OBRI /Fig P
Core Variable EMR Data Extraction Pilot

Dr. Vandana Ahluwalia
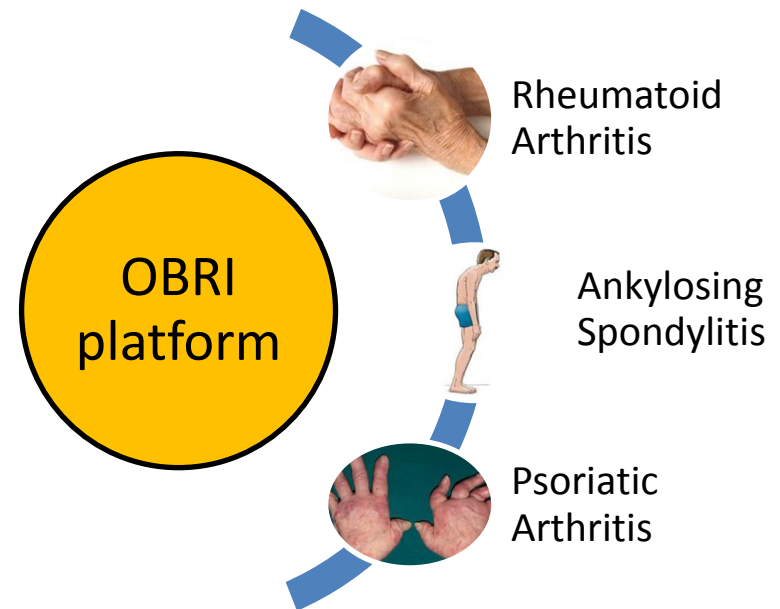
On behalf of the OBRI Investigators and Dr. Claire Bombardier

AAC Annual Conference

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Created in 2008, the OBRI is a collaboration of stakeholders, representing rheumatologists, patients, researchers, payers.

The OBRI focused on improving the quality of care and clinical outcomes of patients living with Rheumatoid Arthritis by gathering long-term information on the therapies used in daily clinical practice

OBRI platform

Rheumatoid Arthritis

Ankylosing Spondylitis

Psoriatic Arthritis

OBRI
ONTARIO
BEST PRACTICES
RESEARCH INITIATIVE

We are linking real-world data

CLINICAL COHORT

PHYSICIAN REPORTED

- Personal Health Information
- RA History
- Previous RA medications
- Physician Global Assessment
- Patient Global Assessment
- Co-morbidities
- Serious Events
- Laboratory (ESR, CRP)
- Tender Joint Count
- Swollen Joint Count
- Erosions
- Current RA Medications

PATIENT REPORTED

- Demographics
- RA History
- Previous Anti-rheumatic Medications
- Current Medication
- HAQ / RADAI
- Patient Global Assessment/Q of L
- Fatigue And Sleep
- Socio-economic Status
- Work Productivity
- Serious Events / Tuberculosis
- Pregnancy
- Pharmacy/Labs/Imaging

investigators

patients

ADMINISTRATIVE DATABASE LINKAGE*

Lifelong

SERIOUS ADVERSE EVENTS

- Fatal
- Life-threatening
- Hospital stay
- Significant disability
- Congenital anomaly
- Serious Infections
- Congestive heart failure
- Central Demyelination
- Aplastic anemia
- Lymphoporliferative tumors
- Autoimmune disease
- Hepatoxicity death

HEALTH SERVICES USED

- Drug information
- Physician claims
- Diagnostic tests
- Patient demographics
- Hospitalizations
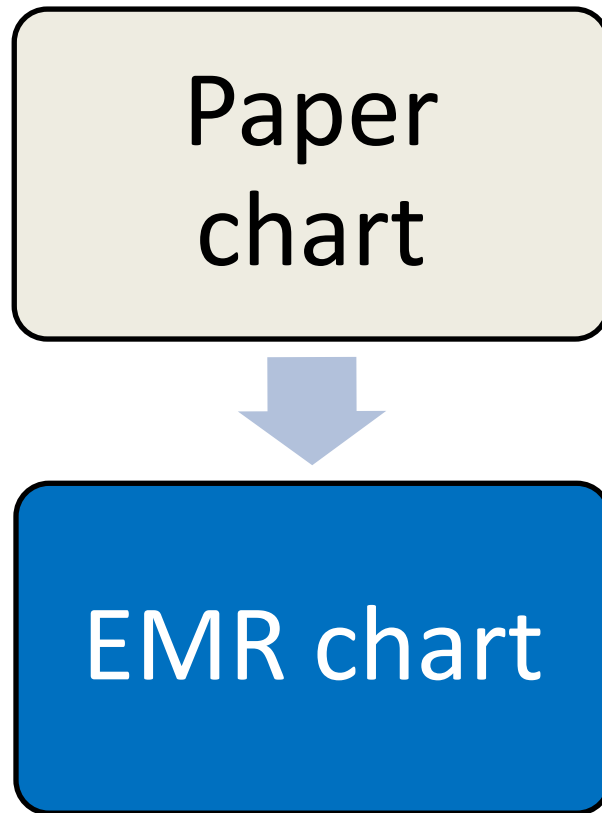- Cancer registry
- Home Care service use

