Disclosure

- Grant recipient of an Independent Learning Grant from Pfizer
I have never personally treated a child in the school setting for headaches.
Other disclosures

Who wants to hear “I’m 11/10” all day?
And another disclosure
Mismatched supply and demand

- 519 UCNS Board Certified Headache Medicine Specialists in the U.S.
- 36 million people with migraines in the U.S.
- 1 out of 100 teens have chronic daily headache
- Headache disorders are responsible for nine percent of all US lost labor productivity
The underfunding of headache disorders
Funding of research on headache disorders by the NIH

(Schwedt and Shapiro 2009)
The underfunding of headache disorders

- Under-representation of headache disorders in academic centers
- Few FDA approved medications, very few as original indication
- No well established, helpful guidelines for medication management in pediatric headache
- No objective test for diagnosis or disease monitoring
Migraines are safe...
Pediatric headache disability similar to disability scores in cancer and rheumatological diseases

## Impact of Adult Chronic Migraine

(p < 0.001)

<table>
<thead>
<tr>
<th>5 days over past 3 months…</th>
<th>Episodic Migraine</th>
<th>Chronic Migraine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missed work/school</td>
<td>2.2%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Missed household chores</td>
<td>24.3%</td>
<td>57.4%</td>
</tr>
<tr>
<td>Missed family activities</td>
<td>9.5%</td>
<td>36.9%</td>
</tr>
</tbody>
</table>

Remission of chronic migraine significantly decreases disability scores

![Graph showing MIDAS score over years for Persistent CM and Remitted CM](image-url)
4 or more headaches a month predicts increasing risk of Chronic Daily Headache
The ultimate goal is to decrease disability
Estimate 165,000 children with migraine in our institution's catchment area.
Stratification of Pediatric Headache Care

- First Tier – primary care diagnosis and treatment of basic headache disorders
- Second Tier – neurology referral
- Third Tier – specialized headache clinic with multi-disciplinary support
Community Outreach

- Coffee with a specialist
- Local and regional PCP conferences
- Organized CME for headache education
- Resident education (peds, family med, psych, neuro, ob/gyn etc)
- Medical student education
- KC support group for headaches
- Annual school nurse conferences
- Spoke at local businesses
- Headache on the Hill for congressional support
- Hospital and community clinical practice guidelines
Neurology Clinic Referrals
(unpublished 2014 electronic record review)

- 70% of new patients had never been prescribed a medication for their headache disorder
- Of the 30% prescribed a medication, 1/5 were given opiates or butalbital
- Those who were previously prescribed prevention missed on average 50% less days of school
- 40% of my new patients were patient requested second opinions from colleagues
- 3 months fully booked, over 400 pts on wait list
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- ANGRY PATIENTS
Physician Burnout: It Just Keeps Getting Worse

Doctor Burnout, Stress and Depression: Not an Easy Fix

Physician burnout
A neurologic crisis

Bruce Sigsbee, MD and James L. Bernat, MD

The prevalence of burnout is higher in physicians than in other professions and is especially high in neurologists. Physician burnout encompasses 3 domains: (1) emotional exhaustion: the loss of interest and enthusiasm for practice; (2) depersonalization: a poor attitude with cynicism and treating patients as objects; and (3) career dissatisfaction: a diminished sense of personal accomplishment and low self-value. Burnout results in reduced work

Fighting the silent crisis of physician burnout

The Widespread Problem of Doctor Burnout
Maybe docs don’t want to deal with headaches…

Who wants to hear “I’m 11/10” all day?
Maybe docs don’t want to deal with headaches… so they postpone treating them.

Who wants to hear “I’m 11/10” all day?

“Fill out this headache calendar, drink water and come back in three months”
Where do kids first present outside of the home for headache related complaints? 

The school nurse
The Asthma Action Plan

What if the schools encouraged a headache action plan?
Local School District
Headache

High School Nurse Visits

Middle School Nurse Visits
School disability

- Headaches accounted for 18% of all children on medical homebound
AVOID HOMEBOUND
Enlisted middle/high school nurses from a large local school district to refer youth they see with headaches to a dedicated project website (www.headachereliefguide.com)

Educated PCPs serving the targeted school district on availability and use of the PCP website portal

Evaluated impact on migraine care in the targeted community (relative to control communities) by tracking medication prescriptions, healthcare utilization, and headache-related disability
The HAPPY Project

**Focused Education**

- **Primary Care Providers**
  - Targeted small group meetings on use and implementation of Headache Action Plans
  - Resources on project website

- **Patients and Families**
  - In-school sessions on migraine management
  - Resources on project website

- **School Nurses**
  - Targeted small group meetings on screening students for disabling migraine and facilitating Headache Action Plans
  - Resources on project website

**Gaps Addressed**

- **Gap 1:** Delay in migraine diagnosis, disability identification, and treatment

- **Gap 2:** Delay or omission of evidence-based migraine alleviative/preventive medication

- **Gap 3:** Prescription of potential migraine-exacerbating medications

- **Gap 4:** Delay or omission of evidence-based non-pharmacological migraine management

