Doctorate in Clinical Laboratory Science
A New Career Path for MLS

Rutgers, The State University of New Jersey
School of Health Related Professions
Department of Clinical Laboratory Sciences
MLS: Unseen Member of the Healthcare Team

- Often the invisible member of the healthcare team
  - Current role
    - limited direct patient contact
    - Limited direct contact with other healthcare providers

- Change that paradigm to an active partner
  - Dialogue with healthcare providers, patients, administration, government and regulatory professionals
  - Ensure appropriate utilization of laboratory services to improve patient care, outcomes and cost-effective use of laboratory services
  - Contribute in a more pro-active way to post-analysis of diagnostic services, as well as pre-analysis and analysis phases of laboratory services
What is the DCLS?

- Advanced practice doctorate program
- For the certified Medical Laboratory Scientist

Goal of the DCLS program:

- Prepare graduates for advanced practice in clinical laboratory science including:
  - advanced theoretical and clinical learning
  - practice
  - research
- Promote an inter-professional team approach to health care
  - active members of the interprofessional healthcare team
DCLS: WHY NOW?

- Plethora of lab tests and new methodologies
- Clinicians/healthcare providers challenged to keep abreast of new lab services
- DCLS can contribute to the inter-professional health care team as:
  - Experts in clinical laboratory testing
  - Partners with clinical pathology to serve as consultants involved in clinical rounding and patient care
  - Promoters of quality health care through appropriate and cost effective utilization of clinical laboratory services
  - Advocates of patient safety by contributing to the reduction of medical errors
DCLS: WHY NOW?

Center for Disease Control (CDC) Division of Laboratory Systems
“The 2007 Institute: Managing for Better Health”

- Explore ways of improving the integration of lab medicine within the health system - one goal:
  
  “to institutionalize new models of clinical consultation provided by the laboratory medicine professionals to clinicians to guide their decisions about utilization of laboratory tests or services”.

- CDC’s vision
  
  - Collaborative effort between a DCLS and a more consultative pathologist
  
  - Changing laboratory medicine’s contribution to healthcare

Every time I order a test of any kind, I'm very aware of the potential for ordering the wrong test for the patient’s condition, as well as the fact that even correctly ordered tests have weaknesses, for example false negatives and false positives.

I have found that inexperienced clinicians, not necessarily mid-level providers, tend to over-order tests when they are uncomfortable with a clinical situation. The problem they run into, however, is the more tests that are ordered, the more interpretation of results that is needed. Ordering panels of lab tests that are not well thought-out can generate misleading, and sometimes conflicting, results, and leads to confusion, unnecessary referrals, and patient anxiety.

If you had a magic wand to wave over the clinical laboratory, what would you change? I would somehow bring the expertise from the clinical laboratory into our clinic. I am surrounded by physicians and scientists who have an exceptional knowledge base that I wish I could tap into at the point-of-care. No doubt, every provider has limits to his/her own knowledge, and collaboration with colleagues often leads to better care for patients.
DCLS – PROFESSIONAL SUPPORT

The American Society for Clinical Laboratory Science (ASCLS)

- DCLS Task Force developed model curriculum & competencies
- General competencies achieved in course experiences:
  - Patient Care
  - Interpersonal and Communication Skills
  - Professionalism
  - Outreach
  - Continuous Practice Improvement
- ASCLS Advanced Practice Doctorate in CLS Position paper

MLS Professionals

- Survey (ASCLS) 975 medical laboratory scientists (response rate 30%)
- 65.2% interested in doctorate degree in CLS; 28% stated a good option for CLS practitioners who currently choose to become physicians or physician assistants.

National Accreditation Agency for Clinical Laboratory Science (NAACLS)

- Developed standards & accreditation process for DCLS programs.

Certification - certification exam will be developed
DCLS: WHAT CAN THEY DO?

- Partner with clinical pathologists in providing information to improve clinical diagnosis
- Consult with clinicians regarding lab test ordering and interpretation
- Member of interprofessional healthcare/patient management teams
- Develop patient-centered test algorithms, reflex testing
- Participate in inter-professional healthcare team conferences, clinical rounds

- Conduct outcomes studies that would benefit patients, patient safety, and the institution
  - Test ordering patterns
  - Updating lab test menus/algorithms
  - Develop reflex test algorithms
  - Assuring POCT aligns with CORE clinical lab test methods
DCLS: WHERE CAN THEY WORK?

- Hospitals
  - particularly ED, ICU, CCU, SICU
- Outpatient Clinics
- Rehab Centers/Nursing Facilities
- Long Term Care Facilities
- Satellite Labs- part of a system
- Industry
# Clinical Practice Doctorate vs. PhD: What is the Difference?

