RESIDENT COMFORT AND ADHERENCE TO BEST PRACTICE GUIDELINES FOR PEDIATRIC WELL VISITS

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Background

• The American Academy of Pediatrics published the Bright Futures guidelines in 1994 to promote best practice for pediatric health supervision visits
  – Most recent update (3rd edition) released in 2008¹

• The guidelines provide guidance for performing age-specific immunizations and screenings and are based on evidence-based medicine as well as expert opinion²
• Goals of Bright Futures¹:
  – Work with states to make the Bright Futures approach the standard of care for infants, children, and adolescents
  – Help health care providers shift their thinking to a prevention-based, family-focused, and developmentally-oriented direction
  – Foster partnerships between families, providers, and communities
  – Empower families with the skills and knowledge to be active participants in their children’s healthy development
• Based on experience and observation, we proposed that not all recommended guidelines are being followed

• Current understanding of resident comfort and adherence to these guidelines is lacking
  – Similar concern for lack of resident adherence to guidelines in internal medicine practices³
Barriers

- Suggested barriers to adherence to guidelines include:
  - Busy resident clinic schedules
  - Inconsistent documentation
  - Inconsistent reinforcement of guidelines
  - Lack of standardized educational curriculum to reinforce guidelines
  - Minimal formalized assessment of knowledge during residency
Objective

- Assess resident comfort and adherence to best practice guidelines* for pediatric well visits as an ongoing quality improvement project

* Best practice guidelines representing both those recommendations proposed by Bright Futures and standard of care at MUSC Pediatric Primary Care Clinic
Methods

• Prospective observational study

• Primary outcomes:
  – Resident comfort in knowledge of guidelines
  – Actual guideline adherence (measured via documentation)
Methods

• Baseline resident comfort with best practice guidelines was first assessed through an anonymous REDCap survey
  – Utilized visual analog scales
  – Responses were defined as:
    • Uncomfortable: <25
    • Moderately Uncomfortable: 25-50
    • Moderately Comfortable: 51-75
    • Comfortable: >75
Methods

• Following baseline assessment, review of 2 year old well visits was performed on randomly selected charts
  – Assessed documentation of screens and procedures recommended by best practice guidelines
  – Documentation was used as a proxy for performance
  – Chart reviews were completed pre-intervention and at 2 month increments post-interventions
Methods

• Screens and procedures assessed included:
  – Standard measurements: height, weight, body mass index (BMI), head circumference (HC)
  – Hypertension risk assessment
  – Oral health and dental home assessments
  – Lead and hemoglobin screens
  – Developmental assessment: Ages & Stages Questionnaire (ASQ)
  – Autism assessment: Modified Checklist for Autism in Toddlers (M-CHAT)
  – Hearing and vision risk assessment
  – Tuberculosis risk assessment
  – Hyperlipidemia risk assessment
  – Influenza immunization
Methods

• Interventions implemented/planned include:
  – Resident education via emails and announcements at house staff meetings regarding document implementation
  – Comprehensive reference document with recommended guidelines in the MUSC Pediatric Primary Care Clinic
  – Requested that the front desk of the primary care clinic provide M-CHAT, ASQs, and Pediatric Symptom Checklist (PSC) to appropriate parents as they arrive for appointments
  – Revision of EMR (Epic) templates for well child visits in our primary care clinic
# MUSC Pediatric Primary Care Clinic* and Bright Futures Summative\(^{a,b}\) Checklist

## Newborn – 1 Month
- **Measurements**
  - Length, Weight
  - Weight for Length
  - Head circumference
  - Blood pressure
- **Screen**
  - Hearing test
  - Vision
- **Procedures**
  - Newborn screen, Tb screen
  - Hb (if not given at birth)

## 2 – 6 Months
- **Measurements**
  - Length, Weight
  - Weight for Length
  - Head circumference
  - Blood pressure
- **Screen**
  - Vision/Hearing
  - Oral Health
- **Immunizations**
  - DTaP, Hib, PCV13, IPV, Rota, Hep B (2.6 mo), flu (> 6 mo)

## 9 Months
- **Measurements**
  - Length, Weight
  - Weight for Length
  - Head circumference
  - Blood pressure
- **Screen**
  - Ages and Stages
  - Vision/Hearing
- **Procedures**
  - Tt, and lead*
  - Flu

