What’s the plan?

- Team updates
- Development year in review
- What’s next?
- Interactive demos ;}
Year in Review
Year in Review
THINGS WE’VE DONE SINCE APR 2016

APRIL 2016

Uploader
Drug Limit Libraries
Member Dashboard

REMEDI Central

APRIL 2017
Welcome, Alissa Nedossekkina

- **Drug Limit Libraries**
  - Explore drug limit libraries
  - Upload new data

- **Infusion Pump Informatics**
  We are working on moving IPI into the new REMEDI Central platform. Meanwhile, access the old IPI app via link below:
  - Go to IPI Dashboard

- **My Organization(s):**
  - Eskenazi Hospital
  - Purdue University
# Drug Limit Libraries: Explore

**Explore Drug Limit Libraries**

## Select a Drug:

- Search for a drug...

<table>
<thead>
<tr>
<th>Suggestions</th>
<th>Full List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>Amiodarone</td>
</tr>
</tbody>
</table>

## Select Hospital(s):

- Search for a hospital...

<table>
<thead>
<tr>
<th>Suggestions</th>
<th>Full List</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Hospital A</td>
<td>+ Hospital B</td>
</tr>
</tbody>
</table>

## Select Profile(s):

- **Any**: OR choose from:
  - Adult
  - Anesthesia
  - Cardiology
  - Chemo/Oncology
  - Dialysis
  - Emergency Department
  - Hospice/Palliative Care
  - ICU
  - ICU (Adult)
  - ICU (Neonatal)
  - ICU (Pediatric)
  - Intermediate Care
  - Medical-Surgical
  - Neonatal
  - Obstetrics
  - Operating Room (OR)
  - Outpatient/ Ambulatory
  - Pediatric
  - Post Anesthesia Care
  - Respiratory
  - Telemetry
  - Other
  - Ignore

*Only profiles applicable to current selections can be checked.
### Drug Limit Libraries: Explore

Drug Limit Libraries for **Fentanyl** in **Hospital A** + 3 more hospitals

#### Bolus Admin Rate: Bolus

<table>
<thead>
<tr>
<th>PROFILE</th>
<th>THERAPY</th>
<th>CNTRY</th>
<th>UNITS</th>
<th>SOFT MIN</th>
<th>SOFT MAX</th>
<th>HARD MIN</th>
<th>HARD MAX</th>
<th>INITIAL</th>
<th>WEIGHT BASED</th>
<th>MOD</th>
<th>AA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospital A</strong></td>
<td>Cardiology</td>
<td>Unknown</td>
<td>2,500 mcg / 50 mL (50 mcg / mL)</td>
<td>mcg/min</td>
<td>10</td>
<td>100</td>
<td>No</td>
<td>Pump</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cardiology</td>
<td>Unknown</td>
<td>5,000 mcg / 100 mL (50 mcg / mL)</td>
<td>mcg/min</td>
<td>10</td>
<td>100</td>
<td>No</td>
<td>Pump</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hospital B</strong></td>
<td>Adult</td>
<td>Unknown</td>
<td>50 mcg / 1 mL (50 mcg / mL)</td>
<td>mcg/kg/ml</td>
<td>1</td>
<td>50</td>
<td>Yes</td>
<td>Syringe</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>Unknown</td>
<td>5,000 mcg / 100 mL (50 mcg / mL)</td>
<td>mcg/min</td>
<td>10</td>
<td>100</td>
<td>No</td>
<td>Pump</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- Make comparisons easy
- Compare by vendor
- Show statistical data
Uploader Enhancements

- Accepting both DLL & Compliance data
- Accepting multiple files (also for multiple facilities) at once
- Facility name mapping
- Upload history
Uploader Enhancements

Upload Data

1. Upload a library file
2. Organize data
3. Review

Organize Data Files
Where do the data in the file apply to?

Data File: Eskenazi Datasets Set Sep2015.csv

Parent Organization:

Community Health Network

OR

Registered Facility

East
West
District
North
Howard
South
Heart
Welcome, Alissa Nedossekina

Member of: Indiana University Health and 1 more organization(s)

Help us provide best value to members by keeping your data up-to-date! Upload your current Drug Limit Library or Compliance data.

