State of the Department: Looking Back and Moving Forward

Eric D. Hsi, MD
Department of Pathology, Atrium Health Wake Forest Baptist
February 15, 2023
Outline

• Looking Back On 2022
  • Research
  • Education
  • Clinical
  • Our People
  • Integration

• Going Forward In 2023
Research

• Extramural Funding (NIH and Industry)
  • $13.7 M
    • $11.9 M in grants
    • $1.8 M in Contracts
  • PIs

Mark Baxter  Mark Cline  Matt Jorgenson  Kylie Kavanagh  Matt Quinn
Tom Register  Carol Shively  William Harrison  Eric Hsi
Construction planning continues
- Autopsy Center
- Preclinical Imaging Center
• Publications (academic year) –
  • 103 manuscripts published
    • Publications highlight the basic science, translational, and clinical research interests of the faculty
  • High impact journals (IF ≥ 6.0)
Research

• Research Awards!
  • Carol Shively, 2022 Established Investigator Award

• Recruitment:
  • Mark Baxter, PhD – Professor
    • Neural mechanisms of memory and cognitive function.
Education – The Next Generation

• Our AP/CP Residency Program - the core of our educational efforts

• Pathology residents - an integral part of our clinical and academic programs
  • Hail to the chiefs:
    • Heath Blankenship and Martin Burks
    • Alex Balmaceda and Azad Bakht
      • The “A” team

• Program Directors:
  • Dan Coldren
  • Mark Giffen (Assist)
Laboratory Animal Medicine Residents

• Allison Tomasino, DVM
  • Second year

• Yarines Gonzalez-Rodriguez, DVM
  • First Year

Melaney Gee, DVM, DACLAM
Program Director
Comparative Medicine T32 Postdoctoral Fellows

Brendan Johnson, DVM
*Neuroimaging and Cognition*

Kendall Langsten, DVM, DACVP
*Breast Cancer*

Cecilia Schaaf, DVM, PhD
*Intestinal Epithelial Biology*

Mark Cline, DVM, PhD, DACVP
Program Director
Veterinary Anatomic Pathology Residents

Emily Mackey, DVM, PhD
- 2nd year resident

Amanda Duggan, DVM
- 1st year resident

Nancy Kock, DVM, PhD, DACVP
Program Director
Comparative Medicine Research Fellows

Dr. Sc. Nat. Simon Deycmar
- ROCHE Postdoctoral Fellow in Cancer Immunotherapy
- Cline Lab

William Shane Sills, DVM, DACVP
- Research Fellow
- Comparative Oncology and Immunology
- Cline Lab

George W. Schaaf, DVM, DACVP
- Research Fellow
- Radiation Late Effects
- Cline Lab

Courtney Lynn Sutphen, PhD
- Research Fellow
- Alzheimer Fluid Biomarkers
- Register Lab

Ravichandra “Ravi” Vemuri, PhD
- Research Fellow
- Microbiome and Metabolism
- Kavanagh Lab
Education and Trainee Kudos

• Resident teaching awards went to **Dr. Haiyan Lu**

• **Martin Burks** - CAP Economic Affairs committee as a junior member

• **Alex Balmaceda** - appointed to the CAP Hematology and Clinical Microscopy Committee as a junior member

• **Shou Niu** – Education Committee, Digital Pathology Association
Residents/Fellows Out and About

• Presentations at National Meetings
  • Martin Burks:
    • Impact of Digital Pathology and AI on the AP Lab (National Medical Association)
  • Mernoosh Ghandili:
    • Novel Hybrid Mutation of a RHCE Genotype in a Family Discovered After Investigation of anti-Rh46 (CAP ‘22 Annual)
    • Sudden Cardiac Death (2022 Western NC Death Investigator Conference)
  • Lorena Costa:
    • Case report – GA in a 2 year old male (2022 American Society of Dermatopathology)
  • Addie Hancock:
    • False Positive Rate for Suspected Drug Related Deaths Following Full Autopsy (NAME 2022)
    • Two Bullet Wounds: One Bullet: (NAME 2022)
  • Christopher Humphries (HP fellow)
    • Primary CNS ALCL (USCAP 2022)
    • LRF National Lymphoma Rounds

