

COLLEGE OF HEALTH SCIENCES

[STRATEGIC PLAN] Progress Report

2016 - 2019

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INTRODUCTION

A Message from the Dean

"At the UK College of Health Sciences, our mission is to function as the gateway to the health professions. We are a doorway that students, faculty, and staff can walk through to their next destination."

At the UK College of Health Sciences, our mission is to function as the gateway to the health professions. We are a doorway that students, faculty, and staff—who seek to touch every aspect of health care—can walk through to their next destination.

It's these destinations—hospitals, clinics, laboratories, schools, graduate and professional programs, and more—that define our gateway. Workforce demand for our programs is steadily rising, and with it, the need to produce graduates who are competent, confident, and compassionate in their chosen fields.

We are exploring multiple avenues to meet these needs, but there is still room for us to grow. Our first path is through offering new education to impact the growing health care landscape. This is why we developed pre-professional opportunities resulting in increased applications to our college.

Our student growth is consistently increasing with each year, and we remain number one among UK colleges of comparable size in retention. It's important to recruit the best and brightest students, but it's even more important to keep them here. Our college has the highest four-year graduation rate on campus proving our students start and finish with us.

Our commitment to student success is the beating heart of the College of Health Sciences. The first-time licensure pass rates for our professional programs are consistently at or



above the national average, along with these same programs maintaining competitive program selectivity rates.

Additionally, the spirit of discovery is alive and well at CHS. Over the years, our undergraduates, graduate candidates, and talented pool of faculty have made our college the home of a thriving research enterprise. We are dedicated to exploring solutions to some of Kentucky's most pressing health care questions. Research in the college spans the continuum from basic to clinical science, and we remain in the top 20 of NIH funding for colleges of allied health with more than $5 million grant dollars awarded in 2018.

As the college evolves, it's important we learn to embrace changes that will create more opportunities for our excellence to be known. In order to respond to the growing demand for our programs, the College of Health Sciences will undergo a structural realignment effective in July 2019.

We will be moving away from the old infrastructure of divisions and adopting a new structure that creates an undergraduate department and four departments for our professional and graduate programs: The Department of Health and Clinical Sciences (which will house our undergraduate programs: Medical Laboratory Science, Human Health Sciences, and Clinical Leadership and Management), The Department of Athletic Training and Clinical Nutrition, The Department of Communication Sciences and Disorders, The Department of Physical Therapy, and the Department of Physician Assistant Studies.

With this new structure, our doctoral program will be able to interface with all five departments and serve multiple disciplines. Just like the majority of the health sciences landscape, each of our programs are collaborative and interprofessional. This new departmental structure will ensure that this interdisciplinary culture is cultivated and expanded.

The new departmental structure will also enable us to be more efficient in delivering both our undergrad pre-professional programs and our graduate professional programs. We have created an Office of Undergraduate Education to accommodate the immense growth of our pre-professional and exploratory students. One department dedicated to undergraduate education ensures our faculty and staff provide more support and services catered to undergraduate success. This focus will surely result in positive outcomes for our many undergraduate students.

Efficiency is key when we think about the future. The realignment removes unnecessary layers of administration and increases transparency and communication from leadership to faculty to staff. We are setting our college up to be more flexible and with the ability to make decisions and react quickly to the changing landscape of academia.

It's imperative we stay relevant in our own market and create more opportunities for our success to be known. Our new structure will be more consistent with that of other top health science colleges across the country and grant our programs the opportunity to thrive and remain competitive.

Every one of our programs has the potential to keep advancing, and we are seeing the evidence of this as each year passes. We look forward to embracing this new structure that will make us more attractive to potential students and establish our gateway as the most efficient and sought out experience in the health sciences fields.



Scott M. Lephart, PhD
Dean
Endowed Chair of Orthopaedic Research

A LOOK AT THE COLLEGE

[BY THE NUMBERS]

97.3% of graduates would recommend the College of Health Sciences to prospective students

99.2% of students felt prepared for employment in their field or program of study

9 degree programs

- Human Health Sciences (BS)
- Clinical Leadership & Management (BHS)
- Medical Laboratory Science (BHS)
- Communication Sciences & Disorders (MSCSD)
- Communication Sciences & Disorders (BHS)
- Athletic Training (MS)
- Physician Assistant Studies (MSPAS)
- Physical Therapy (DPT)
- Rehabilitation Sciences (PhD)

3 certificates

- Certificate in Undergraduate Research in Human Health Sciences
- Certificate in Nutrition for Human Performance
- Certificate in Clinical Healthcare Management

1 minor

- Minor in Health Advocacy

CHS faculty and staff have increased by 30% over the past five years.

4 of the 25

fastest growing occupations for college graduates can be found in the College of Health Sciences
(Physician Assistant, Physical Therapist, Athletic Training, Clinical Leadership & Management)

Source: Bureau of Labor Statistics

Fall 2018 Enrollment

UNDERGRADUATE

900

GRADUATE

500

Fastest growing college at UK in undergraduate enrollment

(27% growth since Fall 2016)

3 campuses across Kentucky

1. Center for Health Education and Research
2. Center of Excellence in Rural Health
3. University of Kentucky

\+ Online



Strategic Objective One:

[UNDERGRADUATE STUDENT SUCCESS]

Undergraduate student success is a key priority of the University of Kentucky and the College of Health Sciences (CHS). The Office of the Provost established four pillars of academic excellence:

- **Academic Success**
- **Belonging and Engagement**
- **Student Health and Wellness**
- **and Financial Stability.**

In alignment with the University's four pillars, CHS student success enhancement efforts targeted both curricular and co-curricular aspects of undergraduate education to support the college's rapidly growing undergraduate population.

The College undertook an in-depth study of resources available for student success and the curriculum(s) to support professional preparation in the health sciences. As a result of the external and internal reviews, the best structure to support the growing undergraduate student enrollment was determined. After careful study, a committee of faculty and staff recommended a realignment resulting in one department to be focused exclusively on undergraduate education.

The formation of the Department of Health and Clinical Sciences will focus on providing the best experience for students pursuing undergraduate degrees for preparation of health sciences professional programs. Additionally, new support units and roles were created including: a College-level Undergraduate Education (UGE) Office with faculty leadership and collaboration with the Office of Student Affairs for CHS exploratory and pre-major students; a College-level UGE Leadership Committee (to connect all undergraduate programs and tie to professional/graduate programs and other CHS resources together for continuity of programing); the establishment of Directors of Undergraduate Studies for the CLM and HHS programs; and a re-configuration of the college as a whole to eliminate redundancies and increase efficiencies.

QUICK LINKS: **Undergraduate Initiative** | **IHRC**

High impact practices are integral to the CHS undergraduate college experience: high-touch advising, undergraduate research, global scholars, practicums, capstones, and learning communities, to name a few. The robust and successful **Interprofessional Healthcare Residential College (IHRC)** Living learning Program (LLP) featured on page 8 is designed for undergraduate students who have a passion for healthcare and interdisciplinary learning.

Pedagogically, the IHRC is designed to enhance student retention, belonging, and learning by bridging the gap between formal in-class learning and out-of-class learning. To this end, students live together, enroll in connected coursework, and participate in a variety of co-curricular activities, including guided discussions with faculty and community service activities. Participants are immersed in a community of scholars that includes faculty, staff, as well as a strong cohort of "live-in" peer mentors, all of whom are dedicated to interprofessional healthcare and student success. **The IHRC community hosted its largest class, 217 students, in academic year 2019. Students in IHRC are some of our highest achieving and most engaged with an average 3.46 GPA and a 97.7% fall-to-spring retention rate ●**



CHS Undergraduate [INITIATIVE WORKGROUP]

At the direction of Dean Scott Lephart, an assessment of CHS Undergraduate Education occurred in Academic Year 16-17 to examine strengths, limitations and opportunities, describe potential structure models, and make recommendations to maximize resources and build on synergies within CHS to best support the success of undergraduate students. Results included the creation of a new faculty position, Director of Undergraduate Initiatives, and the establishment of a College-wide workgroup, CHS Undergraduate Education (UGE) Initiative Workgroup to further develop previous recommendations and recommend actions for an implementation plan.

The UGE Initiative Workgroup worked together to establish a CHS UGE identity at the College level and formulate CHS structural and functional recommendations to increase efficiency, reduce redundancy, re-focus on mission, and design programs/courses to best meet undergraduate students' needs. Educational elements common to all CHS undergraduate programs and relevant to CHS professional/graduate programs were established. The resulting CHS Undergraduate Educational Framework and associated competencies and learning outcomes apply broadly to CHS exploratory, pre-major, and major students across all UG degree programs. It includes four competency dimensions: 1) interprofessional ideals and practice, 2) cultural humility and intercultural competence, 3) critical thinking (scholarly and professional application), and 4) professional behaviors. The World Health Organization's (WHO) International Classification of Functioning, Disability and Health (ICF) was identified as a guiding and unifying conceptual model. Signature pedagogies of (1) Interprofessional Education, (2) Experiential Learning, (3) Situated Learning, and (4) Reflection were selected to develop students' proficiency in competencies.

