

# Secondary Analysis of Large Osteopathic Data Sets: Data Driven Advances in Reputation and Quality of Clinical Practice

Presentation to AOAMI - 2009

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Disclosure:

I have received funding from the AAO to support the creation and testing of the electronic SOAP note (eSOAP).



## Confession:

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I am not an osteopathic physician

I am not a computer scientist

I am not an IT expert

I have not achieved all I hope to in the eSOAP project

I have not achieved any of this apart from DOs

Only 1/3 of my career has been in an osteopathic institution

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I am a microbiologist balancing basic research with clinical investigation

I am indebted to the osteopathic profession for opportunities

I am a volunteer on behalf of the profession

I am an observer of the profession

## Observations:

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The osteopathic profession deserves more respect than it has gotten

The osteopathic profession needs EBM validation of methods

A lack of common parlance has limited aggregation of findings

Physician investigators have been few in the osteopathic profession

Practitioners have limited time for validating their methods

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The LBORC created a paper SOAP note to consistently record OMT

Recognized that SOAP could lead to validation of OMT methods

Recognized SOAP could have an electronic incarnation

# The trouble with EBM...

- Randomized controlled clinical trials are and will continue to be the foundation for evidence-based medicine
- The rigor demanded by such studies is arduous and time consuming and may not be doable in the context of busy practices
- The number of patients in an RCT is usually in the dozens; hundreds for multi-center trials
- Yet, we urge clinicians to participate in clinical research projects – but there are relatively few clinicians who consistently produce primary research, especially in OMT

# Practice-validating research...

- Requires the aggregation of multiple RCTs
- Rigorous inclusion of RCTs for aggregation required for consistency
- Consistency requires common parlance and common methods applied uniformly
- But these don't readily fit the osteopathic paradigm, philosophy or practical reality

# The bottom line...

- It is a tall order for OMT practitioners to conduct RCT and also productively practice medicine simultaneously
- It is all the more remote a possibility for many OMT practitioners to band together for multi-center clinical trials related to OMT practice in support of true EBM
- We can lament or find other approaches

# What if...

- some clinical questions could be answered from already existing data?
- pre-existing data involved an impressive number (thousands) of records?
- many clinicians could contribute to the creation of useful clinical data without disrupting their clinical practice?
- such data addressed clinical questions specific to the osteopathic profession?

Wouldn't that be great?

But what form should data take?

