Making the EMR work for you –modifications to Epic to improve management of outpatient parenteral antimicrobial (OPAT) patients

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In 2012, a distinct OPAT patient care team, ID pharmacist and physician, was established for patients on IV antimicrobials managed by ID providers.

Managing the complex needs of OPAT patients has historically been challenging and time-consuming within the electronic medical record (EMR).

EMR modifications became imperative to support our OPAT workflow (Table).

Table: Description of OPAT program functions in 2012

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<th>OPAT Function</th>
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| Patient Identification | Inpatient ID fellows asked to notify ID pharmacist (pager or email) of new OPAT patients
| Gap | Lack of electronic workflow
| Problem | OPAT team not notified of discharges
| OPAT team Sign-On | OPAT team signed on at first outpatient visit
| Gap | Time from discharge to first visit could be weeks
| Problem | No monitoring may occur between discharge and ID clinic visit; adverse effects missed/identified late
| OPAT related orders | Discharging provider orders antimicrobial therapy, supplies for home infusions and pertinent lab tests
| Gap | Lack of order set to guide accurate prescribing
| Problem | Frequent need of clarification/additional orders
| Weekly Monitoring & Case Review | ID Pharmacist chart review and weekly meeting with MD
| Gap | OPAT relevant patient data scattered in many sections of the EMR chart
| Problem | Excess time spent reviewing information

The ID physician and pharmacist identified program improvement opportunities including:

- Expanding the multidisciplinary care team with additional staff support
- Standardizing OPAT workflow, including care transition processes
- Modifications to the EMR

In 2016, a multidisciplinary team, including IT, was assembled to design and implement modifications to Epic to meet the needs of the OPAT program.

Program Changes:
- In 2015, a multidisciplinary team, including IT, was assembled to design and implement modifications to Epic to meet the needs of the OPAT program.

Patient Identification and Team Sign-On

- A new patient report, the OPAT monitoring view (Figure 4) was designed.
- Accessible from patient list, this view displays OPAT relevant data from multiple sections of the patient chart onto one screen - antimicrobials, infusion pharmacy, home care agency, 45 days of labs, recent microbiology, access to ID inpatient and outpatient notes, care team members, upcoming appointments, etc. without directly entering the chart.
- Significantly reduced the time needed for weekly case reviews and facilitates more efficient management of 90-120 patients weekly.

Weekly Monitoring & Case Review

- An order set was built to facilitate accurate electronic prescribing of antimicrobials, supplies for home infusions, pertinent lab tests (Figure 3).
- Pre-template patient instructions for home IV antibiotics are triggered from the order set facilitates patient communication

Results

OPAT related orders

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Conclusion

- Modifications made to the Epic EMR at URMC, in conjunction with other programmatic changes, have improved the efficiency of the OPAT program.
- Patient identification is facilitated, patient monitoring is enhanced, clinician time is saved, and ordering is more accurate.
- Physician satisfaction was improved by creating tools that were designed with workflow efficiency in mind.
- These modifications could easily be made by other Epic users.
- Future plans are to add features to the OPAT flowsheet to facilitate outpatient PK monitoring and document adverse events.

The discrete data fields will allow creation of EMR report to track patient volume and program outcomes.

Acknowledgment: Authors of this presentation are not to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

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Figure 1. Template for OPAT Plan of Care Note

Figure 2. Smart Form to Facilitate OPAT Team Sign-on

Figure 3. Home IV Antibiotic Order set

Figure 4. OPAT Monitoring view in EMR