Wake Forest University School of Medicine
Atrium Health Wake Forest Baptist
Anatomic Pathology Accomplishments

• Welcomed High Point Pathologists
  • Drs. Oaks, Fancey, and Croitoru
  • Coverage with Drs. Kim Shapiro and Hernandez

• Subspecialty sign out on the main campus
  • An evolving process
  • Thanks to all the AP faculty and operations team for making this a reality

• Interim AP co-directors: Lisa Kim-Shapiro and Ruth Lininger
Anatomic Pathology Accomplishments

• New equipment:
  • Dako, Ventana Benchmark, 5th Leica Bond III Automated Immunostainers

• New tests: 10 new immunostains (on top of 9 in 2021)
  • SATB2, INSM1, P120, STAT6, IgG, IgG4, CA IX, TIA1, Perforin, Claudin-4

Dr. Wencheng Li
Dr. Danielle Maracaja
Clinical Pathology Section Highlights

• Chemistry
  • Core Lab – New AU5800 chemistry and DxI immunoanalyzers and automation line
    • Completed validations!
    • Water “intrusion” due to aging DI system
    • Major problems with DXI reliability
    • Kudos: Erica VanDyke, Johanna Walton, Julie Simmons, Dr. S.
    • Dec 2022/Jan 2023 – marked improvement in TATs

• Chemistry - New tests (partial list)
  • MMA, gentamicin, estradiol, progesterone, DHEA, pleural fluid pH, SHBG, CA125, AFP

Alina Sofronescu, PhD
Clinical Pathology Section Highlights

- **HLA**
  - Supporting Atrium Charlotte with high resolution HLA typing
  - BMT Chimerism studies transferred
  - MiSeq for capacity and back-up

- **Hematology**
  - TEGS went live!
  - Improvements in protein electrophoresis and Hgb s/o
  - CellaVision went live!

- **Flow cytometry – New BD Lyric 12 color**
Clinical Pathology Section Highlights

• Molecular Diagnostics (Lyalin/Insuasti/Giauque/Taghiyev/Arispe)
  • Biodot evaluation - automation
  • Continued integration and restructuring under main CLIA
  • Discontinuation of prenatal serum screening
  • DuoSeq NGS validation – novel DNA/RNAseq for lymphoma
  • Genexus NGS panel for myeloid malignancy
    • Substantial cost savings, far superior TATs
    • MolDx codes received – enables insourcing and external new business (Novant)
  • Movement of HPV testing to Microbiology

• Microbiology
  • 2nd Roche Cobas 6800 successfully obtained and validated
    • HPV and other new testing, COVID
    • Redundancy and capacity
    • Decompresses PCR lab in AP
  • Interim Medical Director, core lab CLT
Clinical Pathology Section Highlights

• Transfusion Medicine/BMT
  • 35,048 units transfused, a 7.37% decrease
    • Major driver was fewer MTPs with fewer units/MTP
  • Patient Blood Management data collection begun
    • Anemia Management – program planning with 2023 implementation
    • Enterprise Advisory Committee formed – Royster, Weiss
  • Blood bank services opened at Davie Hospital
    • Began whole blood transfusions
  • Chilled Platelet Study (CHIPS) opened (TM and Cardiac Anesthesia co-PIs)
    • Phase 3, multicenter, randomized, double-blinded, non-inferiority, trial that will compare the transfusion of cold-stored (4C) platelets at multiple storage durations to standard (22C) platelets
Our People: Faculty Promotions in 2022

Susan Appt, DVM
Professor (with tenure)

Kylie Kavanagh, VMS, MPH
Professor (with tenure)
Our People

• Faculty
  • Retirements – Dr. Cohen (Professor Emeritus)
  • Resignations 2021 – Dr. Koty, Dr. Kleven, Dr. Parks, Dr. Steele

• AP/CP Recruitments –
  • Dr. Ruth Lininger – Jan. 2022
  • Dr. Yanjun Hou – April 2022
  • Dr. Anne Shepler – May 2022
  • Dr. Zahra Aly – June 2022
  • Dr. Jesus Hernandez – July 2022
  • Dr. Karen Arispe – August 2022
  • Dr. Taghiyev – July 2022
  • Dr. Giauque – October 2022