The Workgroup's recommendations included structure implications: (1) create a College-level UGE Office with faculty leadership and collaboration with Office of Student Affairs for CHS exploratory and pre-major students, (2) establish a College-level UGE Leadership Committee to connect all undergraduate programs and tie to professional/graduate programs and other CHS resources, (3) establish a Director of Undergraduate Studies for CLM and HHS programs, and (4) re-configure the Clinical Sciences Department by removing Physician Assistant Studies and Clinical Nutrition, eliminate its divisions, separate the Clinical Leadership and Management and Human Health Sciences programs, and revise leadership structure. Subsequent detailing of a reorganization proposal commenced that included reconfiguration of current CHS departments from 2 to 5 with elimination of divisions. Meetings with the Associate Dean of Academic Affairs and the UG program faculty directors as a preliminary step in establishing the UGE Leadership Committee are ongoing.

Program-specific Innovations

Athletic Training faculty submitted a proposal for a 3+2 Master's Program. The proposed change in degree requirements and the curriculum complies with new standards set forth by the program's professional accrediting body. This sequence provides a pathway for students to achieve the requisite credit hours to obtain their selected bachelor's degree and the master's degree in AT as efficiently as possible. The Human Health Sciences,

BS degree program in the College designated a Pre-Athletic Training option for these students. The first cohort of freshmen students entered the university in the fall of 2018 and transition to the master's curriculum in the fall of 2021.

Clinical Leadership and Management faculty undertook an extensive revision of the program's curriculum, incorporating community partner focus group feedback, healthcare management trends and established competencies, and knowledge and skills required for CLM graduates to be competitive for graduate/professional education or employment opportunities. The curriculum more strongly emphasizes financial management, leadership components of strategic planning, quality improvement and interpersonal leadership and includes a sequenced applied practicum experience for all students. The curriculum revision also includes the first courses established in CHS using the College-level prefix: 1) CHS 150 Interprofessional Healthcare Seminar for Freshmen and 2) CHS 354 Interprofessional Evidence-based Decision Making. These courses are required for CLM majors and open to all CHS undergraduates. The curriculum was approved and will be implemented beginning Fall 2019 during the teach-out of the previous curriculum. The program is planned for both classroom and online delivery.

Human Health Sciences and Physical Therapy faculty submitted a proposal for an accelerated HHS + DPT degree, which will enable high-achieving and strongly motivated students to earn a bachelor's degree and a Doctor of Physical Therapy degree in six years rather than 7. The 3+3 program proposal is a supplement to the existing Pre-Physical Therapy track within the HHS degree program that was previously approved by the Senate in 2013. This program will provide UK students interested in Physical Therapy a portal to obtain the pre-requisites, and then receive consideration for admission into the UK DPT program. The accelerated degree BS/DPT program will provide an academic and financial advantage to UK students by reducing the number of academic years necessary to complete both degrees, and subsequently sit for the National Physical Therapy Exam for licensure as a physical therapist. A savings of one year of tuition and living expenses provides an acknowledgement for the well-prepared and focused student via financial benefit.

Medical Laboratory Science created an online MLT to MLS program. The program is targeted to those who have an earned associate degree from a medical laboratory technician (MLT) Program. There are a substantial number of regional MLT programs; the graduates of which earn significantly less and generally cannot advance to management positions in clinical laboratory settings in the absence of a bachelor's degree. Students must satisfy the University of Kentucky general education core courses and the Medical Laboratory Science (MLS) program pre-requisite courses before beginning the MLT to MLS track. These core courses and program pre-requisite courses can be taken at a local higher educational institution and transferred into UK. The program offers the potential to increase enrollment and provides a conduit for professionals to advance in the profession.

Professional Pathway and Career Development

Two pilot sections of *HHS 101 Survey of Healthcare Professions* were offered specifically for CHS exploratory students in the Fall 2018. A total of approximately 60 students were enrolled in the course, which was led by a teaching team consisting of two faculty and the CHS Director of Advising. Students were introduced to healthcare professions via speakers, readings, and discussion and engaged in career exploration and self-assessment in reflection and investigative assignments in collaboration with the Stuckert Career Center. This class was evaluated as being a helpful addition to the exploratory work of the students. A College-level course, CHS 101 Introduction of Healthcare Professions (2 credits) has been developed and will be submitted for approval in Spring 2019 with planned implementation in Fall 2019.

Examples of integration of co-curricular options and career-focused content include introductory courses, such as the HHS 101 course and several sections of the 120 course series, which provide introductions to specific professions. These courses included required participation in co-curricular activities from a selection of options that included ones focused on career/profession and career decision-making. The Stuckert Career Center collaborated with CLM 120 to assist with career planning activities and also with CLM 595, the capstone course, for students to synthesize their learning and develop action plans focused on career planning and professional development.

[IHRC] Building a culture of collaboration in the health sciences

The health care industry demands a level of collaboration that often goes unnoticed. In school, competition can overtake students as they battle for the best scores and the best clinical experiences. That's why the College of Health Sciences participates in the Interprofessional Healthcare Residential College (IHRC), a living-learning program (LLP) that emphasizes support, collaboration, and community among health sciences disciplines.

Affectionately nicknamed "iRock," the program groups together approximately 200 students with a passion for healthcare spanning all University of Kentucky colleges. These students then live and learn together for several years.

"IHRC makes a very large campus feel much smaller and more intimate. This naturally builds community," said Brendan O'Farrell, PhD, director of the program. "It also does a great job of broadening and individualizing all of the learning that takes place in the classroom and incorporating that into every aspect of a student's life. Learning becomes more holistic."

"Our programmatic structure takes academic learning into a whole new setting and allows for learning that is difficult to incorporate into a class schedule, such as discussions of faith in healthcare, how mass incarceration affects society, and so on," said peer-mentor Jacob Zimmerman, a second-year human health sciences and gender and women's studies major.

> "IHRC really helps residents **learn how to work with people** that may think **differently**."

The connected coursework does more than encourage interdisciplinary learning; it also fosters an interprofessional connection. "We work really hard to build interpersonal relationships between college students," Zimmerman continued. "At other residence halls, you may not know everyone on your floor. In fact, you might never meet your next-door neighbor. At IHRC, all students have shared programmatic experiences so they really are a part of each other's lives and peripherals."

Creating the next generation of interdisciplinary leaders

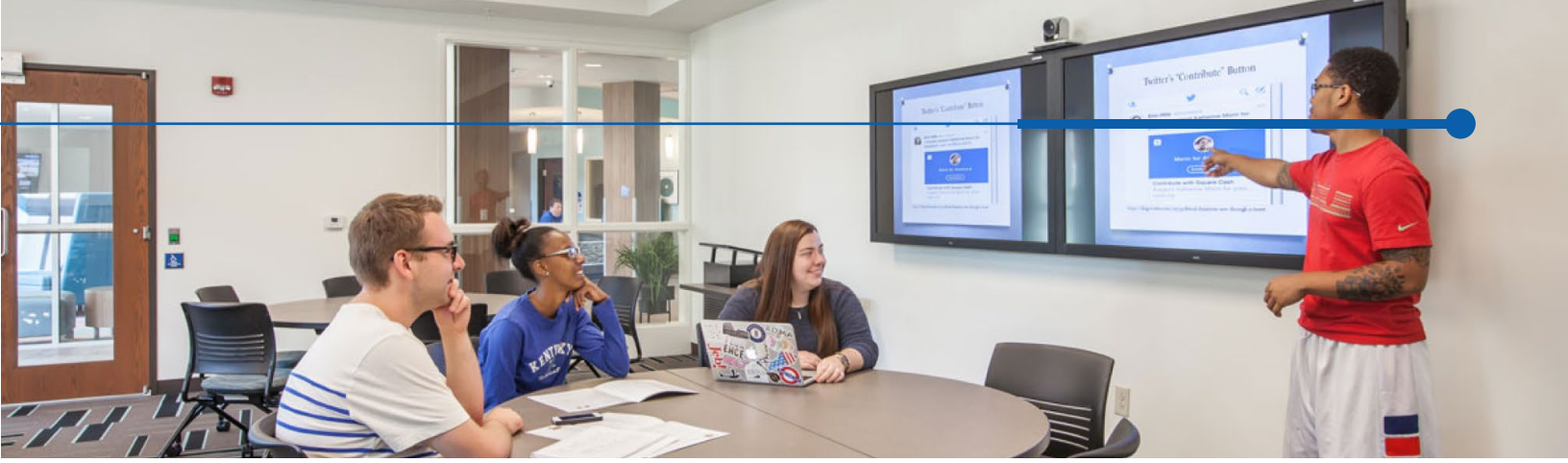
Lori Stolz, a senior human health sciences major on the pre-physical therapy track, noted the strength of the IHRC community lies in the shared struggle. "No one truly understands the pressure that health science students are under better than their peers," she said.

For example, a pre-physical therapy student and pre-med student might band together to study difficult coursework or pre-nursing students struggling with their chemistry courses may seek help from a pre-physician assistant studies peer. This variation in talent contributes to the strong sense of belonging omnipresent within IHRC.

IHRC Awards AY2017



The UK Women and Philanthropy Network awarded the IHRC a $27,000 grant to recognize and support its continued success surrounding diversity and inclusion. This grant funds housing scholarships for first-generation and underrepresented students so that they can more easily afford to return to the IHRC for a second year.