Retrospective  
Medical Record  
Review

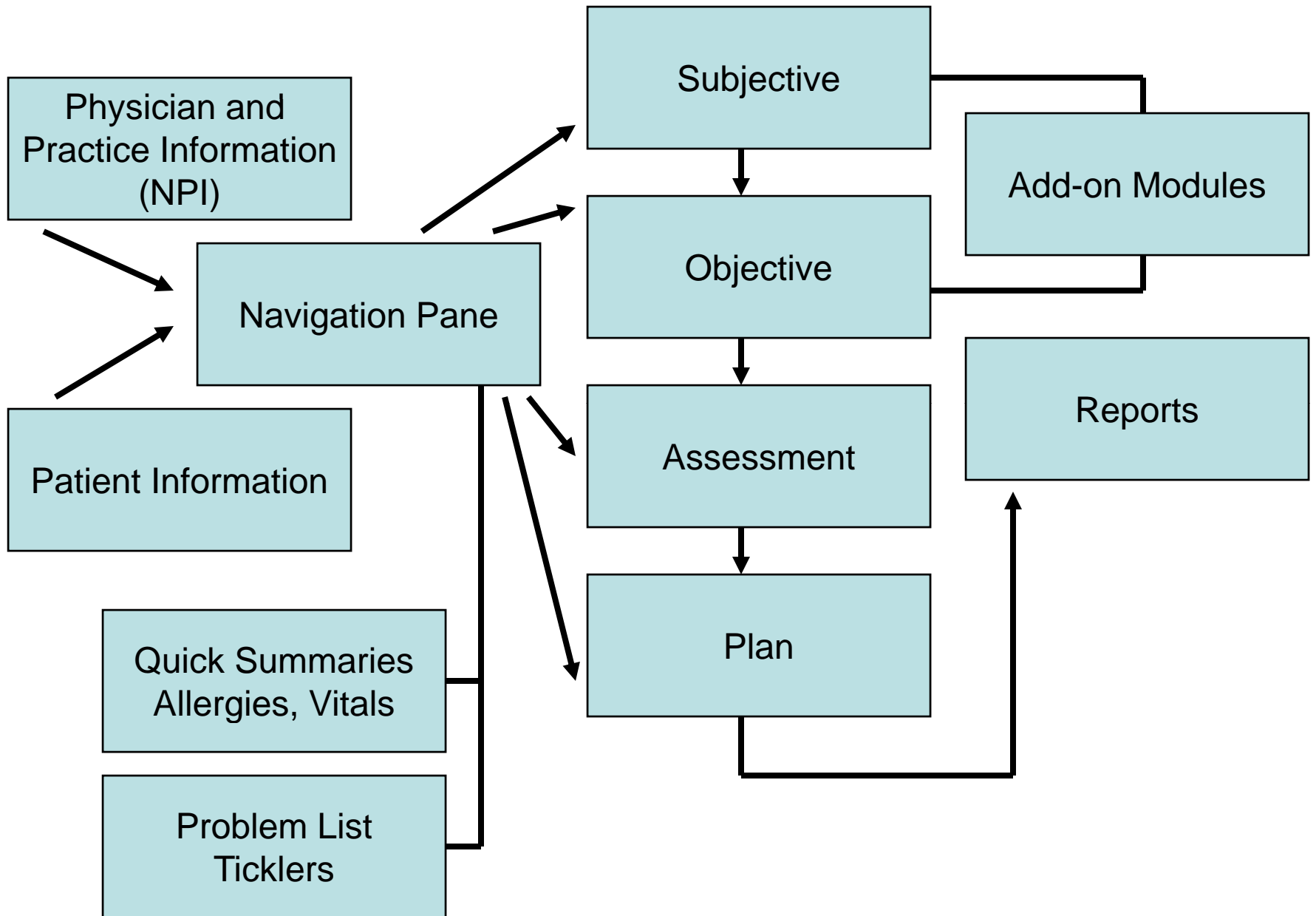
Prospective Clinical  
Study Focusing on  
Specific Data  
Elements

Disease Registry  
With Limited Fields

Extensive Database  
of Clinical Data  
Without Reference to  
a Particular Condition

# The Osteopathic eSOAP (it's where data comes from)

- By DO's – For DO's
- A tool and almost an EHR
- Embedded osteopathic language
  - Mainly in the structural exam
  - New neuromuscular module being added
- Consistent with holistic approach
  - 4000 data fields allow recording “anything”
- Sensitive to constraints of clinical practice
  - Clinicians can use as much or as little of the record as they need



# The Navigation Pane

## Patient Information

[Access Other Record](#)

[Return to Opening Screen](#)

Primary Provider ID

First Name  Last Name

Age:  Gender:

Payment Type:  Insurance Type:

## Begin recording exam notes here

[Delete Current Record](#)

[Add SOAP Note](#)

[Sign Off/Approve this Record](#)

[Record Closed](#)

[Edit Exam Notes](#)

Exam History

## Fields with the \* are required

\* Date of Visit:

\* Provider:

CAP

[LBP](#)

Reports

[Assessment](#)

[Exam](#)

[Enter Height/Weight](#)

[Enter Vital Signs](#)

[Preventive Health](#)

S

O

A

P

[Subjective](#)

[Objective](#)

[Assessment](#)

[Plan](#)

[Prescription](#)

[Tests Ordered](#)



[Followup Required](#)



## Noted Health Problems

[Open Problem List](#)

Allergies

## Navigation Management

[Turn Mouse Wheel On](#)

[Turn Mouse Wheel Off](#)