3

Participating Investigators (RA)

Dr. Vandana Ahluwalia
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Dr. Pooneh Akhavan
Dr. Lori Albert
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Dr. Dana Cohen
Dr. Patricia Ciaschini
Dr. Alf Cividino
Dr. Andrew Chow
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Dr. Darek Haaland
Dr. Brian Hanna
Dr. Nigil Haroon

Dr. Jackie Hochman
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Dr. Raman Joshi
Dr. Allan Kagal
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Dr. Ed Keystone
Dr. Bindee Kuriya
Dr. Maggie Larche
Dr. Arthur Lau
Dr. Nicole Leriche
Dr. Felix Leung
Dr. Frances Leung
Dr. Dharni Mahendra
Dr. Mark Matsos
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Dr. Ami Mody
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Dr. Manisha Mulgund
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Dr. Viktoria Pavlova
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Dr. Ali Shickh
Dr. Rachel Shupak
Dr. Elaine Soucy
Dr. Doug Smith
Dr Jonathan Stein
Dr. Andy Thompson
Dr. Carter Thorne
Dr. Sharon Wilkinson

Ontario Rheumatologists have adopted EMRs

Paper chart

EMR chart

Over **93%** of community Rheumatologists
in Ontario are using EMR
Highest among specialty groups
Supported by OMD and the ORA

Academic rheumatologists
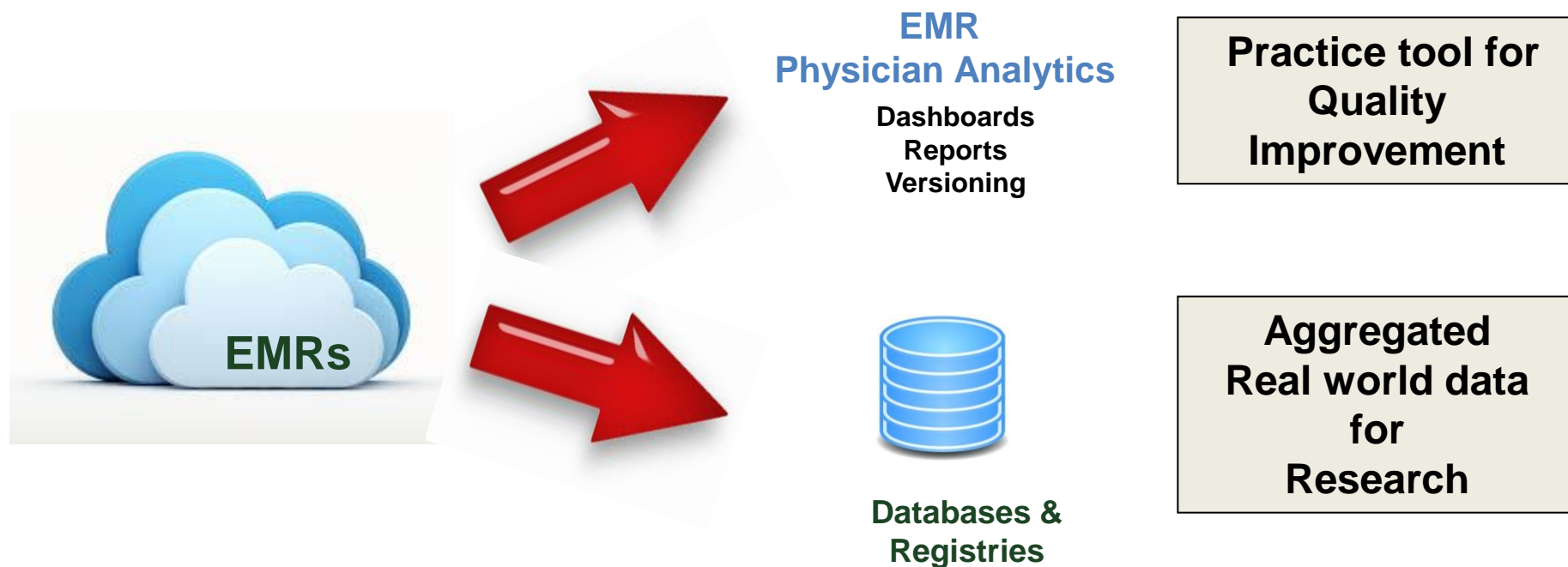pending EMR selection by their hospitals