Additionally, IHRC serves as a window into other programs teaching students to develop collaborative skills and interdisciplinary communication before a profession demands it.

"Our students may vary in pursuit of a health care position, but they grasp the understanding of interprofessionalism and will develop knowledge on how different fields intersect," Zimmerman said. "This also contributes to the sense of educational flexibility our program provides. Many young individuals come into our program unsure of their path, and by exploring other programs thanks to their peers, one may find the transition between, say, PT and dentistry, a bit easier."

IHRC also hosts a variety of social and professional events to foster students' sense of community and their understanding of multiple aspects of health care. "We may host meetings with the Center for Interprofessional Healthcare Education or opportunities to explore other locations on campus such as the College of Medicine, College of Pharmacy, or the Sports Medicine Research Institute," Zimmerman said.

"IHRC really helps residents learn how to work with people that may think differently," added Stolz. "You learn to see the strengths and weaknesses in your own way of thinking, and the strengths and weaknesses of others' lines of thought. Students also learn to appreciate and respect what other professions do in practice. All of this is important when working in an interprofessional team and discipline."

For many students vying for admission into selective programs, the competitive process is difficult to navigate. Especially when you are competing against your friends and peers. In IHRC, students work to support each other during this process.

"Even though your peers are people you will eventually compete against for spots in grad school, it doesn't feel like a competition," Stolz said. "You want everyone around you to succeed because you see first-hand how hard everyone works. You celebrate your friends' successes, they celebrate yours, and you pick one another up when hard times come."

Zimmerman agreed. **"We try to lift each other up,"** he said. "We tell each other about opportunities coming to campus and what different events are being hosted. We really try to make sure that we're accounting for each other's needs and providing everyone with the encouragement to reach their goals."

The IHRC LLP was selected as the **"LLP of the Year" led by director, Dr. Brendan O'Farrell.**

Woodland Glen V/IHRC Resident Director **Sarah Sheldon** was awarded **"Resident Director of the Year"** honors by her colleagues in Residence Life.

Dr. Brendan O'Farrell was awarded the **Pam Woodrum Angel Award** by the Office of Residence Life.

Undergraduate Student Success

[METRICS]

METRIC	DEFINITION	CHS BASELINE	CHS 2021 TARGET
Retention Rates	**First-Year** *(Fall 2014 Cohort)*	**85.2%**	**90.0%**
	Second-Year *(Fall 2013 Cohort)*	**74.2%**	**85.5%**
	Third-Year *(Fall 2012 Cohort)*	**72.6%**	**82.0%**
Graduation Rates	**Four-Year** *(Fall 2010 Cohort)*	**41.5%**	**53.5%**
	Six-Year *(Fall 2008 Cohort)*	**56.7%**	**70.5%**
Six-Year Graduation Gap for select groups (decrease)	**Underrepresented minorities** *(Fall 2008 Cohort)*	**24.0%**	**14.2%**
	First-generation *(Fall 2009 Cohort)*	**26.7%**	**10.3%**
	Pell recipients *(Fall 2008 Cohort)*	**27.5%**	**12.0%**
Post-college Outcomes	**Graduate Education Rate** **Employment Rate** • **Overall** • **Medically underserved communities**	**Calculation method under review**	



Additional progress reports and to-date metrics can be viewed online here.

Strategic Objective Two:

[GRADUATE & PROFESSIONAL EDUCATION]

The College of Health Sciences expanded opportunities for graduate students to garner the resources necessary to succeed as scholars and professionals in the health sciences and to graduate with less financial debt. One way the college does this is through assistantships and funding to support graduate students. Student teaching assistantships increased from 0 to 5, and the average stipend for students on assistantships increased over the strategic planning period. Additionally, a number of college scholarships/endowments were created or endowed over the last two years to assist with graduate student funding including: The Daus Family Scholarship in Physician Assistant Studies, The Dwain Robert Rice Memorial Scholarship and the McDougall Student Endowed Scholarship for Physical Therapy students, and the Paul A. Thornton Distinguished Professorship and Fellowship scholarship monies for graduate students in clinical nutrition.

Faculty grants are also key contributors to reducing graduate student financial burden. The College was awarded a $1.6 million, 4-year grant from the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA) to provide scholarships for full-time students earning a master's degree in Communication Sciences and Disorders (CSD) in Fall 2016. Project Directors are Drs. Anne Olson and Sharon Stewart. The overall purpose of the Scholarships for Disadvantaged Students SUCCESS (Speech-Language Pathology: Strengthening Underserved Communities through Enhanced Student Support) program is to support students from disadvantaged backgrounds, thus increasing the number of licensed and certified speech-language pathologists employed in medically underserved communities. Nearly forty students have been awarded over one million dollars in the first three years of the awarding period.

QUICK LINKS: **Amy Hehre** | **Aphasia Lab**

The integration of service, education, and clinical care is exemplified in the two highlights below. **Above all, we want to produce students who become competent, confident, and compassionate health care practitioners in their chosen fields.** In addition, to the competency based professional instruction students are exposed to, many have participated in, and in some cases, have been leaders in the area of professional service.

For example, physician assistant studies graduate **Amy Hehre** used the expertise she gained at CHS to build and open a clinic for displaced children and orphans in Kenya. Amy displays an intrinsic desire to serve and an extraordinary spirit to extend the education and skills she learned at CHS to children who might not have access to health care without her energy, care, and compassion. Similarly, students in the Communication Sciences and Disorders graduate program have the opportunity to learn firsthand from the premier scholar/clinician in **aphasia rehabilitation**. Exposure to- and participation in the life's work of Dr. Robert "Bob" Marshall offers a unique educational experience between mentor and mentee. This relationship is a staple of the quality of the graduate educational experiences for students in the College of Health Sciences.

Graduate & Professional Education

[PAS PROGRAM PREPARES ALUMNA]

for Her Calling in Kenya

In June 2015, the unthinkable happened to physician assistant studies student Amy Hehre. Her three-year-old nephew, Ovidio, passed away. A "nephew through love", as Amy puts it, "Ovi" was an orphan cared for by Amy's sister.

Nearly three years later, Amy and her husband, Robert, have changed countless lives as founders of the nonprofit **Ovi & Violet International**, and its accompanying medical facility in Kenya called OVI Children's Hospital.

The love their nephew felt during his brief life is now given to thousands of Kenya's 3.6 million orphans who come to the hospital in search of free medical treatment for some of sub-Saharan Africa's most critical cases of curable and chronic disease.

"These children have nowhere else to look for medical care they so desperately need, since most of the orphanages that house them run on a monthly budget of $400 or less," Amy said.

The vision for Ovidio's namesake originated during a pre-professional health care mission in 2012. After realizing that her dream was to become a doctor and travel the world, Amy set about making her dreams a reality and applied to the University of Kentucky College of Health Sciences' Physician Assistant Studies (PA) program where she received the hands-on education and widespread support needed to make her mark in Kenya.

"We are delighted that we were able to attract a student with such an incredible dedication to outreach," said Scott M. Lephart, PhD, Dean of the College of Health Sciences. "It is a privilege to be part of Amy's story and to provide her with the skills, knowledge, and experiences that she will take with her to the children of Kenya. We've all heard the expression 'I can't be everywhere.' Well, the College of Health Sciences can be everywhere through the care and healing provided by our alumni, faculty, and students."

"My professors were among the most encouraging people in my journey to founding the OVI Children's Hospital," Amy said. "Being a full-time student and opening a hospital simultaneously was a challenge I could not have met without their continued belief in my dreams and their dedication to equipping me for my future."

While studying in the PA program, Amy gained a great deal of experience she has put to use during her time in Kenya. **"The staff expertise and clinical rotation opportunities were a perfect match for my international focus and long-term goals,"** she said.

This abundance of patient-to-PA experience has provided invaluable in establishing relationships with those cared for at the OVI Children's Hospital. "Whenever I go in, I don't see someone as a map or a piece of technology I need to fix. I see them as someone's daughter, as someone's friend, as someone's cousin, favorite student, or best friend," Amy continued.

According to Amy, her decision to study at the UK College of Health Sciences Morehead campus provided crucial insight into practicing medicine in underserved areas. This education transitioned seamlessly to her mission in Kenya. "While access to advanced healthcare in my region of Kenya is significantly less than that of rural Kentucky, the principles of the rural-health track were extremely beneficial in my preparation for this work," she said.

At Ovi & Violet International, Amy carried abroad the College of Health Sciences' tradition for compassionate medical care through her message of hope and healing to those who have known so much pain. "People ask us, 'Isn't caring for children with terminal conditions going to be a sad life?" she said. "We always tell them that we aren't afraid of being sad. We're afraid of what will happen if no one takes the risk to love them." ●



"Being a full-time student and opening a hospital simultaneously was **a challenge I could not have met without my professors** continued belief in my dreams and their dedication to equipping me for my future."

- Amy Hehre, PAS Alumna

College of Health Sciences

[APHASIA LAB]

Helps Stroke/Traumatic Brain Injury Survivors Find Their Voice

Imagine you're trying to carry on a conversation with a friend: You can clearly envision the sentence in your mind, the carefully constructed thoughts and words are all there. But, as soon as the words reach your lips, they sound wrong. In fact, what you are now verbalizing sounds nothing like the thought in your head at all. For many people who survive a stroke or traumatic brain injury, this is just a snippet in a day in the life of living with aphasia.