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<th>Research Doctorate PhD</th>
<th>Advanced Practice Clinical Doctorate</th>
<th>Graduate Entry Level Clinical Doctorate (e.g. DPT)</th>
<th>Graduate Entry Level Professional Degrees (e.g. PA)</th>
<th>Classic Master Degrees</th>
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Clinical Practice Doctorate vs. PhD
What is the Difference

▪ PhD:
  ▪ Curriculum emphasis (>50%) on research
  ▪ Use of the candidacy exam and dissertation product

▪ Advanced Practice Clinical Doctorate vs Graduate Entry-Level Clinical Doctorate:
  ▪ Advanced practice doctorates include an independent research product.

▪ All practice doctorates include clinical expertise as a component
  ▪ This is not included in the research doctorate (PhD)
Entry Level/ Advanced Practice Doctorates

Some examples in the US:

- Pharmacy (PharmD)
- Clinical Nutrition (DCN)
- Physical Therapy (DPT)
- Audiology (AuD)
- Occupational Therapy (OTD)
Advanced Practice Doctorate
Clinical Laboratory Science

Rutgers, The State University of New Jersey
School of Health Related Professions

Department of Clinical Laboratory Sciences
Rutgers- Biomedical & Health Sciences

- 14 Schools and Institutes, Health/Science Centers
- School of Health Related Professions
  - 40 academic programs housed in 9 departments:
    - Clinical Laboratory Sciences
    - Allied Dental Education
    - Health Informatics
    - Interdisciplinary Studies
    - Medical Imaging Sciences
    - Nutritional Sciences
    - Primary Care
    - Psychiatric Rehabilitation and Counseling Professions
    - Rehabilitation and Movement Sciences
Phlebotomy
- traditional on campus and web-based options

Medical Laboratory Science (BS-MLS)
- blended - on campus and web-based

Cytotechnology
- on campus

MS in Clinical Laboratory Science (MS-CLS)
- web-based

Doctorate in Clinical Laboratory Science (DCLS)
- web-based with full time clinical year

PhD in Health Sciences – CLS concentration
- web-based with some campus attendance required
Amenable Environment

- Precedence for offering practice/clinical doctorates
  - Clinical Doctorate in Nutrition (DCN)
    - First DCN offered in the country (2003)
  - Entry-Level Doctor of Physical Therapy (DPT)

- Online Education Expertise (since early 90’s)

- Core online graduate courses offered to interprofessional student pool

- Strong support from university and school administration for a DCLS program
Curriculum Design for Student Profile

Student Profile
- Adult learner
- Employed

- Blended mode of delivery
  - Distance education: Web-based for theoretical courses
  - Clinical experience: experiential learning

Meeting the needs of the adult working student
Program Goals

- Enhance knowledge and skills through in-depth study of all CLS disciplines
- Apply advanced knowledge to improve the quality and delivery of lab services
- Interact with clinicians to improve utilization of laboratory tests, and enhance clinical decision making
- Expand role as integral part of the healthcare team
- Enhance clinical assessment and consultation skills
- Design, manage and conduct translational, evidence-based research
DCLS Degree Requirements

Total credits: 80 (beyond the baccalaureate degree)
- Builds on the Rutgers MS-CLS
- Up to 24 credits from the Rutgers MS-CLS can apply to the DCLS

- Pre-clinical practice component (57 credits)
  - Fully online

- Clinical practice component (23 credits)
  - 1 year, full time (three semesters: summer, fall, spring)
  - Affiliated health care institution
  - Supplemented with online seminar courses

- Degree Completion (post-baccalaureate):
  - FT students - 4 years    PT students - 6 to 7 years
## Four Core Curriculum Components

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<tr>
<td>Clinical Practice</td>
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Clinical Practice/Residency

One Year Full time Clinical Practice/Residency

- Clinical Affiliates:
  - Appropriate clinical sites
  - Full time clinical year
  - Clinical rounding with interprofessional healthcare team
  - Participation on patient focused management teams
  - Consultative services for clinicians, patients, healthcare providers utilizing laboratory services

- Translation Research Project
Rutgers-SHRP Dept. of CLS
Educational Pathways

- BS\MLS
- MS\CLS
- DCLS
- Graduate Certificate CLS
- Graduate Certificate Molecular Diagnostics
- PhD. Health Sciences CLS Track

Rutgers-SHRP Dept. of CLS
Educational Pathways
Doctorate in Clinical Laboratory Science

The Voice, Value and Vision of the Profession

Voice

Value

Vision