

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 halign / when !exists(VJUST);  
    break / when !exists(JUST, VJUST);  
    trigger valign / when cmp("l", JUST);  
    trigger halign / 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

BACKGROUND

Holds the value for...

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>
```


Markup Output

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

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Address [DRILL=ag&_DEBUG=0&GROUP=3%2C23%2C36%2C44%2C306&VAR=services&STAT=count&RPT_FMT=by+state&PTYPE=firyear&START_DT=200007&END_DT=200106](#) Go Links



Statistics

Requested Medicare items processed from July 2000 to June 2001

(Click on hyperlinks below to get the patient age/gender breakdown of the item)

(Continued)

Item	State								Total
	NSW	VIC	QLD	SA	WA	TAS	ACT	NT	
	Services	Services	Services	Services	Services	Services	Services	Services	
3	477,791	293,877	257,239	117,518	116,935	35,893	17,830	9,123	1,326,206
23	26,482,537	18,184,543	13,733,790	6,117,294	6,561,567	1,674,187	1,050,983	377,844	74,182,745
36	3,330,317	2,234,925	1,791,581	713,065	818,346	205,997	154,393	64,840	9,313,464
44	354,171	210,965	145,902	66,097	61,807	19,925	14,457	8,765	882,089
306	287,208	294,692	113,018	95,070	40,652	9,250	6,804	1,493	848,187
Total	30,932,024	21,219,002	16,041,530	7,109,044	7,599,307	1,945,252	1,244,467	462,065	86,552,691

- This page is best printed in landscape mode.
- The figures in the report include only those services that are performed by a registered provider, for services that qualify for Medicare Benefit and for which a claim has been processed by the HIC. They do not include services provided by hospital doctors to public patients in public hospitals or services that qualify for a benefit under the Department of Veteran's Affairs National Treatment Account.
- Services per capita (ie. per 100,000 population) is calculated by dividing the number of services processed in a month by the number of people enrolled in Medicare at the end of that month
- State/Territory is determined according to the address (at the time of claiming) of the patient to whom the service was rendered.
- Month is determined by the date the service was processed by the HIC, not the date the

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25 March 2002
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Local intranet

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Markup Output

HIC - Professional - Statistics - Pharmaceutical Benefits Schedule (PBS) Group Statistics - Microsoft Internet Explorer provide

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Address wwwdev/cgi-bin/broker.exe?_PROGRAM=dyn_pbs.pbsgtab1.sas&_SERVICE=default&_DEBUG=0&group=0&VAR=SERVICES&RPT_FMT=1&start_dt=200007&end_dt=200106 Go Links >>


Statistics

Requested PBS & RPBS Groups processed from July 2000 to June 2001

(Continued)

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

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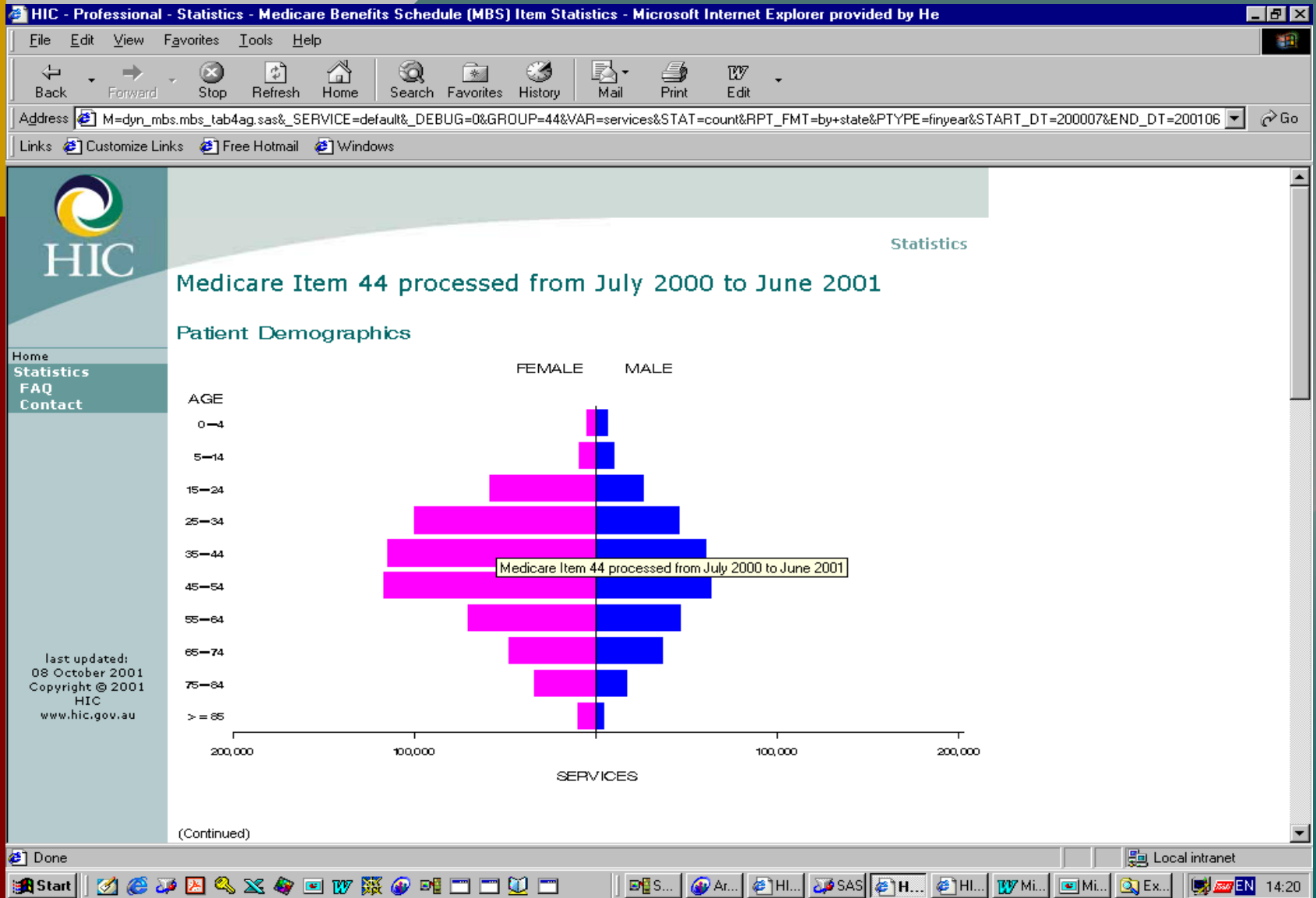
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Done

Local intranet

Start | Sta... | y.Ap... | we... | RE... | Mic... | Mic... | Def... | HI... | EN 13:00

Markup Output



Conclusion

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