## 12 Months
- **Measurements**
  - Length, Weight
  - Weight for Length
  - Head circumference
  - Blood pressure
- **Screen**
  - Oral Health
  - Vision/Hearing
- **Procedures**
  - PCV13, MMR, Varicella, Hep A, flu

## 15 Months
- **Measurements**
  - Length, Weight
  - Weight for Length
  - Head circumference
  - Blood pressure
- **Screen**
  - Vision/Hearing
- **Immunizations**
  - Hib, DTaP, flu

## 18 Months
- **Measurements**
  - Height, Weight
  - Weight for Length
  - Head circumference
  - Blood pressure
- **Screen**
  - M-CHAT
  - Oral Health
  - Vision/Hearing
- **Procedures**
  - Tb screen, Hib, and lead
- **Immunizations**
  - Hep A, flu

## 24 Months
- **Measurements**
  - Height, Weight
  - Weight for Length
  - Head circumference
  - Blood pressure
- **Screen**
  - Ages and Stages*
  - Vision/Hearing
- **Procedures**
  - Lead and Hb*
  - Tb screen, Lipid screen

## 3 Years
- **Measurements**
  - Height, Weight
  - Weight for Length
  - Blood pressure
- **Screen**
  - Vision
  - Oral Health
  - Hearing
- **Procedures**
  - Flu

## 4 Years
- **Measurements**
  - Height, Weight
  - Blood pressure
- **Screen**
  - Hearing
  - Vision
  - Oral Health*
- **Procedures**
  - Immunalizations
  - MMR, Varicella, DTaP, IPV, flu

## 5 – 10 Years
- **Measurements**
  - Height, Weight
  - Blood pressure
- **Screen**
  - Hearing
  - Vision
  - Oral Health*
- **Procedures**
  - Flu

## 11 – 18 Years
- **Measurements**
  - Height, Weight
  - Blood pressure
- **Screen**
  - Vision (12, 15, 18 y)
  - Oral Health
  - Hearing
- **Procedures**
  - Tb, MCV4, HPV, MCV4 booster (16y), flu
  - Tdap

## 12 Years
- **Measurements**
  - Height, Weight
  - Blood pressure
- **Screen**
  - Oral Health
  - Vision/Hearing
- **Procedures**
  - Flu

## 15 Years
- **Measurements**
  - Height, Weight
  - Blood pressure
- **Screen**
  - Vision
  - Oral Health
  - Hearing
- **Procedures**
  - Flu

## 18 Years
- **Measurements**
  - Height, Weight
  - Blood pressure
- **Screen**
  - Vision
  - Oral Health
  - Hearing
- **Procedures**
  - Flu

## 20 Years
- **Measurements**
  - Height, Weight
  - Blood pressure
- **Screen**
  - Vision
  - Oral Health
  - Hearing
- **Procedures**
  - Flu

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* MUSC Pediatric Primary Care Clinic Practice
**Bright Futures optional intervention and risk-assessment dependent are indicated by italics.

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*History, Physical exam, Anticipatory guidance, and Developmental surveillance are all considered common elements and are required at all well-child visits.

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[www.MUSCkids.org](http://www.MUSCkids.org)
Methods

• Adherence was based on an all-or-none assessment of resident documentation

• Statistical analysis included:
  – Univariable analysis of baseline resident comfort
  – Baseline and interval adherence assessments compared via Fisher’s Exact Test
Survey Results

- 42 pediatric residents (PGY1-4) completed the baseline resident comfort survey (76.4% response rate)
  - Residents averaged at least ‘Moderately Comfortable’ (defined as a score between 50-75 on survey) on all measures except for autism screening (mean score 44.1)

- Resident comfort increased with greater experience
### Mean Scores of Resident Comfort with Best Practice Guidelines on Pre-Intervention Survey

