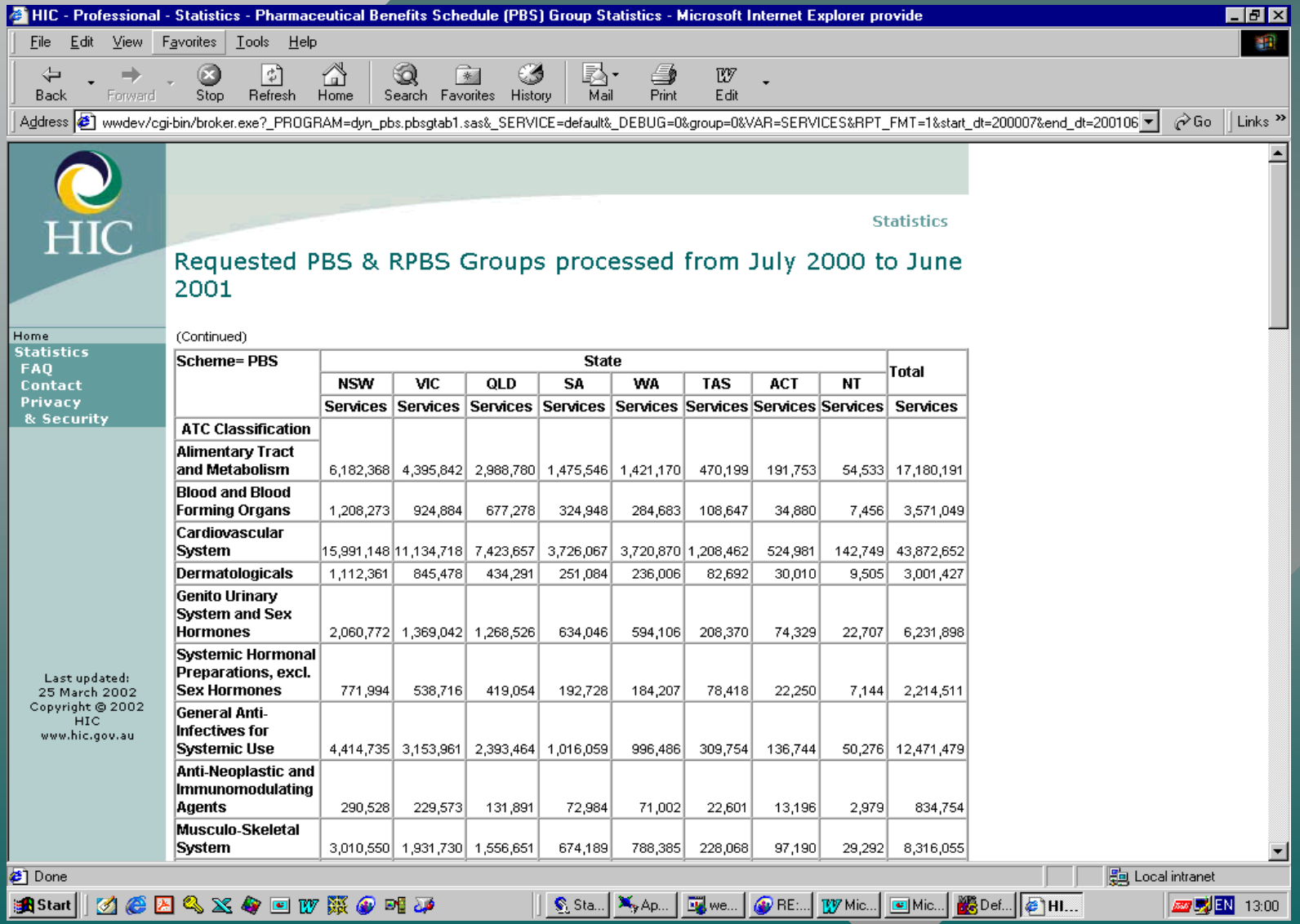
```
<td class="totals" id="c" headers='header9' rowspan="2">Total
</td>
</tr>
<tr>
<th id='header1' >NSW    </th>
<th id='header2' >VIC    </th>
<th id='header3' >QLD    </th>
<th id='header4' >SA     </th>
<th id='header5' >WA     </th>
<th id='header6' >TAS    </th>
<th id='header7' >ACT    </th>
<th id='header8' >NT     </th>
</tr>
<tr>
<th id='header1' >Services</th>
<th id='header2' >Services</th>
<th id='header3' >Services</th>
<th id='header4' >Services</th>
<th id='header5' >Services</th>
<th id='header6' >Services</th>
<th id='header7' >Services</th>
<th id='header8' >Services</th>
```