Aphasia is an acquired language disorder usually resulting from a stroke or trauma in the brain's dominant hemisphere. The condition causes a disconnect in the areas of the brain responsible for language and can impact a person's ability to speak, read, write, and listen (ranging from very mild to severe). There is no cure for aphasia and most patients struggle with lifelong side effects.

This search to alleviate symptoms and help those affected by aphasia regain language function is where Robert Marshall, PhD, F-ASHA, CCC-SLP, BC-ANCDS, HONORS-ASHA, professor in the communications sciences and disorders (CSD) program at the University of Kentucky College of Health Sciences, has dedicated more than 50 years of his life's work.

Marshall has been recognized as a clinician, particularly for his scholarly works on Wernicke's aphasia (when the ability to grasp the meaning of spoken words and sentences is impaired) and the use of group therapy. His funded research has examined the role of self-correction in recovery from aphasia, efficacy of aphasia treatment, treatment of aphasic naming deficits, and problem solving in individuals with neurological compromise.

"Many people with aphasia stay in treatment and work to improve their language skills for much of their lives," Marshall said. "In addition to my teaching and research, I supervise our students in a program called the Aphasia Lab at the UK College of Health Sciences. This lab is a place where people living with aphasia can receive a variety of services while our students gain real-world training with the disorder."

The Aphasia Lab—which is part of the larger CSD Academic Clinic—is a selective program that offers individual and group speech sessions and support for families and their members who suffer from aphasia. There are currently 25 participants in the program ranging in age from 25 to 89 years old.

"This lab is primarily open to people with aphasia who have a strong will to keep improving their language skills," Marshall said. "Our current medical care system is often based on "fix it or cure it" model which doesn't work for aphasia. People with aphasia aren't getting the rehabilitation services they need. Services are diminishing, and our lab is stepping in to fill this gap."

The "life participation approach"

In addition to traditional speech-language interventions, much of the work in the aphasia lab is based on the "life participation approach" (LPAA). "The LPAA approach is based on positive psychology and doing what you can to help people live with aphasia as successfully as possible," Marshall continued. "Aphasia treatment isn't just limited to the person living with the condition. It includes advocacy and education for family members, too."

This could mean spouses must learn new ways to communicate with their partners or family members can begin advocating for more aphasia awareness within their communities.

Marshall stressed helping families find this type of new normal is imperative. "Aphasia isn't a disorder that receives much awareness or funding. There's a lack of knowledge that exists and, and unless it happens to you, you would probably wouldn't give it a second thought," he said. "The reason the disorder takes a toll is because people living with aphasia must adjust with the impairment to their normal lives. Having a conversation or balancing a checkbook suddenly becomes a difficult task."

The power of rediscovering your voice

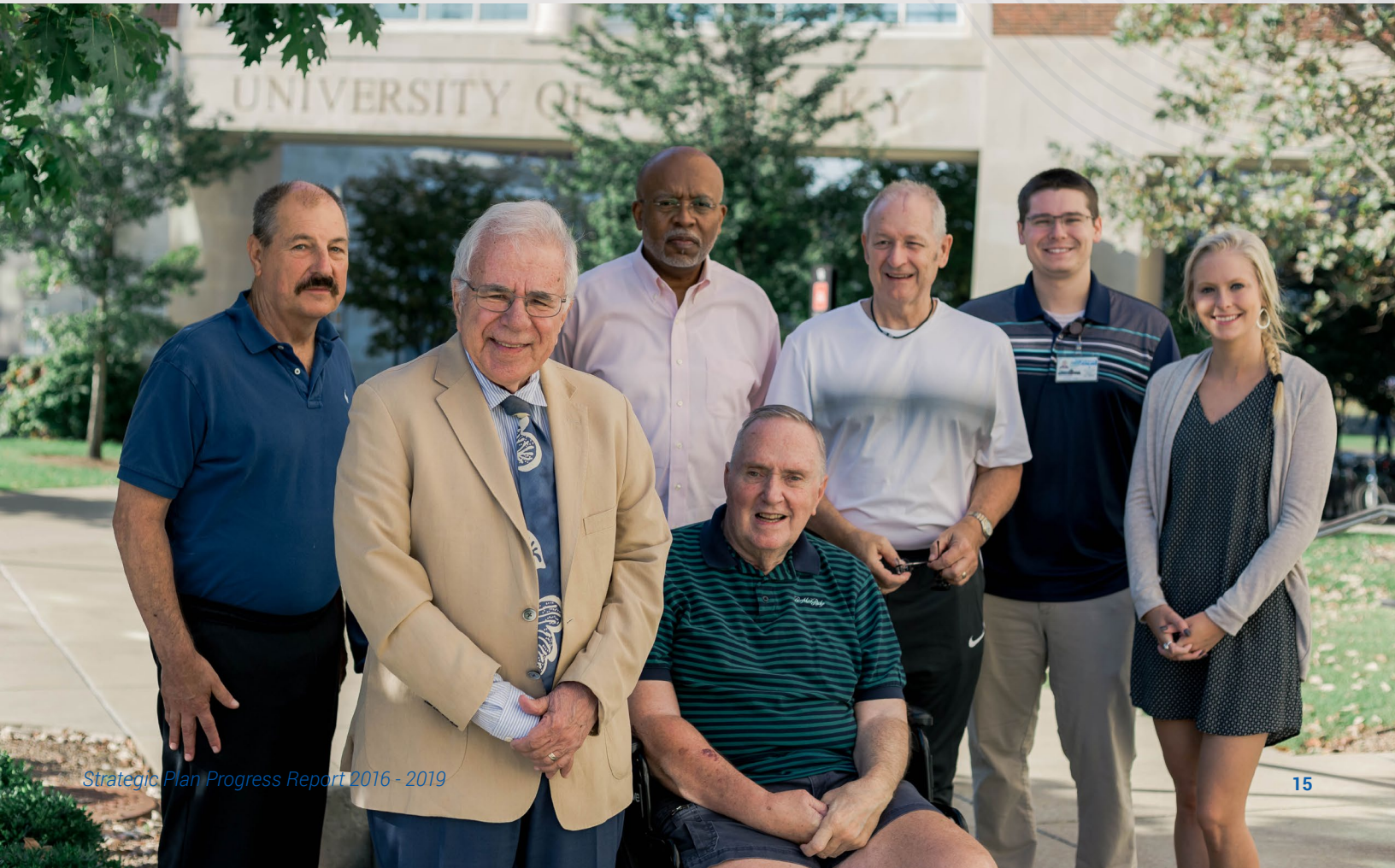
Deborah Walker's 25-year-old son Carson started Marshall's program last year. In 2016, Carson experienced a stroke and is now living with aphasia in the aftermath.

"Happiness is a choice we make every day," Walker said. "What we've learned through this experience is nothing is going to touch our joy. I'm so grateful Carson is able to work with CSD students through this program. It gives him a chance to be around people his age. That's really important. It helps him to feel more normal and connected."

Eighty-nine-year-old Audrey Sitzlar has faithfully attended Marshall's program since its inception more than a decade ago. After her stroke in 2003, she now lives with a more severe form of aphasia affecting her speech, reading, and writing.

"She hates to miss sessions because she doesn't want the students to miss out on their education," said her husband, Steve Sitzlar. "Thanks to this program, Audrey has gained back many of the words she lost to her stroke. She can carry on small conversations now."

"We've never hidden the fact that Audrey has aphasia," Steve continued. "She is not defined by her disability. We are just honest and transparent that for us, it may just take a little more time. **Her voice is still important. Her voice should be heard.**" ●



Graduate & Professional Education

[METRICS]

METRIC	DEFINITION	CHS BASELINE	CHS 2021 TARGET
Graduate and Doctoral Program (selectivity)	**Percentage of applicants who receive offers of admission**	AT **10.1%** CSD **20.1%** PAS **25.8%** PT **16.2%** RHB **55.0%**	**Keep selectivity below UK target of 22%** **PAS: decrease by 4%** **RHB: decrease by 15%**
Graduate Degrees Awarded (2015-16)	**Master's, doctoral degrees awarded[2]**	AT **14** PAS **54** CSD **33** PT **62** RHB **5** CHS Total: 168	**Increase CHS total by 8%**
Diversity of Students, per CPE enrollment Goals (Fall 2015)[3]	**% of African American/Black Students**	AT **8.7%** CSD **1.5%** PAS **3.1%** PT **5.4%** RHB **0.0%** Total Masters: 3.1%	**Increase 2% from current status**
	% of Hispanic/Latino Students	AT **4.3%** CSD **1.5%** PAS **0.6%** PT **2.9%** RHB **0.0%** Total Masters: 1.2%	**Increase by 0.3%**
	% of First Generation Students	AT **0.0%** CSD **5.9%** PAS **15.3%** PT **8.3%** RHB **17.9%** Total Masters: 11.4%	**Programs ≥ 10% remain stable;** **Programs < 10% increase by 2%**
Post-college Outcomes	**Graduate Education Rate** **Employment Rate** • **Overall** • **Medically underserved communities**	**Calculation method under review**	

[1] *Source: Data provided by CHS Office of Student Affairs. Calculation provided by CHS Office of Assessment.*

[2] *Preliminary data for 2015-16. Professional programs are capped by space and accreditation standards.*

[3] *Due to the PAS admission cycle, data reported are as of Spring 2016.*

Additional progress reports and to-date metrics can be viewed online here.