2015

Evolution of OBRI Data Collection

Phase I – Paper CRFs

Phase II - Paper CRFs embedded into Physician's EMR platforms

Phase III- pilot . Working towards seamless data extraction

Can we seamlessly extract clinical data from Ontario Rheumatology EMRs?
(a self- funded leadership initiative)

EMRs

EMR
Physician Analytics

Dashboards
Reports
Versioning

Databases &
Registries

Practice tool for
Quality
Improvement

Aggregated
Real world data
for
Research

Rationale for EMR Pilot

❖ The OBRI took a leadership role to explore how clinical data could be extracted from clinicians EMRs seamlessly

To **Develop a secure central repository web based platform**

1

Development

Design, develop and validate by pilot-testing an automated, secure, and scalable data fetch and transfer process for OBRI participants

2

- **Central Repository**
- Directly complete or edit data in the central repository (by EMR participants)
- Directly enter and submit data to the central repository (by non-EMR participants)

3

- **Retrieval by OBRI**
- For OBRI staff to securely retrieve data batches

4

- **Review by Users**
- Overview participant's accumulating registry data (dashboards)

OBRI's EMR Project Partnerships

FIG P
Serving the specialized Data Management needs of Clinicians and Scientists since 1988

ORA-
Representing Ontario Rheumatologists and focused on Arthritis care in Ontario through Leadership, Advocacy, Education and Communications

Pilot Participants

EMR Pilot Dec 2015- October 2016

Data extraction Accuro	Data Extraction EPIC	Web based
• Dr. Vandana Ahluwalia • Dr. Carter Thorne • Dr. Derek Haaland • Dr. Art Karasik	• Women's College (EPIC)	• Ottawa General Hospital and non-EMR sites
Completed	**On HOLD**	**Pending Ethics**

Oscar and Telus PS – planned in Phase 2

OBRI Data Variables

CLINICAL OUTCOME DATA (collected by MD)	PERSONAL HEALTH INFORMATION	INTERVIEW DATA
TJC **SJC** **Patient Global** **MD Global** **ESR** **CRP** **RA Medication Names** **RA Medication Start/Stop Dates**	**Name** **Gender** **Date of Birth** **Telephone Number** **Address** **OHIP Number**	HAQ RADAI RA Medication Names RA Medication Start/Stop Dates Previous RA Medications Co-morbidities Work Productivity Socioeconomic Status

The data variables that were included in the EMR pilot

Data extraction Project

- FigP identified OBRI participants in EMRs
- Data extraction was based on the 3 OBRI case report forms:
  1. Enrollment
  2. Assessment
  3. Medication

Preliminary Summary of Data Extraction

Data Domain	Results	Recommendations/Notes
Demographics	☑	
OBRI "active" patients	☑	
Visit dates	☑	
Medical history / co- morbidities	☑	**dates** cannot be extracted under the existing data collection interface
Lab results: RF, anti-CCP, ESR, CRP	☑	
Physical findings / Standard scores: 28-TJC, 28-SJC, Pt GA, MD GA	☑	individual joints cannot be extracted
X-ray results: re: Erosions	☑	**dates** cannot be extracted under the existing data collection interface.
Medications: Prescribed / Started, Discontinued / Stopped	☑ "DMARDs": Name "Current Rheum Meds":Name "Rx meds": Name	**dates** cannot be extracted under the existing data collection.

Key learning: site training for standardization of data into the EMR CPP can improve outcomes

Key Learnings

- Data can be extracted and is EMR agnostic
- Standardized data such as demographics, lab values and joint counts, PtG and MDG are all extractable if they are completed
- More difficult to extract dates of tests, text based data entry (co-mobidities) and specific joints
- Medication names are extractable, but start and stop dates are not accurate in the chart

Next steps

- Expand data extraction work for OBRI Investigators that use Oscar or Telus-PS EMRs

- Direct non-EMR sites to use Web based interface

- Develop rheumatology dashboards

- Explore new funding model

Collaborations & Partnerships

- Work with the Arthritis Alliance of Canada and test the minimum clinical core data that has been approved by consensus.

- Partner with ORA to create messaging and advocacy for meaningful use of EMR data. Tools/guides needed to help members standardize data entry which can then be extracted.