Start 13:46

Markup Output



Markup Output



Scheme= PBS	State								Total
	NSW	VIC	QLD	SA	WA	TAS	ACT	NT	
	Services	Services	Services	Services	Services	Services	Services	Services	Services
ATC Classification									
Alimentary Tract and Metabolism	6,182,368	4,395,842	2,988,780	1,475,546	1,421,170	470,199	191,753	54,533	17,180,191
Blood and Blood Forming Organs	1,208,273	924,884	677,278	324,948	284,683	108,647	34,880	7,456	3,571,049
Cardiovascular System	15,991,148	11,134,718	7,423,657	3,726,067	3,720,870	1,208,462	524,981	142,749	43,872,652
Dermatologicals	1,112,361	845,478	434,291	251,084	236,006	82,692	30,010	9,505	3,001,427
Genito Urinary System and Sex Hormones	2,060,772	1,369,042	1,268,526	634,046	594,106	208,370	74,329	22,707	6,231,898
Systemic Hormonal Preparations, excl. Sex Hormones	771,994	538,716	419,054	192,728	184,207	78,418	22,250	7,144	2,214,511
General Anti-Infectives for Systemic Use	4,414,735	3,153,961	2,393,464	1,016,059	996,486	309,754	136,744	50,276	12,471,479
Anti-Neoplastic and Immunomodulating Agents	290,528	229,573	131,891	72,984	71,002	22,601	13,196	2,979	834,754
Musculo-Skeletal System	3,010,550	1,931,730	1,556,651	674,189	788,385	228,068	97,190	29,292	8,316,055

Markup Output

HIC - Professional - Statistics - Medicare Benefits Schedule (MBS) Item Statistics - Microsoft Internet Explorer provided by He

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit

Address M=dyn_mbs.mbs_tab4ag.sas&_SERVICE=default&_DEBUG=0&GROUP=44&VAR=services&STAT=count&RPT_FMT=by+state&PTYPE=finyear&START_DT=200007&END_DT=200106 Go

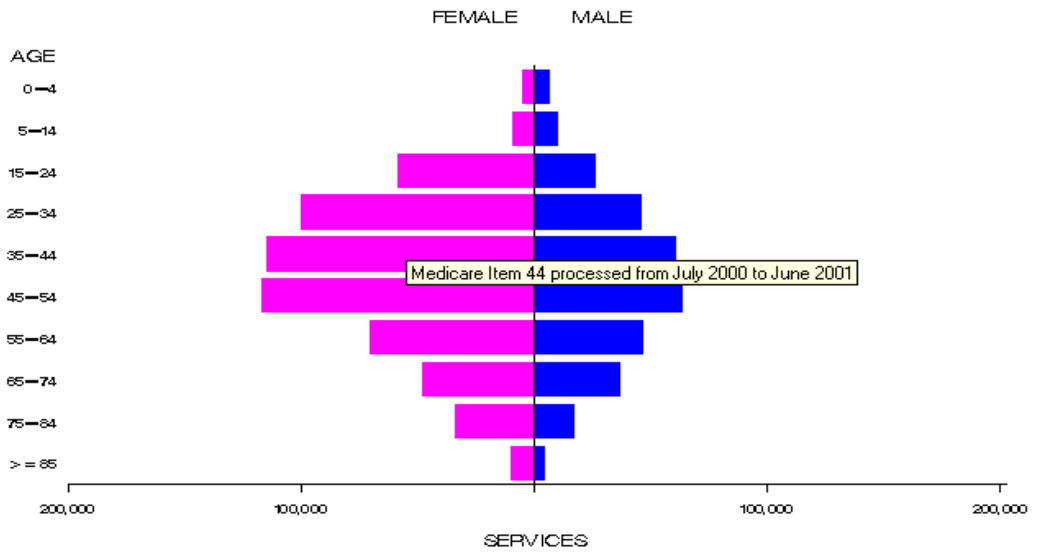
Links Customize Links Free Hotmail Windows

HIC

Statistics

Medicare Item 44 processed from July 2000 to June 2001

Patient Demographics



(Continued)

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Done

Local intranet

Start 14:20

Conclusion

- ODS Markup - an alternative to ODS HTML
- Tagsets - enable the definition of new markup