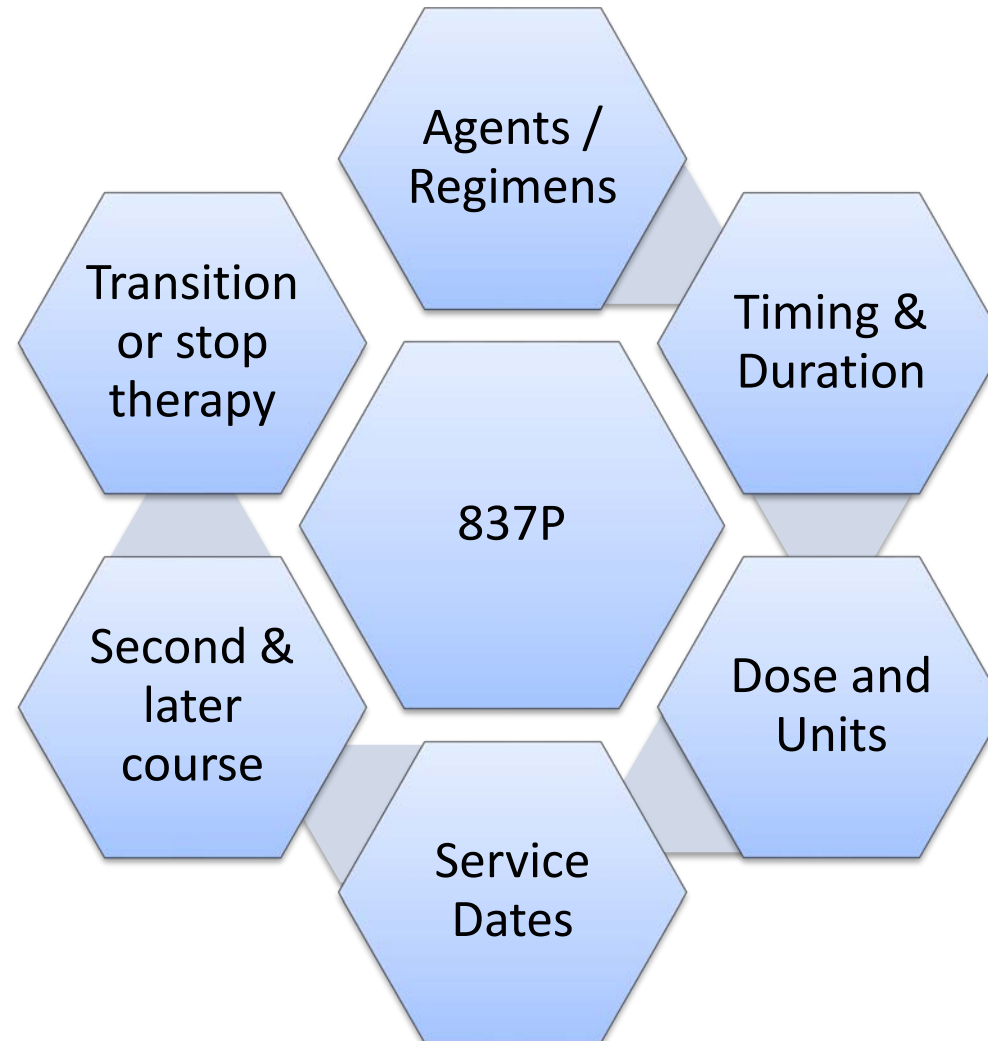


Incorporating Administrative Claims into SEER*DMS

Structured claims

ANSI ASC 837, 5010A1 format (Professional)



Initial AIMS

- Develop method to store raw data in nontraditional format in SEER*DMS
- Import, convert and match claims to existing patients and cancers
- Provide ability to view longitudinal data
- Develop process for using claims to supplement treatment for existing patients in registry
- Scale to multiple registries