Strategic Objective Three:

[DIVERSITY & INCLUSIVITY]

The College of Health Sciences is devoted to an environment of belonging. Several initiatives have taken place or are in-process to assist our students, staff, and faculty, as they navigate the journey to better understand the meaning of inclusivity in the college. Much of the work to-date focused on developing opportunities to broaden the discussion of how to be more inclusive and grow to appreciate and learn from our biases; in particular, on understanding the attributes of- and how biases affect our daily lives and interactions. The goal is not to condemn or confirm, but to better understand and gain a greater appreciation of values and beliefs.

Recent diversity initiatives included unconscious bias training for all faculty and staff, unconscious bias training for faculty searches and targeted diversity practices considerations during faculty searches, and several college-wide events. In 2018, the College participated in a Day of Belonging that was simultaneously conducted at the Lexington, Morehead, and Hazard campuses. Highlighted below is a **short video** from the Day of Belonging documenting student diversity and a sense of connection to CHS. In addition, there are several students whose work to create a culture of belonging deserves special mention. There is no greater indication of strength and resilience than the courage to share difficult topics that are personal. Identification of important issues like depression and mental health that are often not discussed, takes immense personal conviction and courage. Kennedy Guess' development of the *Still We Rise Banquet*—an event borne out of her own resilience and journey to honor UK students facing adversity documents the power to provide attention to the often taboo topic of mental health.

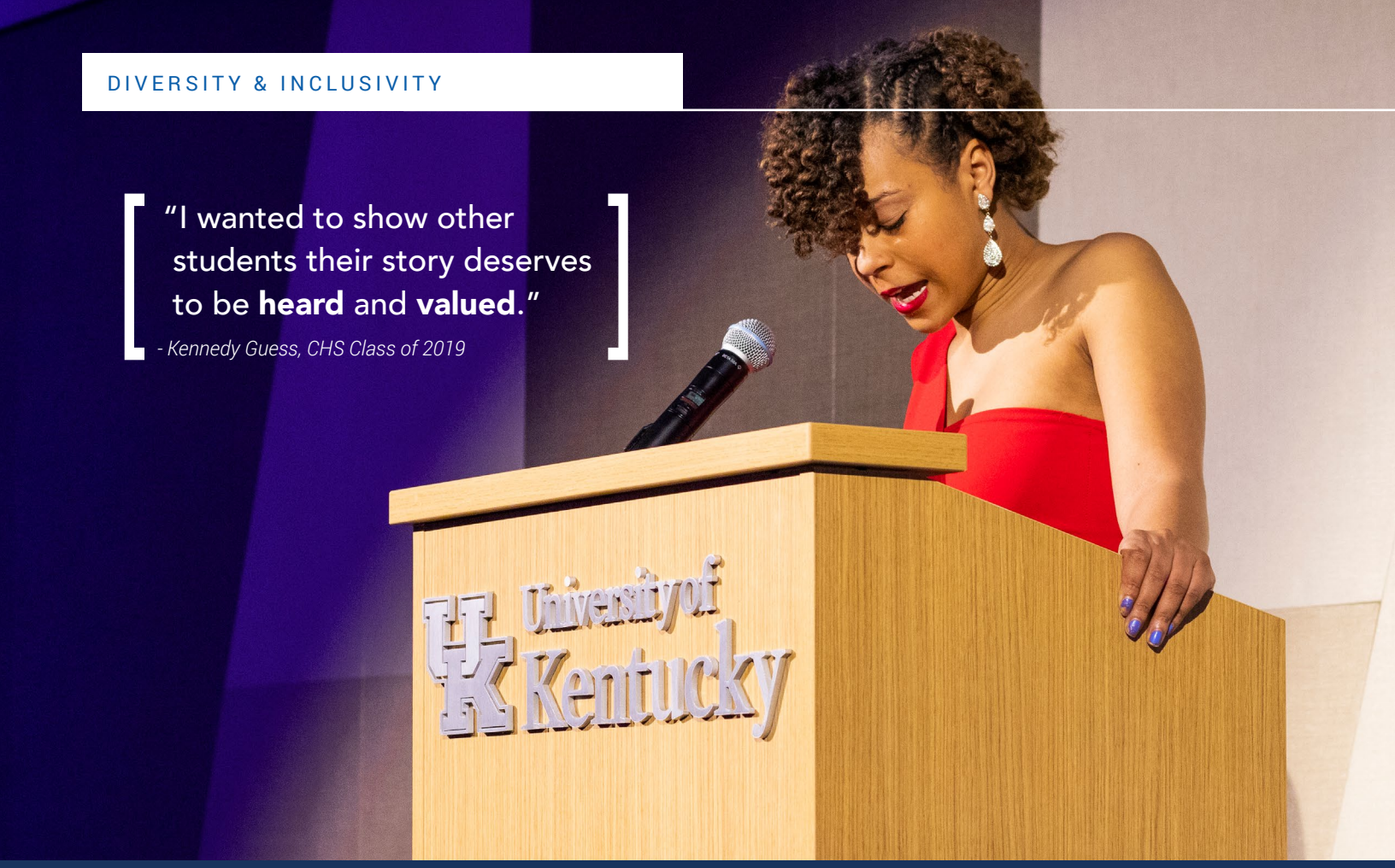
QUICK LINKS: **Still We Rise**

Day of Belonging Video

Savannah Jones & Eman Issa

Savannah Jones and Eman Issa are a CHS student ambassadors, a representative group of students who have demonstrated outstanding achievement in academics and student leadership. The CHS ambassadors serve the college and assist with student recruitment, speak to community and university groups, plan social, philanthropic and educational activities for peers, and represent the college at receptions and meetings. They help provide a sense of belonging and it is powerful to hear their account of why CHS is a place that works to improve and promote belonging and a respect for all differences. Kennedy, Savannah's and Eman's experiences (**below**) are first-hand accounts of how CHS strives to meet our strategic goals of engaging diverse worldviews and perspectives by increasing awareness of diversity and fostering a diverse community of engaged students, staff, and faculty.

> "There is no greater indication of strength and resilience than the **courage** to share difficult topics that are personal."



> "I wanted to show other students their story deserves to be **heard** and **valued**."
>
> *- Kennedy Guess, CHS Class of 2019*

CHS and UK students who have overcome adversity honored at first annual

[STILL WE RISE BANQUET]

On February 21, conversation filled the room as communication sciences and disorders senior Kennedy Guess made her way from table to table thanking her guests for coming to the first annual Still We Rise Banquet—an event borne out of **her own resilience** and journey to honor UK students facing adversity.

The winners of the Still We Rise award, Natalie Hopkins and Rasheen Turner, are both undergraduates from the College of Health Sciences. Four other students spanning different UK colleges were also named as finalists for the award. Each student recognized shares a piece of Guess's personal testimony and all have conquered significant hurdles during their college journey.

Guess's story could have turned out differently, but thanks to the unwavering support of her friends and family, she is now a bold advocate for mental health awareness on campus. Nearly three years ago, during the second semester of her freshman year, the depression she'd been suffering from since the age of 15 came to a crux. "I tried to commit suicide a few times," Guess said. "I couldn't function. I just couldn't adapt to being in college."

Guess left UK on medical leave that same semester and returned home where she received the services needed for her recovery. "I returned to school in the fall of 2015. As I learned more about my peers, I found so many people shared versions of my story, but the difference was they didn't have a support system like I did to help them heal," she said. "Instead, these students were walking through their struggles alone."

In that moment, Guess knew she wanted to bring a spotlight to mental health and spark conversations about the tough issues. "It may be taboo, but people on campus are suffering," she said. "And sometimes you are able to excel in the face of suffering. I wanted to highlight this and show other students their story deserves to be heard and valued."

Resilience and courage in the face of pain, grief, and uncertainty was a recurring theme throughout the night. As Guess recognized junior social work major Alana Copas, junior art studio major Brianna Armstrong, senior psychology major Taris Brashers, and sophomore family science/coaching major Joshua Paschal as finalists for the Still We Rise award, she explained the difficulties they've dealt with and overcome. All four finalists received a $350 scholarship.

Copas lost all of her hair after being diagnosed with non-scarring alopecia, but now tells children the truth about her diagnosis: living with her condition is hard, some people will be unkind, but your hair or lack thereof doesn't make you any less wonderful or beautiful. Armstrong's world was shaken by sexual assault but, through her art and determination, she made it back to solid ground. Brashers cared for her cancer-stricken mother while juggling a twenty-hour workweek and full-time education. UK athlete Paschal's life turned upside down after he found a malignant melanoma (skin cancer) on the bottom of his foot. He battled it and soon returned to the football field only a few months later.

The winners of the Still We Rise Award, Natalie Hopkins and Rasheen Turner, will each receive a $1000 scholarship.