• More to come.....
Our People – Service and Influence

• National Committee Chairs 2022
  • Hou – Finance Committee Co-Chair, CAPA
  • Hsi – ALLIANCE Pathology Committee, CAP Hematology and Clinical Microscopy

• Society/Academy Officers
  • DeLoid – President of the Academy of Surgical Research

• Editorial Boards
  • Appt, Beaty, Caudell, Cline, Fadeyi, Gautreaux, Hsi, Kavanagh, Palavecino, Pomper, Quinn Sangueza, Sofronescu,

• Course Faculty National Meetings
  • Hsi, Pomper
Our People – DEI Task Force

**Mission:** To create an environment that values diversity and promotes a culture of inclusion and respect among all employees within the Department of Pathology

- Chairs: Susan Appt, Comparative Medicine, Danielle Maracaja, Clinical Pathology & Anatomic Pathology
- Initiatives: Education and training, Suggestion Boxes, Survey, Newsletter
- We need you!
Pathology and Laboratory Medicine Leadership Council Structure

Enterprise Pathology & Laboratory Executive Council
Chair: Dr. Eric Hsi and Gary Catarella
Members: Dr. Ned Lipford, Dr. Gene Battles, Lauren Elmore, Conrad Emmerich, Regina Nowell, Mike Waid, Michael Hajworonsky

Enterprise Service Line Leader
Dr. Eric Hsi

Enterprise Academic Chair
Dr. Eric Hsi

Workgroups
- Operations
  Chair: Gary Catarella
- QA/QI/Safety/ Accreditation
  Chair: (TBD)
- Billing & Compliance
  Chair: Heather Cole
- Workforce (TBD)
- Lab Medicine
  Chair: Greg Pomper
- Pathology
  Co-Chair: Eric Hsi, Ned Lipford
- Research
  Chair: Sue Appt
- Education
  Chair: Nancy Rosenthal

Operational within first 90 days
Integration Accomplishments

• Specific workgroups were actively working in 2022
• AP/Research –
  • 8 consensus conferences running
  • 4 abstracts submitted to USCAP in 2022 and 3 accepted for 2023 meeting
  • Subspecialties are discussing EPIC Harmonization in consensus conferences
• AP Digital Pathology – Site Visits, Exec Leadership Strategy
• Chemistry – Mass Spec, insourcing of drugs of abuse confirmation at WF
• Education -
  • Working with Carolinas Health Sciences Program in CLT to bring students to WF (in process with more in the pipeline)
  • Planning stages of a NC CE/CME course, AHEC CLT Support, Atrium Sponsorship (Catarella)
Integration Accomplishments – Enterprise Tracker
Gary Catarella

• Twelve Initiatives Completed
• Testing Internalization Strategies Deployed, Outreach Billing Enhancement, Equipment & Service Optimization
• 2022 Cost savings = $3,024,752
• 2023 Initiatives Identified
  • Expansion of Drugs of Abuse Testing
  • Patient Blood & Anemia Management
  • New Internalization Strategies Identified
Discovery Team Leaders
Laboratory Services

Dan Mumm
President ACL Laboratories
Years with Organization: 31
Legacy Organization: Advocate Aurora Health

Gary Catarella, MBA MT (ASCP)
Enterprise VP, Laboratory Services
Years with Organization: 9
Legacy Organization: Atrium Health
Laboratory Services Synergy Roadmap

Together we are **one of the largest non-profit health system laboratories in the country**.

<table>
<thead>
<tr>
<th>Learnings about Advocate Aurora Health</th>
<th>Learnings about Atrium Health</th>
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<tr>
<td>• Technology and processes are standardized, resulting in efficiencies</td>
<td>• Enterprise shared service that operates in a hub &amp; spoke lab model in all regions &amp; markets</td>
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<td>• Robust test menu results in decreased dependency on reference testing</td>
<td>• Nationally recognized faculty in clinical &amp; anatomic pathology</td>
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<td>• In-sourced courier services helps drive client and consumer experience</td>
<td>• Pathology Residency &amp; Fellowship Program</td>
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<td>• Advantageous for-profit outreach business model (A2CL): established in the market</td>
<td>• National Institute of Health grant-funded research – Comparative Medicine Program</td>
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Shared focus on operational efficiencies & leveraging scale