Develop method to store raw data in
nontraditional format in SEER*DMS

SEER*DMS Data Structures – Claims Data

Field	Type
date_last_modified	timestamp
date_loaded	timestamp
display_id	varchar
fac_id	numeric
import_data	JSON
matching_ctc_id	numeric
matching_ctc_result	numeric
matching_pat_criteria	varchar
matching_patient_id	varchar
original_file	varchar
pre_record_id	numeric
rec_index	numeric
type	numeric

- Claims and other high volume data are stored in the same table – “*pre_record*”.
- The *type* field identifies the data type (Claims, CDA for MU2 Data).
- Data items from the ANSI 837 claims files are stored in the *import_data* field in a JavaScript Object Notation (JSON) data structure.

JSON Data Structure

```
CLM-573671  Data
{
  "num" : "7",
  "unit" : "UN",
  "drugs" : [
    {
      "id" : "50242005121",
      "qual" : "N4",
      "unit" : "UN",
      "quantity" : "6"
    }
  ],
  "quantity" : "6",
  "procedure" : "J9310",
  "date_service" : "20150330",
  "procedure_qual" : "HC",
  "diagnosis_pointer" : [
    1
  ]
},
```

Advantages:

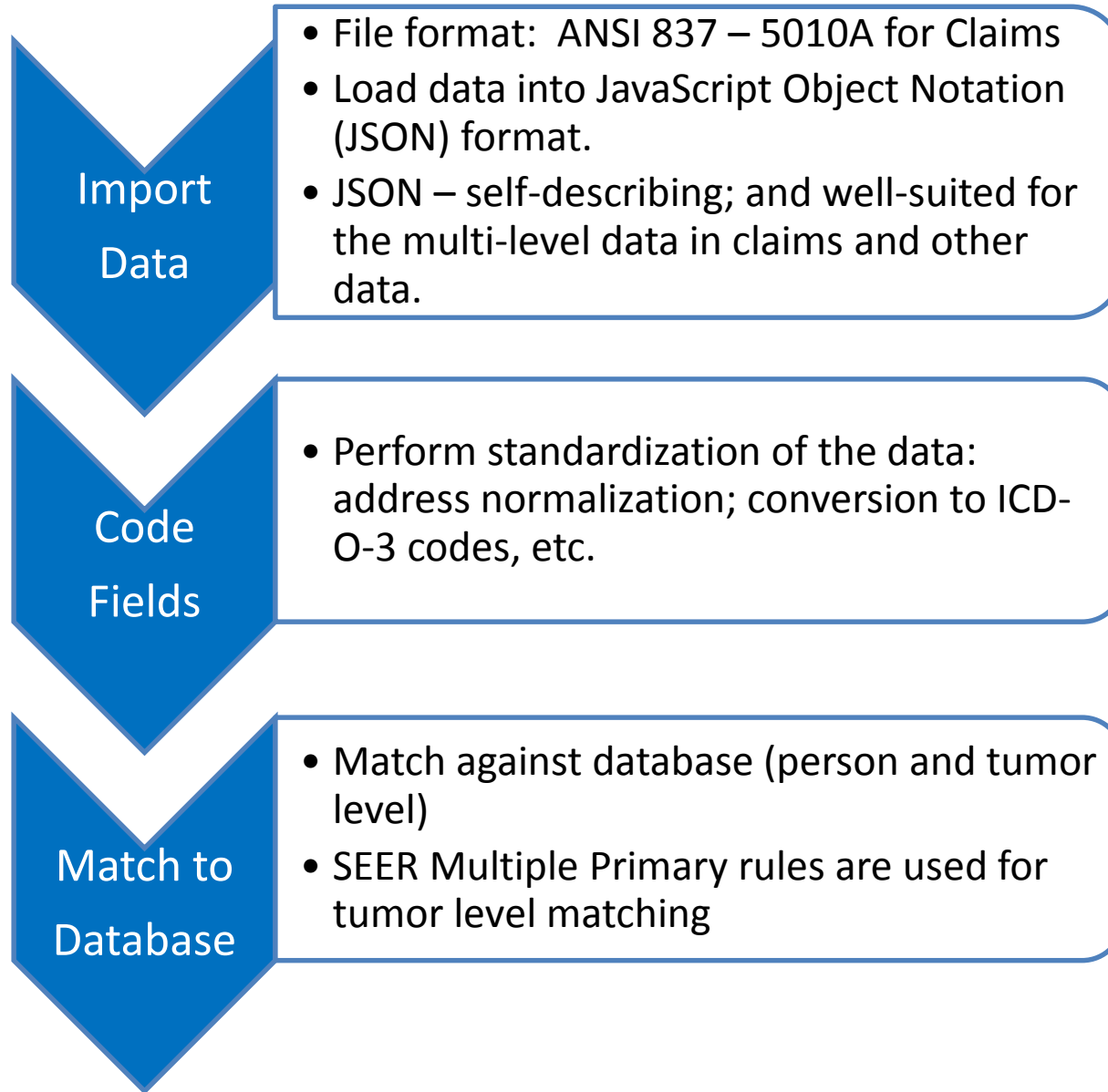
- Adding a field is much easier.
- JSON object is one column in the "pre_record" table
- Same table can be used for different data types; the JSON column differs by type