Hopkins, a communication sciences and disorders major, fought to continue her college career after both of her parents suffered life-altering incidents. Hopkins' father is living with a traumatic brain injury sustained during a near-fatal accident and later her mother was diagnosed with advanced oral cancer. Shaken by the idea of losing her family, Hopkins continued to apply for graduate programs and vigorously attempted to regain her own footing.

"I'm not someone who's satisfied with merely surviving," she declared during her acceptance speech. **"So, I want to speak up for those who can't and give a voice back to the voiceless through my career. Hiding my adversity is not the example I want to set for my patients."**

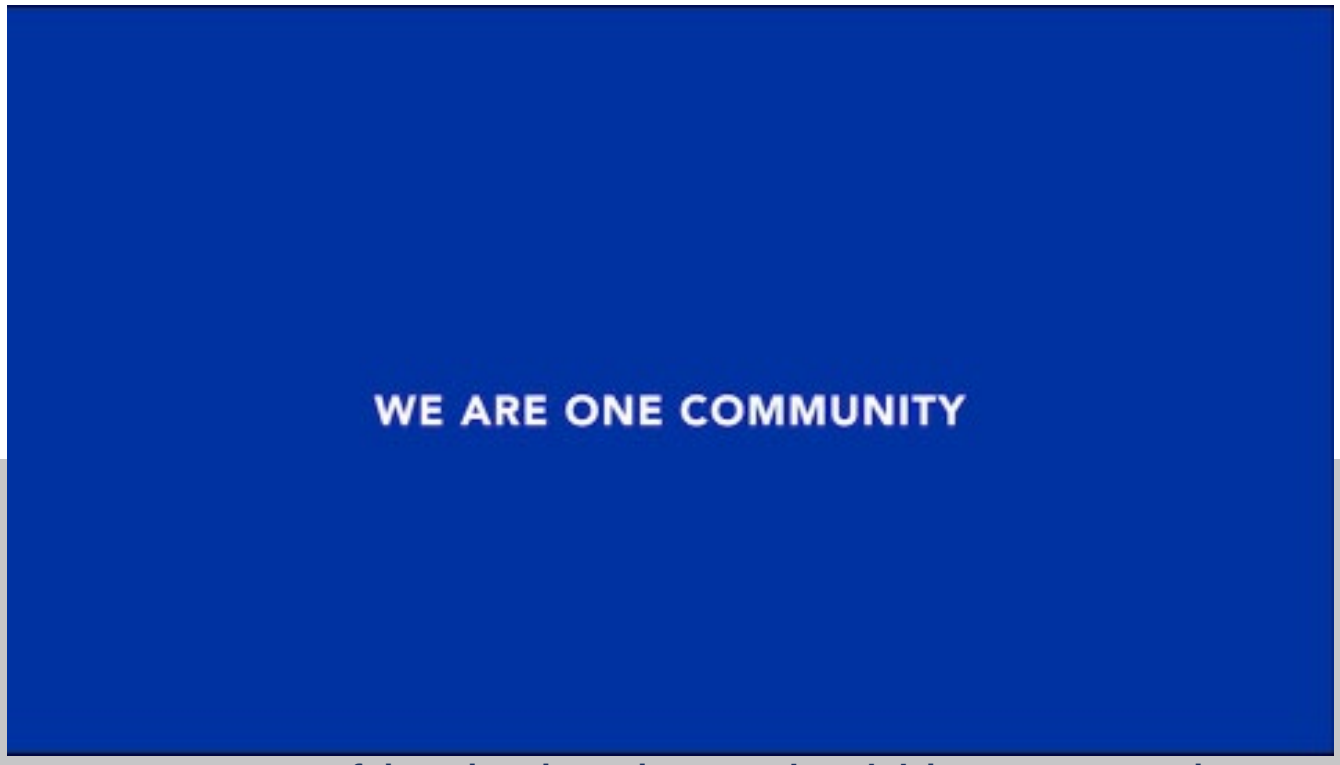
Rasheen Turner, a clinical leadership and management major, grew up in a rough, poverty-stricken neighborhood where he was stereotyped, silenced, and surrounded by violence. His experiences left him to cope with post-traumatic stress disorder. Turner's courage to tell his story progressed into a passion to provide care to the populations that need it most. "A young black man like myself is not supposed to be standing here today," he said. "My life and experiences will be a testimony to the future Rasheens, the future Obamas, and the future Maya Angelous."

In her speech, Guess challenged the university to provide greater support to students like herself, Turner, Hopkins, and the other finalists as UK considers the future of student support services on campus. "Place a mental health specialist in every dorm," she said. "Everybody struggles in college, and most struggle in silence. **I want to diminish the stigmas associated with mental health disorders and sexual assault. I want to acknowledge the strength and courage of my classmates in overcoming the difficulties in their lives and succeeding. I want to start a conversation that makes people uncomfortable, because discomfort promotes change."**



Student Diversity at CHS

[DAY OF BELONGING]



If the video above does not play, click here to view it in browser

On August 29, the College of Health Sciences celebrated a Day of Belonging. The purpose of this event was to highlight and recognize the importance belonging plays in creating a culture of acceptance so that all members of CHS feel supported.

One objective of the CHS Diversity and Inclusivity committee is to work collaboratively to create a space where all students, faculty, and staff live or work in an environment of openness and acceptance, and in which people of all backgrounds, identities, and perspectives can feel secure and welcome. Similarly, the Code of Student Conduct supports our promise to embrace diversity and inclusion and to respect the dignity and humanity of others.



"When I visited UK, and specifically CHS, **it felt like coming home**. The CHS staff were so personable and service-oriented. They were always willing to answer any question I had and immediately take care of my needs. I fell in love with the genuine hospitality of the school. **It was real here.**"

- Savannah Jones, Class of 2020, HHS student

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"I always knew I wanted to come to the University of Kentucky. **As soon as I took a communication sciences and disorders class, I knew this is what I wanted to do.** As a CHS student ambassador, I love talking about what I'm passionate about and helping others find out what they are passionate about."

- Eman Issa, Class of 2019, HHS student

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Diversity & Inclusivity

[METRICS]

METRIC	DEFINITION	CHS BASELINE	CHS 2021 TARGET
Enrollment percentage of URM **Undergraduate & Graduate Students (CPE Underrepresented definition)[1]**	**Undergraduates** *(Fall 2014)*	**11.8%**	**15.0%**
	Graduates *(Fall 2014)*	**6.7%**	**9.0%**
Graduation rate for underrepresented students	**Undergraduates[2]—6 year cohort** *(Fall 2008)*	**35.3%**	**50.0%**
	Master's—3 year cohort *(Fall 2012)*	**100%**	**100%**
	Doctoral—7 year cohort *(Fall 2008)*	**--**	**95.0%**
Faculty (2015-16)	**Female**	**43.6%**	**48.0%**
	URM Faculty Total	**5.5%**	**8.0%**
	African American/Black	**3.6%**	**5.0%**
	Hispanic/Latino	**1.8%**	**3.0%**
Executive, Administrative, Managerial (2015-16)	**Female**	**66.7%**	**70.0%**
	URM EAM Total	**0.0%**	**8.0%**
	African American/Black	**0.0%**	**10.0%**
	Hispanic/Latino	**0.0%**	**10.0%**
Professional (2015-16)	**URM Professional Total**	**10.0%**	**15.0%**
	African American/Black	**6.7%**	**8.0%**
	Hispanic/Latino	**3.3%**	**7.0%**

[1] *Underrepresented Students includes the following race/ethnicity categories: American Indian/ Alaskan Native; Black, non-Hispanic; Hispanic. Underrepresented minorities (URM) as defined by the Kentucky Council on Postsecondary Education (CPE) includes the following race/ ethnicity categories: American Indian or Alaskan Native, Black or African American, Hispanic, Multi-racial/Two or more races, Native Hawaiian or other Pacific Islander.*

[2] *First-time, full-time freshman*

Additional progress reports and to-date metrics can be viewed online here.

Strategic Objective Four:

[RESEARCH & SCHOLARSHIP]

QUICK LINKS:

- KARRN
- SMRI
- Undergraduate Research
- Center for Muscle Biology
- Jacobson Innovation Awards

Scientific inquiry and the discovery and creation of new knowledge provides clinical scientists the opportunity to advance health care and rehabilitation. Interdisciplinary research teams in the College focus on areas related to frailty and injury prevention, rehabilitation, and voice and language disorders. Our faculty are experts at translating findings, so their research leads to novel intervention and rehabilitation strategies to improve health and function by reducing illness and disability. Two examples highlighted below include the work undertaken by the **Sports Medicine Research Institute (SMRI)** to support military special operators with achieving optimal physical and mental performance and the **Kentucky Appalachian Rural Rehabilitation Network (KARRN)** to improve the lives of citizens in rural Kentucky impacted by neurological conditions such as strokes or traumatic brain injuries.

Several faculty in Communication Sciences and Disorders were awarded funding from the Department of Education to enhance therapeutic interventions for students across the Commonwealth. Drs. Judy Page and Jane Kleinert implemented a program designed to educate special educators and speech-language pathologists to collaborate in the development of effective communication systems for students with moderate or severe intellectual disabilities and complex communication needs. Dr. Joneen Lowman's grant funding will prepare 40 graduate-level speech-language pathologists in the effective utilization of telepractice, thereby increasing students' access to speech-language services in rural Kentucky schools.

