From the President

It's already the end of 2014 and the eventful year will soon cease to exist. However, the memories of the West African Ebola outbreaks that began in February and the fight of the first outbreak in the U.S. shall likely remain with us for far longer than fate may have planned. Or, maybe fate planned these events to stay with us forever. Regardless, I think we can all agree that 2014 has been very eventful.

In our August meeting, two of our veteran speakers, Art Carpenter and Kirk Lafler, gave great presentations to our members. I personally couldn’t attend the meeting because I was traveling, but I would like to give a big thanks to Scott Leslie, our speaker/program coordinator, and other Executive Committee members who helped run the event in my absence. I really appreciate the contributions from our EC members. They have been working in many different areas, newsletter editing, finance, facilities, catering, advertisement, and membership, just to name a few, for the past years. The name roster of our EC member is on the last page of this newsletter, so please feel free to thank them if you see them.

The featured talk of our November meeting will be presented by Paul LaBrec from Treo Solutions, now part of 3M Health Information Systems. He will present a Diabetes case study to show you how to link healthcare claims and Electronic Health Records (EHR) for patient management. The second discussion will be presented by Jay Zhou from Pharmapace, Inc. His talk will focus on how to map data from clinical trials to SDTM format, a data standard in pharmaceutical industry. Both Paul and Jay are long-time SANDS supporters; you won’t want to miss their presentations. We won’t have a workshop in the afternoon this time.

SANDS meeting are run by volunteers. We are always in need of more support and help from our members. If you would like to contribute more to this local SAS user community, please let us know.

I look forward to seeing you again on November 12th!

— Wei Cheng

Please fill out the RSVP form for the workshop and/or meeting by Friday, Nov. 7th, at http://www.sandsug.org/rsvp.html
Featured Presentation:
Linking Healthcare Claims and Electronic Health Records (EHR) for Patient Management – Diabetes Case Study

Paul LaBrec, Treo Solutions

Abstract
Treo Solutions—now part of 3M Health Information Systems—conducted a pilot project to assess the feasibility of linking healthcare administrative claims data to an electronic health record (EHR) data extract to enhance patient case management activities. We linked one year of healthcare claims data (2012) to the equivalent year of medical record data abstracted from the EHR system of a large Midwest commercial insurer. The claims database identified 328,897 adult patients receiving services during 2012. Over 35,000 of these patients (10%) had a diabetes diagnosis. The clinical data set included 272,193 records on 61,532 patients in 2012 and included over 50 data elements. Measures identified in the EHR database included physical measures (the most common records), health history, health behaviors, radiologic and endoscopic tests, select prescription data and laboratory values. We abstracted a subset of EHR records for adults (ages 18-75) who had at least one diabetes-related test recommended by the National Quality Forum for use in this analysis. These tests include blood pressure, hemoglobin A1c, low-density lipoprotein, and retinal exams. From this combined database, we calculated that the majority of patients with a diabetes diagnosis on claims had no diabetes test results for the study year. Furthermore, a small number of patients without a known diabetes diagnosis had at least one out-of-range diabetes test. We summarize the strengths and weaknesses of administrative claims versus EHR data for patient classification and compliance analyses, as well as methodological issues in combining claims and clinical databases. Planned follow-up analyses include medication fill rate calculations, cost of care predictions for various patient groups, and health outcomes analyses.

Biography
Paul LaBrec is Director of Research for the 3M HIS Treo Solutions Business Unit. He leads a team of research analysts in planning and conducting various research projects including the development and evaluation of analytic products, health care program evaluations, or ad hoc research investigations for 3M customers.

Paul comes to Treo after a decade leading SAS programmers and biostatisticians serving large companies in the pharmaceutical/biotech industry. He has worked with start-up ventures in healthcare analytics, developing analyst groups and defining population-based models of health services utilization and disease incidence and prevalence. He has also provided research support in an academic medical setting employing his background in epidemiology and social science in population health and clinical trial research.

Short Talk:
Achieve More with Less Resource – using transforming clinical data into SDTM format as an example

Jay Zhou, Pharmapace, Inc.