*We are more alike than different!*

**Synergy Highlights**

- **Cost Per Test Improvement**
  - Referral Testing (Y1: $2M)
  - Lab Supplies (Y1: $1.5M, Y3: $8.5M)
- **Lab Outreach/Business Development Growth** (Y1: $1.6M, Y3: $4.8M)
- Utilization Informatics Cost Savings (Y1: $1M, Y3: $2.5M)
- Ambulatory Service Model Alignment (Y1: $2.5M, Y3: $5M)

**Operating Model & Investment Dependencies**

- Supply Chain team contracting effort (*Cost Per Test*)
- Capital Process for Speed to Value in Lab Reagent category (*Cost Per Test*)
- Outreach Business Plan (ROI) (*Lab Outreach*)
- CMIO (*Utilization Informatics*)
- HIT Enhancements/Interfaces/Support (*Lab, Outreach*)
- Stakeholder Buy-In (*Ambulatory Service Model*)
- System Lab Diagnostic Committee / standard test menu to maximize utilization/value
- To realize the upside synergy value an investment of ~$3M is required

**Net synergy value excludes a combination of operating / capital investment**

**Big Ideas**

- Be the national leader in **Lab 2.0** with use of digital enablers (digital pathology, AI, EMR enhancements)
- Launch Genomic Testing to advance **Precision Medicine** offerings
- Develop a **Direct-to-Consumer** business line (e.g., retail, at home kits)
- Expand Research Lab footprint (e.g., biorepositories, novel research testing, 3rd party data partnerships)

**Parking Lot**

- Potential revenue improvement related to denial improvement (Revenue Cycle)

**We have identified nearly $23M in synergy opportunities by the end of Year 3, with $8.6M by end of Year 1**

**Together we can**

- 50M tests per year to diagnose, drive outcomes and enhance patient experience, generating $1.5B Net Revenue (inclusive of $107M outreach revenue)
- Provide more affordable lab testing
- Execute robust in-source strategy by leveraging cross-region laboratory medicine & pathology expertise
- Revolutionize our lab outreach business in the markets and regions we serve
- Accelerate laboratory automation
- Train the next generation of laboratorians
2023 – What’s Next (AP)

• Recruitment – Haodong Xu arrives Feb. 20, other recruitments continue…

• EPIC Harmonization
  • SME will be in work groups reviewing workflows in Encompass
  • Pathologists can engage CPG pathologists to see how cases are signed out, stains ordered, templates (standardization)
  • If there are potential problems in workflow, engage Nate Weaver and LKS, Julie Simmons (CP)

• Complete planned consensus conferences
  • Will be tasked with best practice PathCare documentation and implementation (Standardization)
  • Each consensus conference to consider collaborative research projects

• Digital Pathology – Enterprise strategy is being developed
  • Use cases to be prioritized, implementation of IHC delivery by digital pathology
  • Capital planning
  • Epredia FDA Clinical Trial (joint WF/HP/CPG pathologists effort) – Q2 start
2023 – What’s Next (CP)

• Molecular Diagnostics
  • Strategy for germline genetic testing and Molecular Oncology WES/WGS
  • IPAT business plan for NGS to support myeloid panels for CPG and Novant
  • DuoSeq validation with BIQSFP funding for NCTN Intergroup phase 2/3 trial in DLBCL

• Chemistry
  • IPAT business plan for mass spectrometry COE to include faculty and testing personnel

• TM, Molecular, and Microbiology Workgroups Chartered and begin meeting
  • PBM/AM
  • Standardization vs Centralization
    • Enterprise strategy for automation in microbiology
    • Coordination of molecular diagnostics testing
2023 – What’s Next

• Space Planning
  • Continue Autopsy Center and Preclinical Imaging Center
  • Working with Executive Leadership to determine next steps and capital planning

• Education
  • Complete planning for CE/CME course
    • Topics/faculty invitation/advertising
    • Secure funding
    • Date TBD (Q4 2023, Greensboro, NC)
  • Explore development of an elective rotation for residents at CMC/Airport

• Sustainability
  • Form committee, engage consultant, and develop initiative(s) for implementation in 2023.
2023 – What’s Next

• Integration
  • Southeast Region Retreat in WS planned for March 30th, 2023
Thank You!!!