**Outcomes**

- **Outcome 1:**
  - Upward prescription of evidence-based migraine medication

- **Outcome 2:**
  - Downward prescription of problem medications (opioids, butalbital)

- **Outcome 3:**
  - Downward emergency room visits for migraine

- **Outcome 4:**
  - Downward migraine-related disability
**School Nurse**
- Provides info sheet on project website to take to parents
- Implements school accommodations from letter printed from website by PCP
- Uses tools on project website to facilitate office-based relaxation strategies with students

**Parent**
- Reviews info sheet on website provided by school
- Reviews migraine education materials on website
- Sets up child’s appointment for headache evaluation with PCP per website recommendations

**Student**
- Goes to PCP appointment for headache evaluation
- Reviews migraine education materials on website
- Uses relaxation tools if visiting school nurse’s office for headache

**PCP**
- Receives education on pediatric migraine and use of the website
- Evaluates student’s headaches and diagnoses migraine (if applicable)
- Goes through the Headache Action Plan steps in the PCP portal of the website
Project Website

Provider portal for step-by-step migraine management recommendations and printouts

Educational videos

Guidance to prepare for PCP eval

Show/share what your migraine is like

Interactive self-management tools

Sessions: 9,680
Users: 6,990
Pageviews: 31,215
MIGRAINE IN THE STORM
Headaches can be frustrating, scary and painful. This site can be your guide to headache relief.

LEARN
Why do you get headaches?

EXPRESS
Are you ready for headache relief?

CONTROL
Take control of the pain.

PREPARE
Now you can show others how your migraines affect you.

Relaxed Breathing - Avatar

I have made an appointment with a primary care provider specifically to talk about headaches.
Preventive Medication

Is the patient experiencing more than four days of headaches per month? 

Select a medication from the choices below.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Your Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline</td>
<td></td>
</tr>
<tr>
<td>Topiramate</td>
<td></td>
</tr>
<tr>
<td>Magnesium Gluconate</td>
<td></td>
</tr>
</tbody>
</table>

School Plan

Are headaches affecting school performance and/or attendance? Yes or No

Select one or more school recommendations from the list below:

- Preferential seating
- Snacks and water throughout the day
- Rest head on desk if needed
- Extra rest breaks in quiet, dimly lit location
- Flexibility in the standard attendance policy
- Extra time to catch up on work missed due to headaches or healthcare visits
More site usage in target district

<table>
<thead>
<tr>
<th>City</th>
<th>Sessions</th>
<th>% of Total</th>
<th>% New Sessions</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kansas City</td>
<td>1,286</td>
<td>13.17%</td>
<td>66.17%</td>
<td>851</td>
</tr>
<tr>
<td>Olathe</td>
<td>580</td>
<td>5.94%</td>
<td>66.55%</td>
<td>386</td>
</tr>
<tr>
<td>(not set)</td>
<td>458</td>
<td>4.68%</td>
<td>97.16%</td>
<td>445</td>
</tr>
<tr>
<td>Overland Park</td>
<td>356</td>
<td>3.64%</td>
<td>68.26%</td>
<td>243</td>
</tr>
<tr>
<td>Chicago</td>
<td>280</td>
<td>2.87%</td>
<td>52.14%</td>
<td>146</td>
</tr>
<tr>
<td>St. Louis</td>
<td>184</td>
<td>1.88%</td>
<td>56.52%</td>
<td>104</td>
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<tr>
<td>San Francisco</td>
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<td>73.95%</td>
<td>125</td>
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<tr>
<td>New York</td>
<td>149</td>
<td>1.53%</td>
<td>53.69%</td>
<td>80</td>
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<tr>
<td>Seattle</td>
<td>127</td>
<td>1.30%</td>
<td>74.02%</td>
<td>94</td>
</tr>
<tr>
<td>Lee's Summit</td>
<td>100</td>
<td>1.02%</td>
<td>81.00%</td>
<td>81</td>
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</table>
### Medical Provider Portal Usage

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<thead>
<tr>
<th>Page</th>
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<th>Unique Pageviews</th>
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<tbody>
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<td>192</td>
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<tr>
<td>2</td>
<td>/portal/</td>
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<tr>
<td>3</td>
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<td>10</td>
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<td>4</td>
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<tr>
<td>5</td>
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<td>11</td>
<td>6</td>
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<tr>
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<td>portal/</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>portal/</td>
<td>8</td>
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<td>6</td>
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<tr>
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<td>2</td>
</tr>
<tr>
<td>19</td>
<td>portal/</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>
Results

• Relative to control regions, prescriptions of appropriate preventive/abortive medications increased and inappropriate prescriptions decreased since starting the project in Sept 2015.
Results

- Significant reduction in disability (PedMIDAS Total Score) and headache frequency over time for students participating in the project who consented to provide monthly self-report data online
  - About 1 less headache day and disability day per month, on average
- No significant changes in ED utilization since project start
We need more champions

- [email](headachechampion@cmh.edu) (sign up for personalized headache mentoring)
- Introduce students and families to the website, [headachereliefguide.com](http://headachereliefguide.com)
Thank you!