Function and motion are integral to daily activity. Work in the Biomotion Laboratory, led by Dr. Brian Noehren, focuses on studying patients with orthopaedic injuries and developing physical therapy strategies to alleviate chronic pain, improve muscle function, and restore healthy movement patterns. The bulk of the lab team's research portfolio centers around anterior cruciate ligament (ACL) injuries which disproportionately affect younger people. The "Biomotion Lab" incorporates the biological mechanisms that drive motion such as muscle and the nervous system which are central to the mission of reducing muscle loss after injury or surgery and restoring bio-motion.

Charlotte Peterson, PhD, is the director of the UK Center for Muscle Biology (CMB). CMB fosters collaboration among clinical and basic scientists, catalyzes translational research, stimulates educational activities, and increases national recognition for the University in the field of muscle-based research. Highly funded, Peterson and her team focus on muscle tissue, more specifically on the consequences of aging, disease, and injury. Much of their work concentrates on the role of muscle stem cells that occurs during aging contributed to sarcopenia (age-associated loss in muscle mass and strength). Under her direction, collaboration of the CMB and CHS faculty include studying: the role of Vitamin D and muscle metabolism (Dr. Travis Thomas), the anabolic effect of massage in muscle (Drs. Tim Butterfield & Esther Dupont-Versteegden), age-related changes to the laryngeal muscle (Dr. Joe Stemple), and sucking performance in babies born prematurely or with conditions that complicate feeding (Dr. Gilson Capilouto). **The Center for Muscle Biology** serves as an interdisciplinary effort that fosters research from the bench to clinical application.

Communication and transparency are necessary to provide the college with the best advantage for extramural participation and success.

CONTINUED ON NEXT PAGE

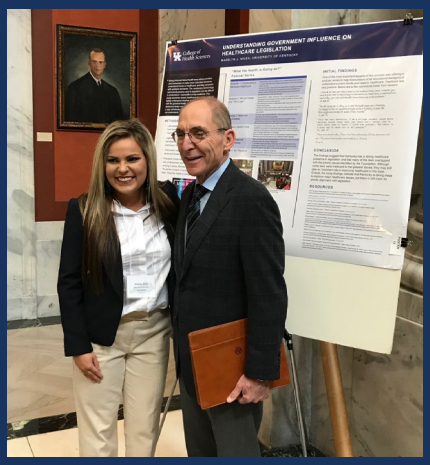
Research & Scholarship Intro CONT.

In order to increase success in obtaining and tracking extramural funding, the Office of Research created an electronic bi-weekly newsletter that highlights funding and training opportunities with discipline-specific announcements. The newsletter is an important resource to bring new opportunities to faculty and also assisted with increased faculty submissions. Additionally, the research office team developed a novel and integrated translational database. It also provides personalized research opportunity announcements, workshops, collaborator matches, and provides a mechanism to highlight faculty contributions and success.

Exposure and participation in research provide benefits to the student so they can develop independent critical thinking skills along with oral and written communication skills. The CHS Office of Undergraduate Research delivers opportunities for students to understand how scientists work on problems, learn laboratory techniques, and analyze data and integrate theory and practice. Students gain comprehension in how knowledge is constructed and develop self-confidence and better understanding of potential career paths. Maddie Miles' innovative podcast to deliver complex healthcare law information in a digestible way to the public highlighted below exemplifies the excellence of the undergraduate research program.

Additionally, The College of Health Sciences offers the first undergraduate certification in research. The Certificate in Undergraduate Research in Human Health Sciences provides any University of Kentucky undergraduate student with the opportunity to gain advanced knowledge in interdisciplinary, clinical, and translational research in the human health sciences fields. The Undergraduate Research Program engages more than 50 students across the University per semester and awarded nearly 10 undergraduate research certificates to-date.The program relies on several types of mentors. The undergraduate research program integrates 19 faculty, 2 post-doctoral students and 3 doctoral students, respectively.

College efforts to support the spirit of discovery through entrepreneurialism are highlighted in the Jacobsons' story below. Faculty in the college are provided exemplary services to meet the CHS goals of expanding our scholarship, creative endeavors, and research across the full range of disciplines to focus on the most important health-related challenges of the Commonwealth, our nation, and the world. The highlights listed below provide a glimpse into the exciting research happenings in the CHS supporting our strategic plan.



CHS student discovers passion to educate Kentuckians about health care legislation

As the latest health care headline flashes across the news, it can be difficult to make heads or tails of what exactly is happening in our state legislatures, and how these changes in policy impact the average citizen. That's why Maddie Miles, a junior human health sciences major at the University of Kentucky College of Health Sciences, decided to spring into action by creating her podcast series, "What the health is going on?"

Miles's podcast covered national topics of interest and focused on how the government works, how bills become law, and then discussed three of the most important Kentucky health care laws: Senate Bill 91 ("Tim's Law", addresses mental health and the patient's ability to make health related decisions), Senate Bill 89 (a bill dedicated to providing insurance for tobacco cessation), and House Bill 314 (made the use of the online reporting system, KASPER, mandatory in hospitals and emergency rooms).

CLICK HERE TO READ MORE

KARRN Celebrates A Decade of Transforming Lives in Rural Kentucky

The Kentucky Appalachian Rural Rehabilitation Network (KARRN) has spent the past decade investing in citizens of rural Kentucky who have experienced a neurological condition such as a spinal cord injury, stroke, or traumatic brain injury. Their collaborative team has transformed countless lives by helping survivors improve quality of life and reintegrate into their communities.

The idea for KARRN began as a question posed by founder Pat Kitzman, PT, PhD, associate dean for research in the UK College of Health Sciences, and KARRN co-director Beth Hunter, PhD, OTR/L, assistant professor in gerontology at the UK College of Public Health.

Patients are treated for a neurological injury and recover to the point of being sent home, many to a rural Kentucky



community with limited services. What then? How do those with life-changing neurological conditions fare once home? ⬢

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UK Sports Medicine Research Institute Awarded $4 Million from U.S. Department of Defense

The University of Kentucky Sports Medicine Research Institute (SMRI) received a $4 million research contract from the United States Department of Defense (DOD) and Office of Naval Research to expand research focused on determining optimal physical and mental fitness among elite U.S. military members.

For the last three years, the SMRI has worked with the Marine Corps Forces Special Operations Command (MARSOC) human performance program at Camp Lejeune, North Carolina, to study injury prevention and create new ways to optimize physical performance in its personnel.

"**I have been amazed by the SMRI at the University of Kentucky. Whether it is their work with active duty military and veterans, UK's stellar student athletes, or on critical women's health issues, the results their team has delivered have been nothing short of astounding**," said Congressman Hal Rogers (KY-5).

"I am confident that the SRMI will continue this record of excellence with the Department of Defense. We owe our men and women in uniform the best, and I know that this research partnership will enable MARSOC operators to always be able to perform at the highest level—whether training here at home, or in harm's way around the world."

"In the rich, evolving history of the University of Kentucky, one constant remains – the University's close ties to training and supporting members of the United States Armed Forces," said University of Kentucky President Eli Capilouto. "Today, researchers at UK are confronting the most complex questions and profound challenges facing our military. The SMRI is a powerful example of interdisciplinary collaboration leading to vital discoveries benefiting our warriors, our Commonwealth and beyond." ⬢

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[MUSCLE POWERS HEALTH]

Muscle Research in the UK College of Health Sciences

"**Skeletal muscle is an amazing system. We can translate research findings from mouse to human, human to mouse.** We can do longitudinal studies, obtaining muscle tissue pre and post exercise or pharmacological intervention in humans. That's not possible in the brain, the liver, or the heart. Muscle is the one tissue where we can actually study the aging process, the influence of chronic disease, and physical activity in humans. It's incredibly powerful," said Charlotte Peterson, PhD, professor in the College of Health Sciences and director of the Center for Muscle Biology.

As a professor of geriatrics at the University of Arkansas for Medical Sciences, Peterson was primarily a basic scientist but was becoming more and more interested in translating her research on muscle in animal models into humans. She was drawn to the UK College of Health Sciences because it was an ideal place to perform translational research; the College was rich in expertise in athletic training, physical therapy, rehabilitation, and other human health sciences. Peterson enthusiastically joined the faculty in 2006 starting her tenure as the Joseph Hamburg Endowed Professor and the Associate Dean for Research.

UK had a robust muscle research program in 2006, but the College of Health Sciences was just beginning its own program under Peterson's leadership. At the time, it was assumed that muscle stem cells were involved in the physiological muscle adaptation to exercise, but it had never been proven, leading Peterson to ask her originating question, "What are muscle stem cells doing in normal muscle?"

In 2009, Peterson and John McCarthy, PhD, associate professor of physiology, were awarded an R21 exploratory grant from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) to define the role of stem cells in adult muscle growth. "We fully expected that muscle adaptation would be impaired in mice depleted of stem cells. But, to our surprise, the muscles grew without stem cells present. It was a hard sell for the research community," Peterson said.