# Osteopathic Structural Exam

Objective Analysis

Objective Analysis

Submit

The "SUBMIT" button saves your data and returns you to the Patient Screen

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Physical Exam

Osteopathic Structural Exam/OMT

	Superior Left	Inferior Left	Equal	Not Examined
Mastoid	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Acromion	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Scapula	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Iliac Crest	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Greater Trochanter	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Superior Right	Inferior Right	Equal	Not Examined
Mastoid	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Acromion	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Scapula	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Iliac Crest	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Greater Trochanter	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Region	Severity	Method	Treatment	Response	Outcomes	
Abdominal <span style="font-size: 0.8em;">▼</span>	Location	Moderate TART <span style="font-size: 0.8em;">▼</span>	Tis A R T All <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> Art CS HVLA LAS ST BLT CR DIR <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> FPR IND INR MFR ME VIS OTH <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Improved <span style="font-size: 0.8em;">▼</span>	Procedure was well tolerated with no complications or adverse effects <span style="font-size: 0.8em;">▼</span>	Delete Single Row <span style="font-size: 0.8em;">▲</span> <span style="font-size: 0.8em;">▼</span>
Costal Cage <span style="font-size: 0.8em;">▼</span>	Location	<span style="font-size: 0.8em;">▼</span>	Tis A R T All <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Art CS HVLA LAS ST BLT CR DIR <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> FPR IND INR MFR ME VIS OTH <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<span style="font-size: 0.8em;">▼</span>	<span style="font-size: 0.8em;">▼</span>	Delete Single Row <span style="font-size: 0.8em;">▲</span> <span style="font-size: 0.8em;">▼</span>

Ht/Wt

Vital Signs

Prev. Hlth

Subjective

Assmt.

Plan

# Design supports office practice

Plan

*Plan*  The "SUBMIT" button saves your data and returns you to the Patient Screen

Gen Plan **Scoring** Coding

**BEGIN SCORING?**  Yes  No

**HPI Summary** Number HPI Elements Reviewed

**ROS Summary** Number ROS Elements Reviewed

**PFSH Summary** Number PFSH Elements Reviewed   Patient Status:

**Organ Sys Summary** Number Organ Systems Reviewed

**Fields indicated by → are required for coding appropriate levels. 'Problem Level' and 'Complexity Level' fields are self-calculating.**

<b>Number of Diagnoses or Management Options</b>		<b>Amount and/or Complexity of Data to be Reviewed</b>	
<b>Diagnosis(es) and Management Options</b>		Review and/or order of clinical lab tests (1 Pt)	<input type="checkbox"/>
Self-limited or minor; Stable, Improved or Worsening (1 Pt) <b>Max=2</b>	<input type="text" value="0"/>	Review and/or order of radiology tests (1 Pt)	<input type="checkbox"/>
Established Problem; Stable, Improved (1 Pt)	<input type="text" value="0"/>	Review and/or order of medicine (1 Pt)	<input type="checkbox"/>
Established Problem; Worsening (2 Pts)	<input type="text" value="0"/>	Discussion of test results with performing physician (1 Pt)	<input type="checkbox"/>
New Problem; no additional workup planned (3 Pts) <b>Max=1</b>	<input type="text" value="0"/>	Decision to obtain old records and/or obtain history--other than patient (1 Pt)	<input type="checkbox"/>
New Problem; additional workup planned (4 Pts)	<input type="text" value="0"/>	Review and summarization of old records and/or obtaining history from someone other than patient and/or discussion of case with other health-care provider (2 Pts)	<input type="checkbox"/>
<b>Problem -- TOTAL</b>	<b>0</b>	Independent visualization of image, tracing or specimen itself-- not simply review of report (2 Pts)	<input type="checkbox"/>
<b>→ Problem Level</b> Maximum of 4	<b>1</b>	<b>Complexity-- TOTAL</b>	<b>0</b>
<b>→ Highest Risk:</b> <input type="button" value="v"/>	<b>? Explanation for 'Risk' fields</b>	<b>→ Complexity Level</b> Maximum of 4	<b>1</b>
<b>→ Type of Decision Making:</b> <input type="button" value="v"/>			

HT/Wt Vital Signs Prev. Hlth Assmt. Subjective Objective

# Other Value-added Tools

The screenshot displays a software interface for managing a patient's problem list. The main window is titled "Problem List" and contains a table with two columns: "Problem" and "Memo". The first row has "Allergies" in the "Problem" column and an empty "Memo" field. A dropdown menu is open below the "Allergies" entry, listing various health conditions: Allergies, Anxiety/Depression, Asthma, Cancer, Chronic Pain (highlighted), Connective Tissue, Depression, and Diabetes. Below the table are four buttons: "Ht/Wt", "Prev. Hlth", "Subjective", and "Objective". To the right of the table are buttons for "Close Form", "View History", "Vital Signs Summary" (with a checked checkbox), and "Edit Problem List".