Abstract
Pharmaceutical/biotech companies are facing tough regulatory pressures, economic downturn, competition, downward price pressures, and increased R&D cost. To meet these challenges, companies have to explore ways effectively to achieve more with less resource. This is particularly true when implementing CDISC data standards (CDASH, SDTM, and ADaM) across trials, phases, and therapeutic areas as it is costly and time consuming.

Using the process of transforming clinical data into SDTM format as an example, the presentation will focus on how to achieve more with less resource when mapping the raw source data into SDTM. A live demo will be given on automating the mapping process.

Biography
Jay Zhou is Pharmapace’s chief technology officer, principal technical advisor, and co-founder. He is responsible for developing innovative programming solutions for clinical data cleaning, transformation, integration, analysis, and reporting.

Jay has more than 18 years of clinical development experience with SAS programming. He has developed numerous systems and tools to facilitate the programming processes for clinical study reports and regulatory submissions. Jay has led and contributed to more than 10 successful NDA submissions in therapeutic areas including metabolic disorders, neurological disorders, oncology, cardiovascular disease, insomnia disorder, allergy/immunology, and more.
**Statistical Programmer/Analyst**

The Medical Affairs Statistical Analysis group of ICON Biostatistics & Programming is seeking a full-time statistical programmer, statistical analyst, and/or senior statistical analyst to work with our team in the San Diego area.

**Qualifications**
The ideal candidate will have:
- Proficiency in Base SAS
- Previous research experience
- Excellent written/oral communication skills
- Minimum BS degree with 0 - 5 years work experience

In addition, the successful candidate will have one or more of the following:
- Proficiency in additional SAS modules (SAS/STAT, SAS/GRAPH)
- Data analysis experience
- Healthcare research experience

**Responsibilities**
Our programmer/analysts are responsible for:
- Importing data into SAS from other databases
- Data cleaning, reporting, and descriptive statistics
- Manipulating SAS datasets, creating algorithms for derived variables, and developing analytic files
- Creating statistical output from ad hoc and planned requests under direction of senior statisticians

**About ICON**
The Medical Affairs Statistical Analysis group of ICON Biostatistics & Programming comprises approximately 20 statisticians and statistical programmers who are dedicated to performing analyses on data collected from late phase and observational healthcare studies (e.g., disease registries), retrospective studies, and patient-reported outcomes studies across a broad range of therapeutic areas.

Send resumes to:
Monica.Montelongo@iconplc.com

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**SANDS Membership**

Membership in the San Diego SAS Users Group, Inc. (SANDS) provides an opportunity for SAS users to meet and keep updated on SAS issues. Seminars and presentations allow SAS users to gain knowledge with little or no cost. It is also an opportunity for consultants and prospective employees to meet possible employers, and companies to show their SAS-related products and host a meeting. We welcome those interested in giving presentations and writing articles for the newsletter. Presently, there is no charge to attend our meetings or to receive our newsletter; small fees may be asked for some special functions or workshops.

The SANDS membership list is not given out to others and is used only to disseminate SANDS related business, such as newsletters or special announcements. Those wishing to sell their products or services have the opportunity to advertise in the newsletter at reasonable rates.

To become a member, please email the following to Cathy Liu: Name, Title, Organization, Telephone, Email, Fax, Address, Work or Home indicator, Computer Platform, SAS version, and SAS related areas of interest.

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**SANDS Sponsorship**

We would like to thank Pfizer for having once again generously provided our meeting room. This month, SANDS is sponsoring our meeting dinner and activities. It is our sponsors who make it possible for us to hold our meetings free of charge so, at the event, please do let sponsor representatives know how much you appreciate their support. If your company would like to sponsor SANDS activities, please contact the SANDS sponsorship coordinators, Tyler Smith and Vivian Huang.
Tips for Using a Data Warehouse
Curtis Smith, Defense Contract Audit Agency

In our last episode, we explored a way to avoid a pesky error when our SAS code opens a SAS data library or SAS data set. This time, we’ll take a look at a way to clean up dirty data before we start using our data.

One of my pet peeves (I’m not sure what a peeve is, but they make lousy pets) is the way numeral data that has a leading zero in the source file can end up in SAS without the leading zero. A typical example is a month field that is originally stored with numeral values of “01” through “12.” You may find your SAS data file containing instead the values “1” through “12.” Does this make a difference? You bet. Try sorting the months and you will find the October, November, and December follow January. So, if you find that your data is not looking the way you need it, you will need to do some cleaning.