Challenges:

- It is harder for typical users to query using SQL. IMS implemented GUI to view data and data search queries

Import, convert and match claims to existing
patients and cancers

Workflow for Claims and other High Volume Data



This workflow is currently being defined for claims.

The same principles will be used to evaluate other high volume data sources.

Match Review – GA Data

dx_year	num_ claims	pct_claims_ match_pat	pct_claims_ match_ctc	pct_ converted_I ICDO-3	pct_converted_ claims_match_pat	pct_converted_ claims_match_ctc
2012 and prior	5,789	67.14	16.41	70.63	84.20	23.23
2013	331,865	69.48	15.31	71.93	85.78	21.29
2014	338,415	69.09	15.74	72.44	85.00	21.73
2015	351,757	66.00	18.34	72.03	81.16	25.46
2016	371,748	59.78	25.67	71.89	73.02	35.71
	1,399,574					

Provide ability to view longitudinal data

Procedures Keywords

From To

CTC	Date	Site	Morph	Type	Proc	Procedure Text	M	Drug
-----	------	------	-------	------	------	----------------	---	------

C00 06-06-2014 C184 8140/3

CLM-151167 [add TX](#)

<input type="checkbox"/>	07-22-2014	C186	8000/3	Chemo	J9190	Fluorouracil injection		
--------------------------	------------	------	--------	-------	-------	------------------------	--	--

	Code	Scheme	Site	Morph	Description
Primary	1532	9CM	C186	8000/3	Malignant neoplasm of descending colon

CLM-291745 : [add TX](#)

<input checked="" type="checkbox"/>	07-22-2014	C186	8000/3	Chemo	J9190	Fluorouracil injection		
-------------------------------------	------------	------	--------	-------	-------	------------------------	--	--

<input checked="" type="checkbox"/>	07-22-2014	C186	8000/3	Chemo	J9263	Oxaliplatin		
-------------------------------------	------------	------	--------	-------	-------	-------------	--	--

CLM-231723 : [add TX](#)

<input checked="" type="checkbox"/>	08-05-2014	C186	8000/3	Chemo	J9263	Oxaliplatin		
-------------------------------------	------------	------	--------	-------	-------	-------------	--	--

CLM-93573 : [add TX](#)

<input checked="" type="checkbox"/>	08-05-2014	C186	8000/3	Chemo	J9190	Fluorouracil injection		
-------------------------------------	------------	------	--------	-------	-------	------------------------	--	--

CLM-1338465 : [add TX](#)

<input checked="" type="checkbox"/>	08-19-2014	C186	8000/3	Chemo	J9263	Oxaliplatin		
-------------------------------------	------------	------	--------	-------	-------	-------------	--	--

