Optimizing EMR Usage to Improve Outcomes for Premature Infants in a Pediatric Primary Care Clinic

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BACKGROUND

- Urban pediatric primary care clinic for medically complex patients
- Recent transition to Epic as the electronic medical record (EMR) from an older system

Problem

- An estimated 12% of children are born prematurely (GA < 37 weeks)
- Compared to full term infants, premature infants have a higher risk of co-morbidities such as:
  - Chronic Lung Disease
  - RSV
  - Retinopathy of Prematurity
  - Neurodevelopmental Delay
  - Hearing Loss
  - Poor Growth & Feeding Difficulties
  - GERD
  - Anemia
- They therefore require more frequent subjective and objective screening to detect and manage potential complications
- Currently, within Epic, there is no efficient way to check if premature infants are receiving guidelines:
  - Multivitamin prescription: 72%
  - Palivizumab administration: 62%
  - Early Intervention (EI) referral: 82%
  - Ophthalmology screen by 6 months: 79%
  - CBC screen by 6-12 months: 70%
  - Audiology screen by 6-12 months: 52%
  - Social Work/Family Navigator involvement: 67%

Baseline Data:

- As of November 2015, premature infants had <80% compliance with recommended guidelines:
  - Multivitamin prescription: 72%
  - Palivizumab administration: 62%
  - Early Intervention (EI) referral: 82%
  - Ophthalmology screen by 6 months: 79%
  - CBC screen by 6-12 months: 70%
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AIM STATEMENT

Premature infants ages 0-12 months seen in this clinic will have >85% documented occurrence of the following metrics within 5 months of initiating the intervention: multivitamin prescription, EI referral by 3 months, ophthalmology by 6 months, and social work/family navigator involvement.

METHODS

- The initial intervention was focused on infants 0-12 months old
- October and November 2015:
  - Informal staff surveys conducted to learn perceived areas for improvement and current clinic practices
  - Literature search done to find current SOC guidelines for premature outpatient care
  - Baseline data collected for 2 months prior to intervention via retrospective chart analysis
  - Designed Epic SmartPhrase table and introduced it to providers

Outcome Measures:

- Percent compliance with and documentation of selected guidelines
- Process Measure: Percent of premature patient encounters who have the SmartPhrase table inserted into their patient note
- Balancing Measure: Provider satisfaction
- Both outcome and process measures were measured via retrospective chart analysis

SOLUTION

- Epic EMR SmartPhrase table was created with SOCs and also other categories that providers requested
- Providers can enter this SmartPhrase into the patient note and into front “snapshot” section of patient EMR by typing “CCPNICU”
- Table can be updated by providers each visit and can also be used as reminders for issues to follow up from the last visit

Baseline SmartPhrase Table with Standards of Care

<table>
<thead>
<tr>
<th>Date</th>
<th>Findings/Comments</th>
<th>To Do Next</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RESULTS

- Overall data and data from only patient charts where the SmartPhrase table was used were collected and compared on run charts
- On average, the table was used in 59% of possible patient encounters. Provider 1 used it 88% of the time, Provider 2: 68%, and Provider 3: 17%

SmartPhrase Table with Standards of Care

- There is a shift in documentation of social work/family navigator involvement in patient charts where the table was used, but not in data for all patient charts.

According to AHRQ, Social Work/Family Navigator Involvement overall has increased from 55% to 80% within 5 months of initiating the intervention. There is a shift in participation in this area which has improved.

CONCLUSIONS

- Providers found the SmartPhrase table to be a clinically useful means of assessing if premature infants are meeting standards of care
- Overall, the SmartPhrase table improved delivery and documentation of care
- Importantly, providers thought the table was time saving for future visits
- The intervention brought about a positive shift in documentation of multivitamin prescription, social worker/family navigator involvement, and EI referral by 3 months
- Providers also expressed overall satisfaction and interest in continuing to use the table

NEXT STEPS

- Increase providers’ rate of table use by continuing to improve ease of use
- Expand data collection to include SOC guidelines occurring for ≥ 12 months of age
- Develop similar SmartPhrases for other pediatric diagnoses including autism, spina bifida, epilepsy, tuberous sclerosis, and Turner’s syndrome based on clinic needs

REFERENCES

AAPM: Common Questions About Outpatient Care of Premature Infants
(http://www.aapm.org/pts/2014/0115/pa44.pdf)
UpToDate: Care of the Neonatal Intensive Care Unit Graduate
BMJ Quality and Safety: The Run Chart: a simple analytical tool for learning from variation in healthcare processes (2011)