I’m sure there are many ways in SAS to clean up these messes, but I’ll show you a straightforward way to do so. Using the example of a month field with the leading zeros gone, we can use a simple Data Step with if-then-else logic to do some cleaning. In this example, our input SAS data set does not contain a field for the fiscal year, but does have a field for the month, which is called PERIOD. Because we don’t want to rely on the metadata to know the fiscal year of each row, we decide to add a field containing the fiscal year. At the same time, we also want to create a field that will hold the combined value for the month and year and create an index on that field.

%let year=2013;
%let year=2013;
data ab2013.lbr_ytd(label="Direct Labor" index=(yrpr));
    length YEAR $4. YRPR $7.;
    set ab2013.lbr_ytd;
    year="&yr.";
    if period = '1' then period = '01';
    else if period = '2' then period = '02';
    else if period = '3' then period = '03';
    else if period = '4' then period = '04';
    else if period = '5' then period = '05';
    else if period = '6' then period = '06';
    else if period = '7' then period = '07';
    else if period = '8' then period = '08';
    else if period = '9' then period = '09';
    format year $4. yrpr $7.;
    label Year = 'Fiscal Year' yrpr = 'Year-Period';
    yrpr=trim(year)||"-"||period;
run;

First, we initialize the new variables (fields) YEAR (for the fiscal year) and YRPR (for the combined year and month) using the LENGTH statement. (Notice that I like to have the year first so when processing data that spans multiple years the data will sort by year and then by the month within the year.) We then assign a value to the YEAR variable, in this case using a value supplied by a macro variable.

Then, we use the IF-THEN-ELSE statement to clean our dirty data. If a month value does not contain a leading zero, we will replace the stored value with a new value that includes a leading zero. We could accomplish this task with nine consecutive IF statements, but to do so would be inefficient because with each iteration of the Data Step all nine IF statements would execute, even after the iteration encountered the IF statement that match the criteria. Using the IF-THEN-ELSE statement causes the IF logic to cease once a criteria match is found. Let’s get some background on the IF-THEN-ELSE statement from the SAS Institute. (Sas(r) 9.2 language, 2014).
An optional ELSE statement gives an alternative action if the THEN clause is not executed. The ELSE statement, if used, must immediately follow the IF-THEN statement. Using IF-THEN statements without the ELSE statement causes SAS to evaluate all IF-THEN statements. Using IF-THEN statements with the ELSE statement causes SAS to execute IF-THEN statements until it encounters the first true statement. Subsequent IF-THEN statements are not evaluated. For greater efficiency, construct your IF-THEN/ELSE statement with conditions of decreasing probability.

Then, we format and label the new variables using the FORMAT and LABEL statements. And, finally we create the value for the YRPR variable by concatenating the YEAR and PERIOD variable values. Your eagle eye spotted the TRIM function. We use it to make sure there are no trailing blanks in the first variable value we are concatenating so that we don’t end up with a blank within our new variable. (In this example, that shouldn’t happen because we supplied the value for YEAR as being a 4-digit value.)

So, what’s the TRIM function all about? It removes trailing blanks from a character string. Let’s get some background on the TRIM function from the SAS Institute. (Sas(r) 9.3 functions, 2014).

In a DATA step, if the TRIM function returns a value to a variable that has not previously been assigned a length, then that variable is given the length of the argument. TRIM copies a character argument, removes trailing blanks, and returns the trimmed argument as a result. If the argument is blank, TRIM returns one blank. TRIM is useful for concatenating because concatenation does not remove trailing blanks. Assigning the results of TRIM to a variable does not affect the length of the receiving variable. If the trimmed value is shorter than the length of the receiving variable, SAS pads the value with new blanks as it assigns it to the variable.

Voila! Our data is cleaned and ready to use. Thanks for reading.