CLM-70065 : [add TX](#)

<input checked="" type="checkbox"/>	08-19-2014	C186	8000/3	Chemo	J9190	Fluorouracil injection		
-------------------------------------	------------	------	--------	-------	-------	------------------------	--	--

CLM-1224866 : [add TX](#)

<input checked="" type="checkbox"/>	09-02-2014	C186	8000/3	Chemo	J9263	Oxaliplatin		
-------------------------------------	------------	------	--------	-------	-------	-------------	--	--

CLM-232741 : [add TX](#)

<input checked="" type="checkbox"/>	09-02-2014	C186	8000/3	Chemo	J9190	Fluorouracil injection		
-------------------------------------	------------	------	--------	-------	-------	------------------------	--	--

[Alerts](#) | [Text](#) | [Edits](#) | [Images](#) | [Comments 3](#) | [Claims](#)

Procedures

05-06-2014 06-06-2015

CTC	Date	Site	Morph	Type	Proc	Procedure Text	M	Drug
C00 06-06-2014 C184 8140/3								
CLM-76727 : add TX								
+	06-30-2014	C186	8000/3		99205	Office/outpatient visit new		
+	06-30-2014	C186	8000/3		36415	Routine venipuncture		
+	06-30-2014	C186	8000/3		85025	Complete cbc w/auto diff wbc		
CLM-345070 : add TX								
+	07-14-2014	C186	8000/3		85025	Complete cbc w/auto diff wbc		
+	07-14-2014	C186	8000/3		99214	Office/outpatient visit est		
CLM-151167 : add TX								
+	07-22-2014	C186	8000/3	Chemo	J9190	Fluorouracil injection		
CLM-291745 : add TX								
+	07-22-2014	C186	8000/3		J1100	Dexamethasone sodium phos		
+	07-22-2014	C186	8000/3		J2469	Palonosetron hcl		
+	07-22-2014	C186	8000/3	Chemo	J9190	Fluorouracil injection		
+	07-22-2014	C186	8000/3		J0640	Leucovorin calcium injection		
+	07-22-2014	C186	8000/3	Chemo	J9263	Oxaliplatin		
+	07-22-2014	C186	8000/3		85025	Complete cbc w/auto diff wbc		
+	07-22-2014	C186	8000/3		96416	Chemo prolong infuse w/pump		
+	07-22-2014	C186	8000/3		96366	Ther/proph/diag iv inf addon		
+	07-22-2014	C186	8000/3		96367	Tx/proph/dg addl seq iv inf		
+	07-22-2014	C186	8000/3		96411	Chemo iv push addl drug		
+	07-22-2014	C186	8000/3		96415	Chemo iv infusion addl hr		
+	07-22-2014	C186	8000/3		96413	Chemo iv infusion 1 hr		
+	07-22-2014	C186	8000/3		99214	Office/outpatient visit est	25	
CLM-1193468 : add TX								
+	07-24-2014	C186	8000/3		99211	Office/outpatient visit est		

- All Procedures
- All Procedures
- Relevant Procedures
- J Procedures
- Chemo Procedures

<< Alerts Text Edits Images Comments 3 Claims

Diagnosis Summary All DX Keywords Reset

05-06-2014 06-06-2015

Count	Primary	Code	Scheme	Site	Morph	Description
43	Primary	1532	9CM	C186	8000/3	Malignant neoplasm of descending colon
23	Secondary	E9331	9CM			Antineoplastic and immunosuppressive drugs causing adverse effects in therapeutic use