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**LIBRARIES**

Use this app to explore and compare Drug Limit Libraries.

**CHECK COMPLIANCE**

Check on your Infusion Compliance rates and benchmark against others.

**ALERTS**

We are working on moving the IPI into the new REMEDI Central platform. Meanwhile, you can access the old IPI app via link below.
Transforming healthcare delivery

HOME FOR PROFESSIONAL COMMUNITIES FOCUSED ON IMPROVING HEALTHCARE DELIVERY

REMEDE CENTRAL

Our largest professional community to date

We have re-branded Infusion Pump Informatics (IPI) platform into Regenstrief National Center for Medical Device Informatics, or REMEDI. In addition to the infusion alert and compliance data reports, REMEDI members can check out the new Drug Limit Libraries comparison tool.

GO TO REMEDI CENTRAL
SUMMER 2016

IPI Dashboard

Infusion Pump Informatics

Analysis Charts
Investigative Reports
Pivot Charts

Compliance
Check Compliance
Access Old App
Upload Data

[Community Health Network]

Alerts by Drug or Fluid
Actions Taken by Drug or Fluid
Alerts by Month
Alerts Profile Pie Chart
FALL 2016

Uploader Now Accepts All Files

Drug Limit Libraries  Compliance  Alerts

Upload Data
**Statistical View of Drug Limit Libraries**

<table>
<thead>
<tr>
<th>Limit Type</th>
<th>Concentrations</th>
<th>Hospital Limits</th>
<th>Rules Set (380 Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Hard Limit</td>
<td>0</td>
<td>0</td>
<td>60</td>
</tr>
<tr>
<td>Upper Soft Limit</td>
<td>0</td>
<td>0</td>
<td>81</td>
</tr>
<tr>
<td>Lower Soft Limit</td>
<td>10</td>
<td>0</td>
<td>92</td>
</tr>
<tr>
<td>Lower Hard Limit</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Initial Value</td>
<td></td>
<td>5</td>
<td>50</td>
</tr>
</tbody>
</table>

**Community Health Network**
- Adventist Health Central Valley
- Agnesian HealthCare
- Cameron Memorial Community Hospital
- Community Hospital of the Monterey Peninsula
FEBRUARY 2017

Compliance App Updated

Compliance Rate by Facility by Care Profile in Community Health Network DEV

Dates: NOV 2014 - NOV 2015

Group By: Profile Facility
Profiles: Standard Hospital Unique

Profile Name AVG
- Adult 0%
- Obstetrics 52%
- Neonatal 57%
- Pediatric 64%
- Medical-Surgical 65%
- ICU (Adult) 79%

Hospital Average
## Compliance App Updated

### Explore Compliance Rates

<table>
<thead>
<tr>
<th>My Hospital: (or any hospital of interest)</th>
</tr>
</thead>
</table>
| Community Health Network

### Compare with:

- Adventist Health Central Valley
- Aurora Hospitals and Medical Centers
- Cameron Memorial Community Hospital
- Community Hospital of the Monterey Peninsula
- Deaconess Health System
- Franciscan Alliance
- Hallmark Health
- Indianapolis VAMC
- Madison VA
- Montefiore
- Peninsula Regional Medical Center
- St. Luke's Cedar Rapids
- University of Iowa Hospitals and Clinics
- Virginia Mason Medical Center

#### Facilities:

- All
- Community Health and Vascular Hospital
- Community Hospital Anderson
- Community Hospital East
- Community Hospital North
- Community Hospital South
- Community Howard Regional Health
- Community Westview Hospital
- Legacy Data

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*When > 20 hospitals are selected, statistical data are shown*
FEBRUARY 2017

Welcome, Alissa Nedossekina

Last Upload: Never
View History

It's been a while... Time to load new data!
You can now upload all your data files in one place.