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Kirk Paul Lafler, Software Intelligence Corporation

Determining the SAS Product(s) Your Organization Licenses and is Installed

Have you ever wondered which SAS product(s) your organization licenses along with each product’s expiration date? This tip shows an undocumented procedure, PROC SETINIT, familiar and frequently used by SAS Administrators and Technical Support staff and available only in SAS versions 8 and 9. The SETINIT procedure displays the SAS product(s) currently licensed, site name and number, the expiration dates for each product licensed, system birthday, and grace and warning periods. Because PROC SETINIT is an undocumented procedure, users should enjoy the information it provides, but use with care.

SAS Code

```sas
proc setinit;
run;
```

SAS Log Results

Original site validation data
Site name: 'ABC-XYZ Organization'.
Site number: My-Site-Number.
Grace Period: 45 days (ending 14FEB2015).
Warning Period: 45 days (ending 01APR2015).
System birthday: 01JAN2014.
Operating System: WX64_WKS.
Product expiration dates:
---Base SAS Software
  31DEC2014
---SAS/Secure 168-bit
  31DEC2014
---SAS/Secure Windows
  31DEC2014
---SAS Enterprise Guide
  31DEC2014
---SAS/ACCESS Interface to DB2
  31DEC2014
---SAS/ACCESS Interface to Oracle
  31DEC2014
---SAS/ACCESS Interface to PC Files
  31DEC2014
---SAS/ACCESS Interface to ODBC
  31DEC2014
---SAS/ACCESS Interface to OLE DB
  31DEC2014

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Another SAS procedure used by Administrators, Technical Support staff, and SAS users to assist and support software deployment strategies, planning and scheduling upgrades, contacting SAS Technical Support, and applying fixes is PROC PRODUCT_STATUS. Available starting in SAS version 9.2, the PRODUCT_STATUS procedure provides important information about the specific SAS versions for each licensed and installed product.

SAS Code

```
proc product_status;
run;
```

SAS Log Results

For Base SAS Software ...
  Custom version information: 9.4_M1
  Image version information: 9.04.01M1P120413
For SAS/ACCESS Interface to Netezza ...
  Custom version information: 9.4_M1
For SAS/ACCESS Interface to DB2 ...
  Custom version information: 9.4_M1
For SAS/ACCESS Interface to Oracle ...
  Custom version information: 9.4_M1
For SAS/ACCESS Interface to Sybase ...
  Custom version information: 9.4
  Image version information: 9.04.01M0P061913
For SAS/ACCESS Interface to PC Files ...
  Custom version information: 9.4_M1
For SAS/ACCESS Interface to ODBC ...
  Custom version information: 9.4_M1
For SAS/ACCESS Interface to OLE DB ...
  Custom version information: 9.4
  Image version information: 9.04.01M0P061913
For SAS/ACCESS Interface to Teradata ...
  Custom version information: 9.4_M1

NOTE: PROCEDURE PRODUCT_STATUS used (Total process time):
  real time     0.45 seconds
  cpu time      0.04 seconds

Contact Information

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Stump the Programmer #70
Changing DO Loop Bounds
Art Carpenter, CA Occidental Consultants

The upper and lower bounds of a DO loop can be set by the data.

```
data range;
  start=1; end=4; output;
  start=3; end=4; output;
run;

data test;
  set range;
  do i = start to end;
    output;
  end;
run;

title1 'DO loop bounds can come from data';
proc print data=test;
run;
```

What would happen if these bounds (START and END) were changed within the DATA step?

```
data test2;
  set range;
  do i = start to end;
    start = 3;
    end = 8;
    output;
  end;
run;

proc print data=test2;
run;
```
Map to Pfizer La Jolla Campus

Directions to the Campus Buildings

Please refer all Contractors and Visitors that will be visiting CB1-CB6, CB10 or The Pfizer Incubator to the CB2 Visitors Check-in Center.

A photo ID is required for visitor check in.

Groups of 15 or more will check-in at the lobbies of the buildings visited.

Visitors should arrive 15 to 20 minutes early to allow enough time for check-in.

CB2 Visitors Center
10770 Science Center Drive, San Diego, CA 92121

From San Diego International Airport.
Follow signs to I-5 North.
Proceed on I-5 North for approx. 10 miles.
Exit I-5 at Genesee Ave. and make a left at the stop light.
Make a right at the second stop light which will be Science Center Drive.
CB2 Visitors Center is located at the end of the cul-de-sac.
Visitor Parking is to the left. Please follow Visitors Signs.
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