- Diagnosis Summary
- Procedures
- Diagnosis Summary
- Diagnoses
- Demographic

<< Alerts Text Edits Images Comments 3 Claims

Diagnoses All DX Keywords Reset

05-06-2014 06-06-2015

CTC	Date	Site	Morph	Code	Scheme	Description
C00 06-06-2014 C184 8140/3						
CLM-76727:						
Primary	06-30-2014	C186	8000/3	1532	9CM	Malignant neoplasm of descending colon
CLM-345070:						
Primary	07-14-2014	C186	8000/3	1532	9CM	Malignant neoplasm of descending colon
CLM-151167:						
Primary	07-22-2014	C186	8000/3	1532	9CM	Malignant neoplasm of descending colon
CLM-291745:						
Primary	07-22-2014	C186	8000/3	1532	9CM	Malignant neoplasm of descending colon
CLM-151167:						
Secondary	07-22-2014			E9331	9CM	Antineoplastic and immunosuppressive drugs causing adverse effects in therapeutic use
CLM-291745:						
Secondary	07-22-2014			E9331	9CM	Antineoplastic and immunosuppressive drugs causing adverse effects in therapeutic use
CLM-1193468:						
Primary	07-24-2014	C186	8000/3	1532	9CM	Malignant neoplasm of descending colon
CLM-216155:						
Primary	07-29-2014	C186	8000/3	1532	9CM	Malignant neoplasm of descending colon

- Diagnoses
- Procedures
- Diagnosis Summary
- Diagnoses
- Demographic

Develop process for using claims to supplement treatment for existing patients in registry

[Alerts](#) | [Text](#) | [Edits](#) | [Images](#) | [Comments 3](#) | [Claims](#)

Procedures

05-06-2014 06-06-2015

CTC	Date	Site	Morph	Type	Proc	Procedure Text	M	Drug
C00 06-06-2014 C184 8140/3								
CLM-76727 : add TX								
<input type="checkbox"/>	06-30-2014	C186	8000/3		99205	Office/outpatient visit new		
<input type="checkbox"/>	06-30-2014	C186	8000/3		36415	Routine venipuncture		
<input type="checkbox"/>	06-30-2014	C186	8000/3		85025	Complete cbc w/auto diff wbc		
CLM-345070 : add TX								
<input type="checkbox"/>	07-14-2014	C186	8000/3		85025	Complete cbc w/auto diff wbc		
<input type="checkbox"/>	07-14-2014	C186	8000/3		99214	Office/outpatient visit est		
CLM-151167 : add TX								
<input type="checkbox"/>	07-22-2014	C186	8000/3	Chemo	J9190	Fluorouracil injection		
CLM-291745 : add TX								
<input type="checkbox"/>	07-22-2014	C186	8000/3		J1100	Dexamethasone sodium phos		
<input type="checkbox"/>	07-22-2014	C186	8000/3		J2469	Palonosetron hcl		
<input type="checkbox"/>	07-22-2014	C186	8000/3	Chemo	J9190	Fluorouracil injection		
<input type="checkbox"/>	07-22-2014	C186	8000/3		J0640	Leucovorin calcium injection		
<input type="checkbox"/>	07-22-2014	C186	8000/3	Chemo	J9263	Oxaliplatin		
<input type="checkbox"/>	07-22-2014	C186	8000/3		85025	Complete cbc w/auto diff wbc		
<input type="checkbox"/>	07-22-2014	C186	8000/3		96416	Chemo prolong infuse w/pump		
<input type="checkbox"/>	07-22-2014	C186	8000/3		96366	Ther/proph/diag iv inf addon		
<input type="checkbox"/>	07-22-2014	C186	8000/3		96367	Tx/proph/dg addl seq iv inf		
<input type="checkbox"/>	07-22-2014	C186	8000/3		96411	Chemo iv push addl drug		
<input type="checkbox"/>	07-22-2014	C186	8000/3		96415	Chemo iv infusion addl hr		
<input type="checkbox"/>	07-22-2014	C186	8000/3		96413	Chemo iv infusion 1 hr		
<input type="checkbox"/>	07-22-2014	C186	8000/3		99214	Office/outpatient visit est	25	
CLM-1193468 : add TX								
<input type="checkbox"/>	07-24-2014	C186	8000/3		99211	Office/outpatient visit est		