On the right side of the interface, there is a sidebar titled "Noted Health Problems". It contains a button "Open Problem List" and a list of health problems, with "Allergies" currently selected and highlighted in yellow.

Fully customizable “problem list”

Problem list means different things to different people

# Other value-added tools

Patient Information Access Other Record Return to Opening Scr

Primary Provider ID

First Name  Last Name

Age:  Gender:

Payment Type::  Insurance Type:

Begin recording exam notes here

Delete Current Record Add SOAP Note Sign Off/Approve this Record

Exam History  1/17/2007

Fields with the \* are required

\* Date of Visit:  CAP

\* Provider:  LBP

Enter Height/Weight

Enter Vital Signs

S — O — A — P

Subjective Objective Assessment Plan

Record Editing  
And Locking

Special Purpose  
Modules

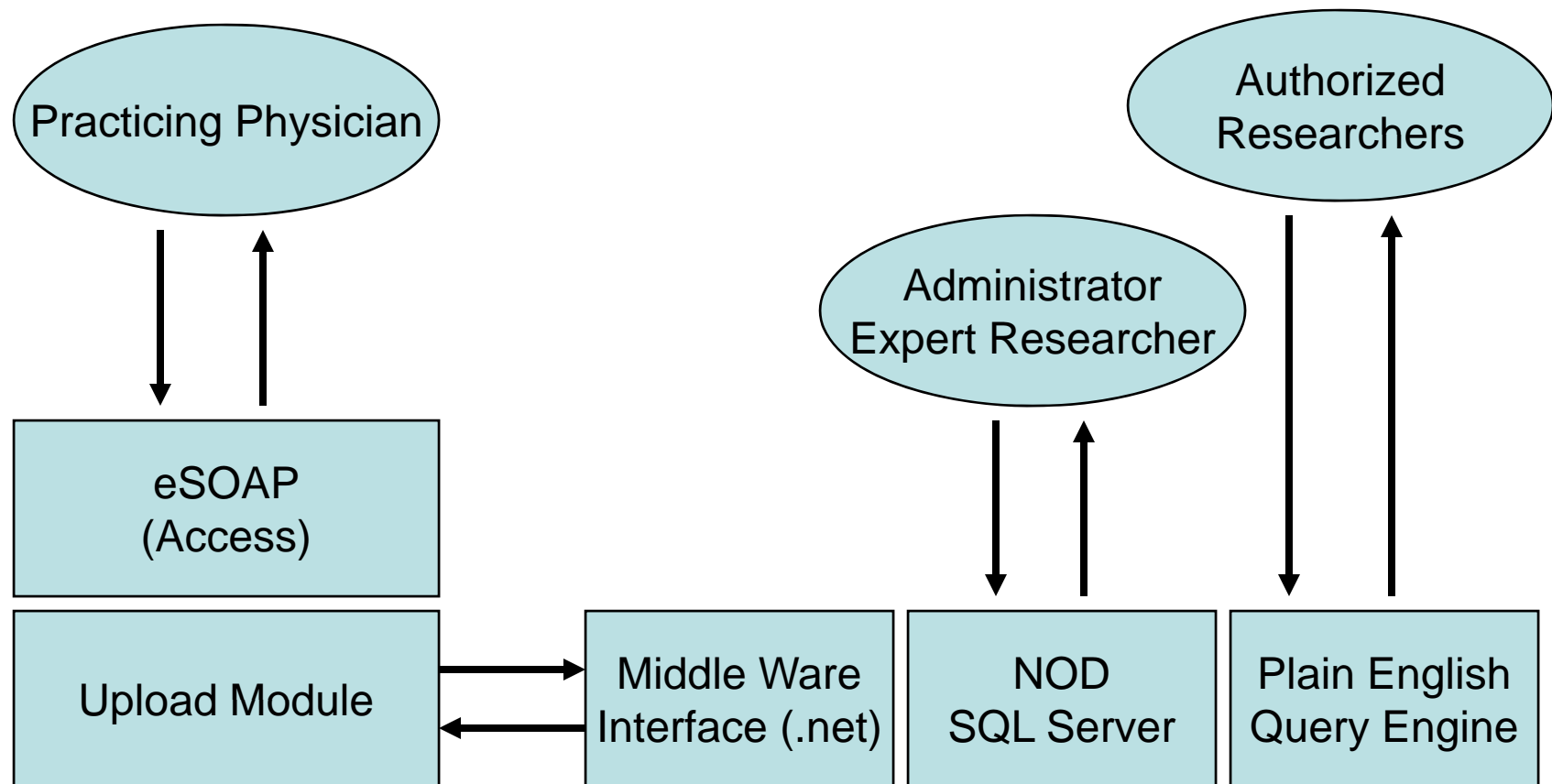
# Details of the eSOAP tabs

- Subjective
  - CC/HPI memo specifics
  - ROS
  - PMH/FSH
    - Including preventive health summaries
- Objective
  - Physical Exam
    - Each element with 2° screens
  - Osteopathic structural exam with OMM record
  - Neuromuscular exam
- Assessment
  - Contains autofilling of ICD9 codes for osteopathic diagnoses and link to look up table for other diagnoses
- Plan
  - General Plan
  - Scoring
  - Coding