LIBRARIES

<table>
<thead>
<tr>
<th>45</th>
<th>996</th>
<th>138,433</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datasets</td>
<td>Unique Drugs</td>
<td>Entries</td>
</tr>
</tbody>
</table>

EXPLORE LIBRARIES

COMPLIANCE

| 109,771,044 | 82.37% |
| Total Infusions | Average Compliance |

CHECK COMPLIANCE

ALERTS

| 30,556,040 | +211,397 |
| All-Time Alerts | Added in Last 30 Days |

ACCESS IPI
Drug Limit Libraries

Compliance

Common Uploader

- ICU Medical LCPCA
- ICU Medical Plum (CSV)
- BD CQI (PDF)
- Smiths CADD
- Smiths Medfusion

Additional Vendor Data Handling
And all the infrastructure work in the background
What’s Next?
Alerts
“Nobody knew web programming could be so complicated."
And all the infrastructure work in the background - foundation for the Alerts app
SUMMER 2017 (ESTIMATED)

Infusion Pump Alerts
Need your input!
What's your research question?

Infusion Pumps: Alerts

Investigating Alerts in Good Samaritan Hospital Vincennes

WHAT DO YOU WANT TO ANALYZE?

- Alert Volume Trends
  Top-Level Breakdown, Top Drugs
- Clinicians' Response
  Overrides, Reprograms etc.
- In-Depth Alerts+Limits
  Good/Missed Catches etc.

POPULAR REQUESTS

- What are the top alerting drugs?
- How quickly are alarms overridden?
- What's alert breakdown by facility?
SUMMER 2017 (ESTIMATED)

Alerts: Default View

Where?

Why?

+Comparison?

What & How?

When?

Answer

Additional insight

Data details in table view
SUMMER 2017 (ESTIMATED)

Breakdown by Facility

Alert Counts by Facility
Jan 2015 - Apr 2015

Feb 2015

Total Alert Counts: 709

16% 16% 12% 13% 13%
Drugs Selector to Narrow Down Results
SUMMER 2017 (ESTIMATED)

More Data Filters
SUMMER 2017 (ESTIMATED)

Time of Day Chart

What's the Alert Volume Trend by Time of Day?
Jan 2015 - Jan 2016

Total Alert Counts: 185

Top Alerting Drugs

- Drug A: 21.62%
- Drug B: 16.22%
- Drug C: 10.81%
- Drug D: 4.32%
- Drug E: 2.16%

10am

[Graph showing alert volume by time of day with specific data points and bars representing different drugs with their respective alert percentages.]
SUMMER 2017 (ESTIMATED)

Time of Day Chart with a Heatmap
SUMMER 2017 (ESTIMATED)

Alerts by Time of Day by Action Taken

Alert Counts by Time of Day by Action Taken
Jan 2015 - Jan 2016

Total Alert Counts: 293
- Override: 185 (63.14%)
- Reprogram: 59 (20.14%)
- Cancel: 49 (16.72%)

10am
SUMMER 2017 (ESTIMATED)

Clinicians’ Response

Ratio of Overrides to Reprogram:
- Jan 2015 - Jan 2016
- May 2015
- Good Samaritan Hospital: 36
- Comparison Average: 12

Ratio of Overrides to Cancels:
- Jan 2015 - Jan 2016
- May 2015
- Good Samaritan Hospital: 9
- Comparison Average: 4.6

Overrides Ratio:
- Jan 2015 - Jan 2016
- May 2015
- Good Samaritan Hospital: 36
- Overrides To Reprogram

Time to Override Frequency Distribution:
- Jan 2015 - Jan 2016
- 6 sec:
  - Good Samaritan Hospital: 107
  - Comparison Average: 100

Alerts by Override Time:
- Jan 2015 - Jan 2016
- May 2015
- Total Override Counts: 154
- 7 sec: 117, 75.37%
- 3 sec: 26, 12.95%
- 1 sec: 11, 5.74%
Need your input!

- Help with formulating good analysis questions
- Help evaluating whether the app gives good answers
- Thinking beyond current IPI
• DLL vendor neutral view
• Additional vendor support
• Extended member dashboard statistics and custom dashboards
• Cross-app data analytics (alerts + limits)
• Beyond pumps
• REMEDI “Labs”
Thank You!