- All Procedures
- All Procedures
- Relevant Procedures
- J Procedures
- Chemo Procedures

New Treatment

CTC TX Course

TX Facility

Source

Systemic

Chemo Chemo Dt Txt

BRM BRM Dt Txt

PAT-

Save Validate Cancel

Demographics

CTC 00 C184 8140/3

Staging

Facility

Course 1

TX 1

TX 2

ETC 01 E719-0000/3

AL 17 Img SS

FB AFL 2

Consolidated (4)

FAC-

FAC-

Demo Info | DX Info | Text TX (PAT-)

Name: SSN: DOB: R: 01 S: 1 DOLC: 07-22-2014 VS: 1

Site: C184 Morph: 8140/3 Grade: 2 Seq: 00 DX Date: 06-06-2014 Rpt Src: 1 Reg: GA SEER: Yes NPCR: Yes LOCAL: Yes

Course 1

FAC-ID FAC- Facility Name

Rpt FAC-ID FAC- Rpt Fac Name

Adm FAC-ID Admit Dt Discharge Dt Source CLM-291745

CoC Dt 1st Course 07 22 2014 TX Status 1 DX Proc 73-87

Surgery

Rs No Surg 1 1st Recon Mst Def Surg Dt 00 00 0000

Surg 03+ 00 Surg 98-02 Surg 73-97 Surg Dt 00 00 0000 Margin 8

Scope 03+ 0 Scope 98-02 LN Exm 98-02

Oth 03+ 0 Oth 98-02

Surg Txt

Radiation

Rs No Radtn 1 Radtn 0 Radtn CNS 9 Radtn Seq 0

Start Dt 00 00 0000

Reg Mod 00 Boost Mod 00

Radtn Beam

Radtn Oth

Systemic

Systemic Dt 07 22 2014 Seq 0

Chemo 03 Chemo Dt 07 22 2014 Txt FOLFOX

Hormone 00 Hormone Dt 00 00 0000 Txt

BRM 00 BRM Dt 00 00 0000 Txt

HemoEndo 00 HemoEndo Dt 00 00 0000 Txt

Other 0 Other Dt 00 00 0000 Txt

Scale to multiple registries

Scale

Data from Unlimited Systems are now being transmitted to:

- Georgia
- Louisiana
- Kentucky
- New Jersey
- New Mexico
- Utah

Ongoing Work

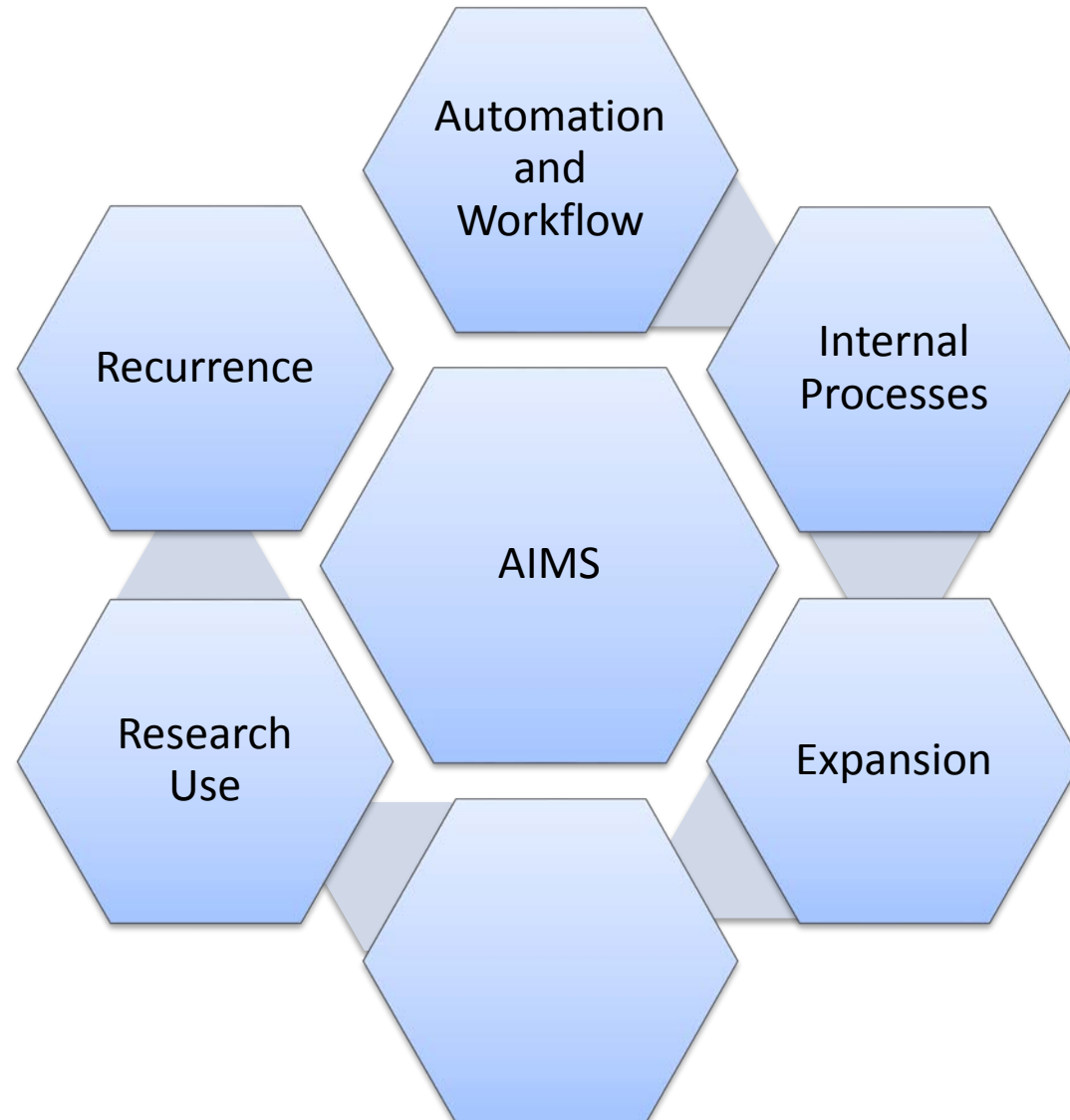
Review Data – SQL Queries

- Claims match a patient with a single cancer, chemo is not documented in registry record (new treatment from claims)
- Claims match a patient with a single cancer, chemo is documented in registry record (treatment confirmed from claims)
- Claims match a patient with cancer but chemo over a year from diagnosis (likely second or later course)
- Claims match a patient but do not match a cancer for that patient (help refine matching process)
- Claims indicate cancer and treatment but no matching patient (case-finding)

GA Reviews

- We are currently reviewing all 2013 diagnosis year records with claims attached and manually making decisions around supplementing therapy from claims. Will use to help inform future processes of automation.
- Work is initiating on a validation study with GA SEER-Medicare data.
 - Does information match between Unlimited and Medicare
 - Address issues around coverage

Future Aims



Expansion

Capitalize on existing scalable framework:

- Expand to all registries
- Expand to all non-hospital medical and radiation oncologist
- Other methods for transmission from practices
- Make data available to hospital registries

- Expand to other claim data sources
 - Large retail chain pharmacy
 - Medicare, Medicaid and all other available payer data

Other Future AIMS

Case finding

- Challenge – prevalent cases
- Initial focus on hematopoietic
- Automated follow-back

Recurrence

- Longitudinal history is helpful
- Validation studies
- Use a signal for follow-back

Research

Great resource but:

- How to facilitate access (i.e. get data out of SEER*DMS for research use)
- Address issues of partial coverage

Questions