Center for Clinical and Translational Research (CCTR)

Cynthia Wetmore, MD, PhD
Resources available in CCTR

- Clinical trials expertise
  - Help with posing hypothesis, crafting aims
- Biostatistics support
- Pilot grants for generating preliminary data
  - Friends grants for Children’s PIs
  - Center-based pilot grants
- Biorepository
- Laboratory support (MCTL to be established)
  - Initial study design
  - Implementation, interpretation of molecular assays
  - Investigation of genetic correlates of disease
- Seminar series
- Beer core
Mandates to Study Medicines in Children are Changing the Landscape

Historically, pharmaceutical companies had little incentive to extend studies to children, leading to poor data on drugs in kids

- **2002**: Best Pharmaceuticals for Children Act (BPCA): formalized Pediatric Exclusivity
  - 6 months of additional patent marketing exclusivity when pediatric studies performed upon request by FDA

- **2003**: Pediatric Research Equity Act (PREA): requires companies seeking a New Drug Application to include a pediatric assessment of the product

- **2007**: Both programs reauthorized

- **2012**: Strengthened and made permanent under the Food and Drug Administration Safety and Innovation Act (FDASIA)
Implications of this legislation for Emory and Children’s

• All new drugs in development must have a Pediatric Study Plan approved by FDA

• Industry is now *greatly increasing* plans for drug, device, and biologics testing in children

• The Global Pediatric Clinical Trials Network is a rapidly-evolving public-private partnership designed to standardize pediatric trials of new products

• Effort to establish Children’s as a premiere site for clinical trials in children
Molecular basis of disease

• Genome of any two people >99% the same

• Reduction in cost of genome sequencing allows for cost effective interrogation of the variation in human genome

• Monogenic, simple and rare diseases vs. multigenic, complex and common diseases
  – May confer variable response to medications

• Little is known about extent to which rare alleles contribute to the heritability of complex traits, including cancer
The Big Picture

- Children’s Healthcare of Atlanta (CHOA) is one of the largest pediatric providers in the United States, serving over 361,000 unique patients in 2013 alone*

- Investigators currently do not have access to comprehensive biorepository services

- Biobanking efforts are decentralized across departments and laboratories

- Establishing biorepository is part of our strategic plan

http://www.choa.org/About-Childrens/Awards-and-Recognition/Facts-and-Figures
## CHOA Labs/Departments Using LIMS

<table>
<thead>
<tr>
<th>Department</th>
<th>Number of Aliquots Currently Stored</th>
<th>Number of Aliquots Processed/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI (ECC)</td>
<td>6,000 total samples stored on a revolving basis</td>
<td>7,800 6,000 stored</td>
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<tr>
<td>CF (ECC)</td>
<td>started 8/2010; 1,800 just adult</td>
<td>4,000 once peds begins</td>
</tr>
<tr>
<td>Hem Onc (ECC)</td>
<td>1004</td>
<td>2,500</td>
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<tr>
<td>Pathology</td>
<td>14,200</td>
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<td>Cardiac</td>
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<td>PICU</td>
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<tr>
<td>ID</td>
<td>84,709</td>
<td>16,080</td>
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<tr>
<td>Transplant</td>
<td>18,000/151,000 incl. adult</td>
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<tr>
<td>Rheumatology (ECC)</td>
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<td>3000</td>
</tr>
<tr>
<td>Endocrinology (ECC)</td>
<td>1,500</td>
<td>520</td>
</tr>
</tbody>
</table>

As of June 2014
Moving Forward

• Bio-banking of bio-specimens is fundamental
  – personalized medicine research
  – drug/vaccine discoveries
  – risk stratification.

• Children’s Center for Transplantation and Immune-mediated Disorders (CTID)
  – IRB approval to collect biospecimens from both children with established diagnoses and no diagnoses (healthy controls)

• Sample collection began in July 2014 from various clinics and specialties:
  – Rheumatology: JIA, dermatomyositis, uveitis, etc.
  – Hepatology: Autoimmune hepatitis
  – Nephrology: Chronic renal failure, nephrotic syndrome
  – PICU: Sepsis
  – Endocrine: Diabetes type 1 & 2, thyroiditis
  – Gastroenterology: Crohn’s disease, ulcerative colitis
Vision and future plans

• Genetic and genomic data provide new insight and power for pediatric clinical trials
  – cancer, obesity, congenital heart disease, autism spectrum disorders, autoimmune disorders all have strong molecular correlates
  – ability to leverage outstanding Department of Medical Genetics at Emory
• Bank biospecimens from 10,000 subjects in five years
  – Provide sample access for any qualified investigator
  – Create a resource for NIH funding opportunities
• Use the CTID proof-of-concept pilot as a stepping stone for system-wide CHOA biobanking
• Partner extensive clinical network with well-designed clinical trials
  – need to address most compelling clinical questions and controversies
  – infrastructure to support the initiation, drafting and implementation of clinical trials