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Genomics and the EMR in a Learning Health System

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What is a Learning Health System?

- Aligns science and informatics.
- Develops strong patient-clinician partnerships.
- Incentivizes innovation.
- Culture of continuous improvement to produce the best care at lower cost.

Aligning Science and Informatics

- Genomics will add large amounts of new information to the EMR.
- It will impact:
  - Medications
  - Medical Decision Making
  - Preventive Health
  - Population Health

EMR Optimization

- Don’t over customize.
- Have the information be easily available but not intrusive.
- Be wary of too many alerts.
- Consider unintended consequences.
- Personalize the EMR for provider and patient.

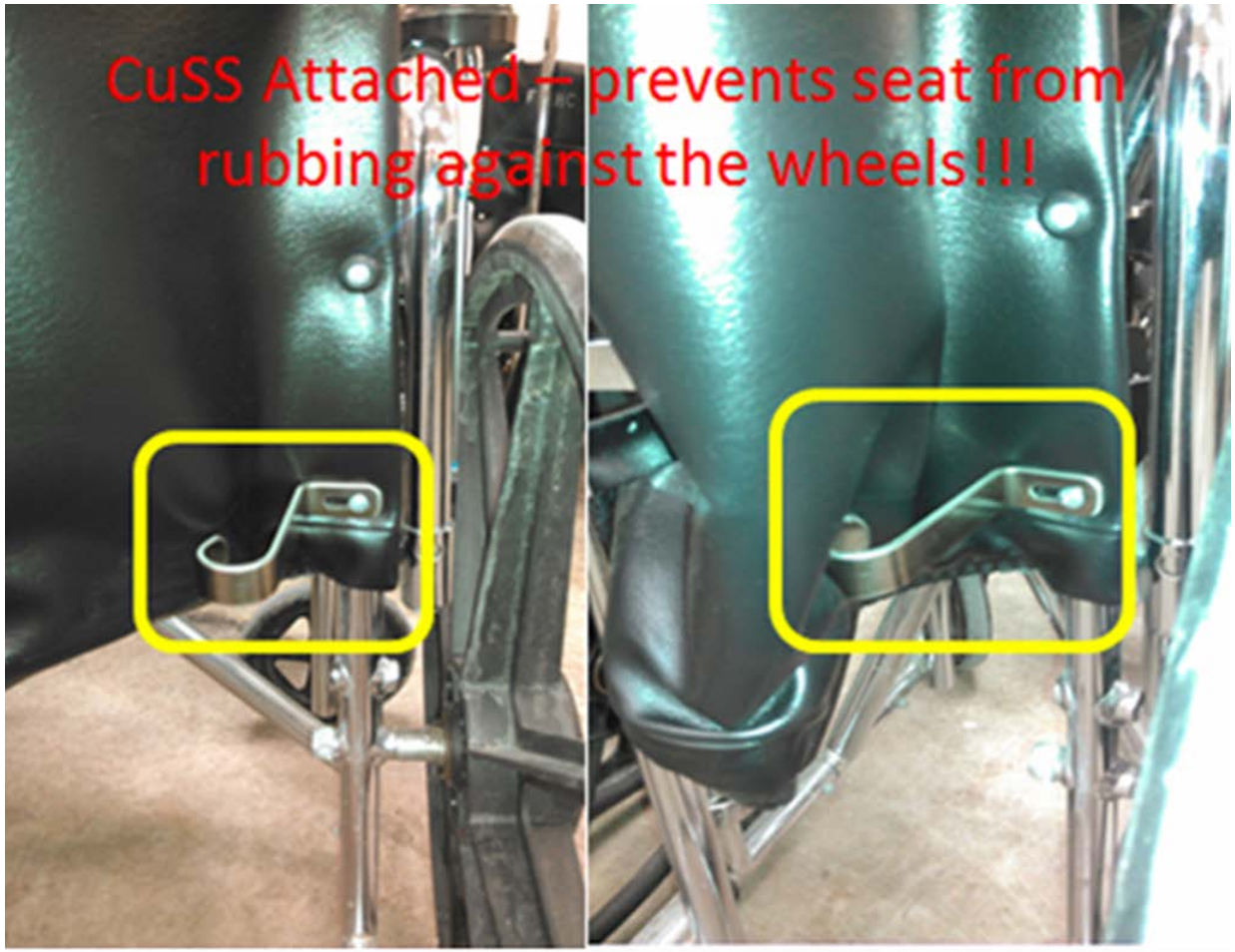
Patient-Clinician Partnerships

- Patient and Family Centered Care.
- Shared Decision Making.
- Requires readily available education and information.
- Genomics has the potential to greatly expand shared decision making opportunities.

Continuous Improvement

- Requires a culture change.
- Celebrate “near misses”
- Make it everyone’s job.
- Empower all employees to be “caregivers”.
  - Eye Patch example
  - Transporter example

Transporter Invention



Value

- Value =Quality/Cost.
- Providers need to understand that cost is a variable in the equation.
- Higher quality is often cheaper.
- Make sure providers know what things cost.
- Let them “share” the savings.
  - Vascular stents
  - Colorectal Surgery

What are we hoping for?

- Genomics will individualize the care we deliver.
- Genomics will help us:
  - Choose the right medications
  - Optimize the dose
  - Prevent medication reactions
  - Predict future health issues

The Future

- Genomics and the Learning Healthcare System.
  - Incorporated seamlessly into the EMR to personalize care for patients.
  - Empowers Shared Decision Making.
  - Allows novel new research and population health information.
  - Use genomics information to optimize care and prevent complications.

Potential Barriers

- How do we identify who will benefit?
- Informed consent.
  - How to deal with unexpected information?
- Accurate medical records.
  - Problem lists
  - Medication lists
- Dealing with discrete data.
- Data that is actionable is key.
- EMR's are not standardized.
  - Incredible opportunity for improvement

Unintended Consequences

- Who can see the information?
- Patient's viewing their records.
- Emergencies.
- Are providers expected to review every piece of available information?

How does your EMR work?

- What drives it's decision making?
- Critical to know this and leverage it.
  - Problem List
  - Medications
  - Past Medical History
- This will have a major impact on usefulness of new information.

Take Aways

- We want the EMR to make it easy to do the right thing and difficult to make errors.
- Genomics will add huge amounts of new information to the EMR
  - How genomics data is incorporated and viewed will be critical in establishing it's usefulness.
  - Will the data be used clinically, for research or both?
  - How will we know it is being used and reviewed when appropriate?
  - How will we deal with "extra" data?

Final Thoughts

- What providers need is better information not more data.
- If adding genomic information to the EMR only adds data it will not maximize it's usefulness.
- The key will be to integrate the information in a way that makes sense to providers and adds value to the provider patient encounter.
- Discrete data won't be enough.

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QUESTIONS?

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