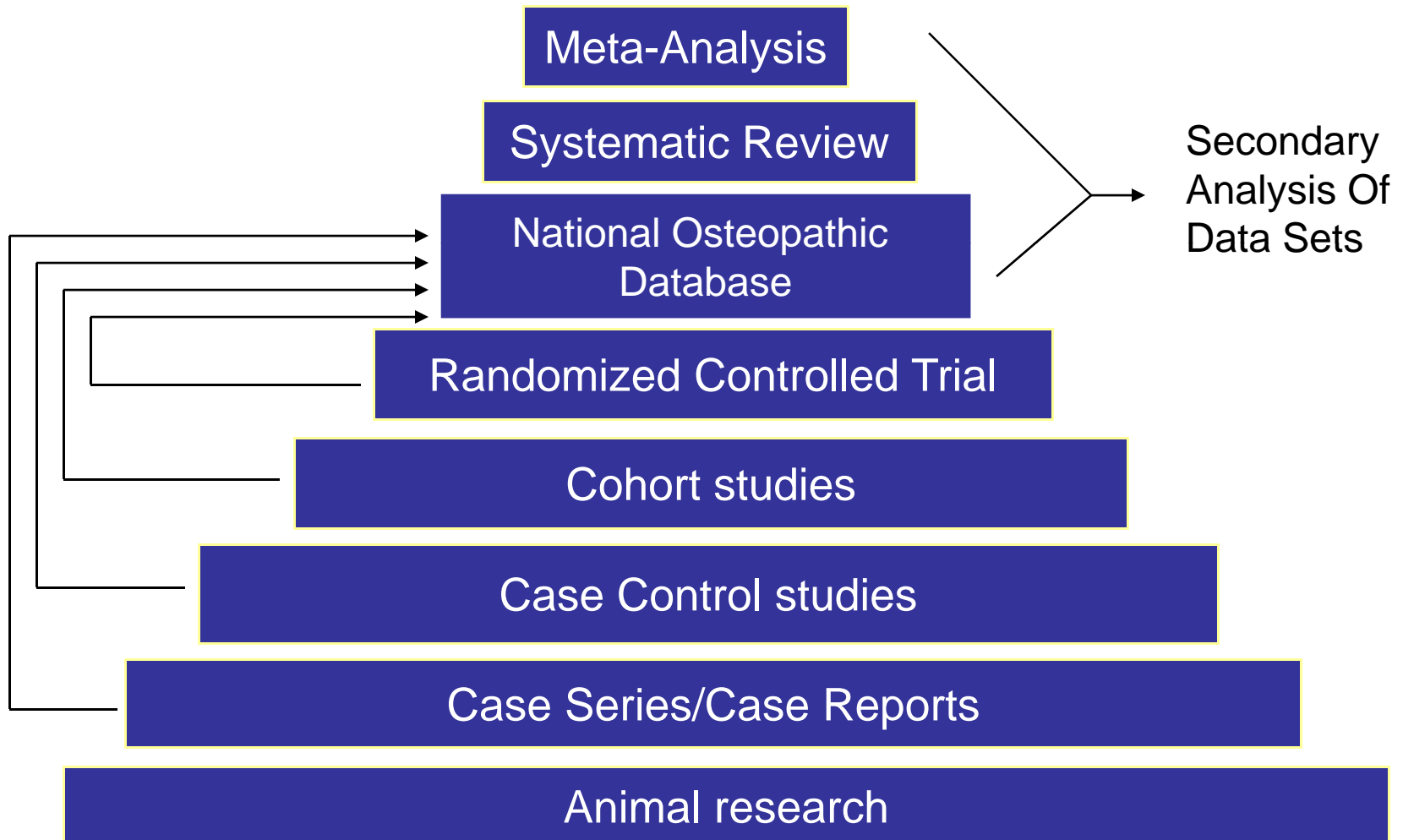
# Report Engine

- 3 kinds of reports
  - *Assessment* Report is the summary of all positive findings that will go on the patient's record
  - *Exam* Report contains diagnostic coding for the business office and insurance records
  - *Pharmacy* “report” – actually an online prescription pad
    - Future on screen real-time report (Assessment)
    - Future narrative translation of report
    - Future electronic transfer to pharmacy

# Getting to large data sets; Getting at large data sets



# Evidence Pyramid



# What Secondary Data Analysis Promises

- The eSOAP is used as a data collection tool for physicians engaged in research
- The eSOAP is used for recording patient encounters in regular clinical practice
- The eSOAP becomes familiar to osteopathic medical students and residents
- Clinicians upload de-identified records to the NOD
- Researchers mine the NOD data
- Analysis of mined data demonstrates quality of care, efficacy of outcomes

# National Osteopathic Database Portal

- [Home](#)
- [Members Only](#)
- [Public Data Sources](#)
- [About the Portal](#)
- [Discussion Forum](#)

## Quick Launch

- [AOA](#)
- [AACOM](#)
- [AAO](#)
- [JAOA](#)
- [Osteopathic Medicine and Primary Care](#)

## Welcome to the National Osteopathic Database Portal

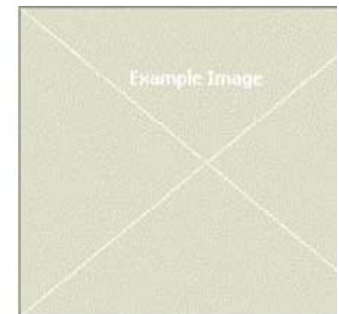


The **National Osteopathic Database Portal** is established to create an opportunity for osteopathic practitioners to store and utilize their own practice data for their clinical decision support. It's main input interface is the EMR that is called "eSOAP. This EMR is developed through sponsorship of the AOA, to accomodate the specific data needs of the osteopathic practice.

