PGx on FHIR

DON RULE
TRANSLATIONAL SOFTWARE
Vision

To inform every clinical decision affecting every patient everywhere in the world with the best available personalized guidance
Why Pharmacogenetics?

Excellent Evidence
- Phenotypes were observed, then genotypes described
- FDA required testing during drug approval

Few genes affect many drugs
Many people take drugs

45% of most prescribed drugs have genetic guidance
Where we Need to Go

Reactive  Preemtive

Static  Dynamic

Just-in-Chart  Portable

Standalone  Integrated
PGx in the Clinical Workflow

Integrated in the workflow
- Integral to care plans
- Prescribing CPOE alerts of potential genetic issues
- Test order CPOE provides guidance for correct test and laboratory
- Genetic risk surfaced during reconciliation

On receipt of test results, alerts notify clinicians of relevant findings

Physician (or NP or pharmacist) can find viable medications that maximize efficacy and minimize risks of gene-drug or drug-drug issues

Future medication decisions utilize test results
The Stack

- UI Widgets
  - MedsReview
  - Test Order
  - Patient Screening

- API
  - Evaluate Risks
  - Order Tests
  - Screen Patients
  - Find Alternatives
  - Data Maintenance

- Core
  - Patient Data
  - File Processing
  - Reporting
  - PGx
  - DDI
  - Nutrigenomics
  - Cystic Fibrosis
  - Oncology

- Content
  - HTML & REST
  - REST based API
  - Data Extracts
  - HL7
  - File Transfer

- Health Information Platforms

- Embedded Systems

- Health Applications

- EMRs

- LIS/LIMS

- File Transfer

- EPIC, Cerner, Allscripts, Etc.

- DrFirst, MedTek, Rx30, RxManagement, etc.

- E.g. FDB

- Life Technology, Illumina, Luminex, Agena, etc.
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<th>Fluorouracil</th>
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<th>Atropine</th>
<th>Gemfibrozil</th>
<th>Niacin</th>
<th>Irinotecan</th>
<th>Loperamide</th>
<th>Leucovorin</th>
<th>Clopidogrel</th>
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## API Calls

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<tr>
<td>MedicationStatements</td>
<td>subject, prospective MedicationStatements, Original medication statements</td>
<td>success/failure</td>
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Conclusion

Rapid technological evolution is making precision medicine attainable.

Use of Pharmacogenetics can prevent adverse drug reactions, reduce costs, and improve satisfaction.

Awareness and adoption of precision medicine is growing.

Introducing new technology into healthcare is perilous but very rewarding.

Thank You!