<table>
<thead>
<tr>
<th>Topic</th>
<th>PGY1</th>
<th>PGY2</th>
<th>PGY3</th>
<th>Average</th>
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<tr>
<td>All AAP recommendations</td>
<td>51.3</td>
<td>61.6</td>
<td>74.1</td>
<td>62.3</td>
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<tr>
<td>Immunizations</td>
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<td>70.4</td>
<td>82.5</td>
<td>72.0</td>
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<td>Ages and Stages</td>
<td>45.1</td>
<td>58.2</td>
<td>56.1</td>
<td>53.1</td>
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<td>Vision/hearing</td>
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<td>82.2</td>
<td>68.1</td>
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<td>Lead and hemoglobin</td>
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<td>75.8</td>
<td>87.7</td>
<td>75.2</td>
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<tr>
<td>Dental screens</td>
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<td>63.6</td>
<td>58.3</td>
<td>56.1</td>
</tr>
<tr>
<td>BMI to screen for obesity</td>
<td>64.8</td>
<td>73.7</td>
<td>85.1</td>
<td>74.5</td>
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<tr>
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<td>67.0</td>
<td>60.7</td>
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<td>Autism screens</td>
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<td>47.8</td>
<td>45.2</td>
<td>44.1</td>
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<tr>
<td>Evaluate BP</td>
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<td>65.5</td>
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<td>Alcohol and drug screening</td>
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<td>67.5</td>
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<tr>
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<td>71.6</td>
<td>72.6</td>
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<td>66.2</td>
<td>60.3</td>
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<td>TB screening</td>
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<td>65.4</td>
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<td>64.2</td>
<td>73.9</td>
<td>78.2</td>
<td>72.1</td>
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</table>
Survey Results

Baseline Resident Comfort by PGY Class

- General Health Supervision
- Ages and Stages Questionnaire
- Lead/Hemoglobin Screening
- Dental Health Screening
- Autism Screening

Average Score

PGY1
PGY2
PGY3
Pre-Intervention Chart Review

- Pre-intervention chart reviews demonstrated that baseline guideline adherence was good (defined as > 70% total completion) with the exception of:
  - Head circumference (54%)
  - Dental home assessment (21%)
  - Developmental ASQ screening (12%)
  - Autism M-CHAT screening (0%)
  - Lipid assessment (61%)
  - Blood pressure assessment (3%)
  - Vision risk assessment (3%)
  - Hearing risk assessment (18%)

- Comparison between classes did not reveal differences in any expected or predictable pattern
Post-Intervention Chart Reviews

- Post-intervention interval chart reviews demonstrated a statistically significant change in documentation of:
  
  - Developmental ASQ screening (p=0.03)
    - 12% pre-intervention
    - 13% 2 months post-intervention
    - 43% 4 months post-intervention
  
  - Autism M-CHAT screening (p=0.05)
    - 0% pre-intervention
    - 12% 2 months post-intervention
    - 14% 4 months post-intervention
Post-Intervention Observations

Guideline Adherence Run Chart

- Oral Health Exam
- Dental Home
- Lead
- ASQ
- MCHAT

Percent Documented as Complete

Pre-intervention | 2 months | 4 months
--- | --- | ---
Oral Health Exam | 90 | 90 | 90
Dental Home | 80 | 80 | 80
Lead | 80 | 80 | 80
ASQ | 10 | 10 | 10
MCHAT | 10 | 10 | 10
Conclusions

• Though resident comfort with adhering to best practice guidelines is high in most areas, actual documentation is not optimal.

• The comprehensive reference document and resident education have demonstrated positive results in documentation in areas with the least amount of resident comfort and initial baseline performance:
  – Still with considerable room to grow.

• There appears to be a need for periodic reinforcement to providers to ensure sustainability of the improved adherence to guidelines.
Future Directions

- We hypothesize that the revision of the EMR (Epic) templates, and involvement of all clinic employees, in each well child visit will further improve resident documentation of performance
  - Requested that the front desk of the primary care clinic provide M-CHAT, ASQs, and PSCs to appropriate parents as they arrive for appointments
  - Revision of Epic templates for well child visits in our primary care clinic has been initiated
Limitations

- Limitations included:
  - Inability to distinguish adherence to guidelines versus poor documentation of adherence
  - Difficulty with sustaining resident enthusiasm over time
  - Inadvertent removal of reference documents from patient rooms
References


Thank you to our pediatric residents for participating in this project and to our clinic staff members for helping to implement our interventions in the primary care clinic.