Feel free to browse the site and explore. Sign in to obtain access to different modules within the framework, as well as view the restricted sections of the site.

## This Weeks Special

The claims processing module of the **SOAP system** is on special this week! Purchasers of the most current versic SOAP receive one free.



## News and Features

## Upcoming Events

## Number of Records in the NOD

Time Frame	Records (Millions)	Change
Last year	60	8
Year to date	45	7.8
Last quarter	10	9
Last month	4	3

# Query Engine for Geriatric Data

- Q1 how many records? 65000
- Q2 how many are male? 35000
- Q3 how many are >85 yrs? 3500
- Q4 how many had hip replacement? 400
- Q5 how many have decreased ADL? 210
- Q5 how many receive congregate meals? 104
- Q6 how many do not drive 96
- Q7 how many receive have dx CHF <20

# The Promise of Secondary Data Analysis

- The eSOAP is used as a data collection tool for physicians engaged in research
- The eSOAP is used for recording patient encounters in regular clinical practice
- The eSOAP becomes familiar to osteopathic medical students and residents
- Clinicians upload de-identified records to the NOD
- Researchers mine the NOD data

# Questions

- Is the eSOAP an EMR?
- Is it for the solo practitioner?
- Is it a tool for the individual researcher?
- Is it mainly for the profession, to create a national data base?
- Might it be a teaching tool for OMS?
- How much re-engineering is needed for each of the above?
- How will costs be covered?