Characteristic of good science, one question led to another question. One study led to the next. In 2010, Peterson and McCarthy received a five-year NIAMS R01 to expand their study of stem cells in adult skeletal muscle adaptation. "We showed that regeneration is impaired, but muscle hypertrophy (growth) was unaffected. The early phases of muscle growth occurred without stem cells. These observations really changed the way people are thinking," Peterson said. These findings were published in *Development* in 2011 with follow-up articles in *The FASEB Journal* and *Cell Stem Cell*, all high-impact journals, and challenged long-held dogma in the field.

In 2015, Peterson and McCarthy received another R01 to study the effects of exercise on muscle stem cell dynamics during aging from the National Institute on Aging (NIA). Peterson and her team hypothesized that the loss of muscle stem cells that occurs during aging contributed to sarcopenia, age-associated loss in muscle mass and strength, potentially laying the groundwork for stem cell therapy.

"We are also interested in studying muscle loss within the context of different chronic diseases - whether it's cancer or arthritis or heart disease. With my background in muscle and my interest in aging, sarcopenia was a good place to start." She said

"But what we're finding," she continued, "is that muscle stem cells are not necessarily the panacea." Once again at odds with commonly held scientific

beliefs, Peterson said, “People didn’t want to hear that the reduction of stem cells over the course of aging does not cause sarcopenia. Just adding more stem cells is not the answer.”

This provocative work was published in *Nature Medicine* in 2015. “I would say people are still not generally happy about that,” she said. Peterson isn’t easily discouraged though. “It’s kind of surprising in some ways that we’ve managed to stay on top of the game, maintaining funding, when so many of our results have been negative. But you have to go where the data takes you,” she said.

Peterson has, indeed, stayed on top of the game. She has been continuously funded from the National Institutes of Health for over 25 years, and currently holds as a principal investigator an extramurally supported grant portfolio valued at more than $9.5 million, including grants from NIAMS, NIA, and more recently from the National Institute of Diabetes and Digestive and Kidney Diseases.

Peterson’s interest in muscle has not waned over the years “I think the system is elegant; it has such a beautiful structure,” she said. **“Still, to this day, when I look through a microscope at a dish, and I see these little muscle cells start to twitch, contract like a muscle fiber, it just astounds me. It’s so amazing.”** ●

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CHS Hosts Inaugural Jacobson Innovation [AWARD SYMPOSIUM]

Former University of Kentucky faculty members and successful entrepreneurs Elaine and Myron "Mike" Jacobson look at more than financial statements to measure the results of their business ventures – they also look to the quality and quantity of the therapeutic applications of their research. "Research is where our hearts are," said Elaine. "Our thrill is the research."

They are academics at heart, after all, and this thrill for research is alive and well, and increasing, at the University of Kentucky College of Health Sciences through an award established in their name: the Myron and Elaine Jacobson Innovation Award.

The Jacobsons co-founded **Niadyne**—a pharmaceutical development company that focuses on the discovery and development of uniquely efficacious molecules to prevent and treat skin conditions that result from an impaired skin barrier.

Now, royalties from sales of Niadyne products are used to inspire and support research at the College of Health Sciences through a collection of resources including a Lunch and Learn series and the establishment of the Myron and Elaine Jacobson Innovation Award. Developed in 2017, the award was created to generate and accelerate interest in entrepreneurial efforts among CHS faculty, administration and professional staff. It currently focuses on new, independent ventures in the seed, start-up, or early growth stages.

On Feb. 20, the UK College of Health Sciences hosted the inaugural Myron and Elaine Jacobson Innovation Award Symposium at UK's Chandler Hospital. Faculty, students, and staff gathered to learn more about how the Jacobsons have successfully traversed from scientific research to commercial ventures, and why they are now encouraging that same spirit of innovation at CHS.

Fostering research and discovery is at the heart of the Jacobsons' vision moving forward. The successful commercialization of their research made possible a collection of resources for faculty and staff of the College to pursue similar paths of entrepreneurship. The resources included a Lunch and Learn series that took place over the course of 2018.

Through the series, Scott Black, MD, co-founder and president of Sword Performance Products and the director of the UK Physician Assistant Studies program; Mariam Gorjian, new ventures manager in the Office of Technology Commercialization; and Gilson Capilouto, PhD, CHS director of undergraduate research and co-founder and chief clinical officer of NFANT labs, used their experiences in entrepreneurship to provide advice regarding market research, technology assessment, business planning guidance, and marketing and funding strategies to faculty and staff who hope to pursue the same path.

As the symposium kicked off, Elaine Jacobson educated attendees on how Vitamin B3 (niacin) affects the maintenance and functions of a healthy life span. These findings are now being used for the prevention and therapy of multiple diseases known to develop with increased age. Later, Mike Jacobson spoke about the therapeutic implications of skin barrier impairment and repair.

In addition to the symposium and Lunch and Learn series, the 2017-18 Jacobson Innovation Award recipients, Charlotte A. Peterson and Vrushali Angadi, were each invited to present about their unique projects.

"You'll always stand on the shoulder of those who came before you," Elaine said. "The UK College of Health Sciences has come far in recent years," continued Myron. "And we are gratified by this award. For things to grow you have to seed them. It is our hope that this award will seed more innovation in the years to come."

2017-18 Myron and Elaine Jacobson Award recipients



"MyoAnalytics—The Ultimate Analytical Platform for Muscle Research" is the brainchild of **Charlotte A. Peterson, PhD,** Joseph Hamburg Endowed Professor with the Center for Muscle Biology, and **Yuan Wen, PhD,** from the UK College of Medicine, whose research focuses on skeletal muscle wasting associated with injury, chronic disease, and aging. Drs. Peterson and Wen continue to expand the capabilities of the software program, MyoVision (developed by Wen), which enables precise, automated quantification of muscle properties to assess effectiveness and interventions. A dedicated workstation was established for high throughout analyses, and there has been great interest in MyoVision in the muscle research community. More than 90 labs across the world are now using the software pioneered by Peterson and Wen.



Vrushali Angadi, PhD, CCC-SLP, assistant professor in communication sciences and disorders, developed and tested a user-friendly smartphone application for the delivery of a voice therapy program. Key features of the application include a video-modeling of the voice exercise postures for the patient, as well as the ability for the patient to send a video recording of their home practice to their clinician on a secure server. These two features were focused in the app development phase with the intent of improving patient accessibility and monitoring adherence to the therapeutic program in the most accurate fashion. Presently, there are no commercially available smartphone apps that exist for voice therapy.

Research & Scholarship

[METRICS]

METRIC	DEFINITION	CHS BASELINE	CHS 2021 TARGET
Total R & D Expenditures (2014)	CHS Federal Research Expenditures	$1.48 million	$1.85 million 25% increase
	CHS Total Research Expenditures	$1.52 million	$1.9 million 25% increase
	CHS Total Extramural Expenditures[1]	$1.67 million	$2.1 million 25% increase
Proposal Submissions/ Success Rate (2014)	Faculty/Staff Grant Submissions with CHS PI[2]	27 proposals	32 proposals 25% increase
	Number of faculty submitting grants as PI[3]	13 faculty	16 faculty 25% increase
	Proposal submissions involving community partners	4 submissions	6 submissions 50% increase
	Collaborative grants with CHS faculty as co-investigators	15 faculty on 22 proposals	27 proposals 25% increase
	Proposal Success Rate [4]	28%	35%
Doctoral Program Ranking	Number of postdoctoral scholars/fellows *(2016)*	5 Post-docs	25% increase
	Number of fully-funded doctoral students on grants *(2016)*	5 Students	Increase funded students by 25%
	Time to completion of Doctoral Degree Program[5] *(3-year average- 2014, 2015, 2016 graduating cohorts)*	6.83 years	4 years

[1] *This includes extramural expenditures across all functions, including research, instruction, public service, and fellowships.*

[2] *Includes LOIs, pre-applications, and full proposals to internal and external funding sources.*

[3] *Community partners are non-academic institutions, i.e. Homeplace, YMCA, Public schools, etc.*

[4] *This metric is the truest determinant of an effective research enterprise. It speaks to innovation, relevance, and faculty expertise. Overall proposal submissions could decrease as long as the hit rate increases.*

[5] *Includes all graduating students regardless of attendance intensity (full- or part-time).*

Additional progress reports and to-date metrics can be viewed online here.

Strategic Objective Five:

[OUTREACH & COMMUNITY ENGAGEMENT]



Service is at the heart of our story. The College is an integral part of the University community and its reach extends beyond campus to include the city of Lexington, the Commonwealth, and the world. Fostering a sense of connectivity and inclusion between the College, University, and the greater community is crucial to prepare students in the classroom, solve complex problems facing Kentuckians, and support the College's mission to help all people attain the highest level of health possible.

Community engagement is about cultivating relationships and bringing connectivity between the classroom, research lab, and experiential learning with people and organizations to make a positive, significant, and lasting difference in the lives of society. Our students and faculty are engaged through multiple mechanisms including scholarship, teaching, research, creative activities, and service. Efforts to expand partnerships with UK Healthcare and community partners to develop clinical practice and applied research opportunities is a key strategic focus. The development of UK Pediatric Therapies at Child Development Center of the Bluegrass (CDCB) is one such example. The CDCB helps children develop skills through purposeful activities and maximize their full potential. The programs offer outpatient pediatric therapy and evaluations for speech/language, occupational therapy and physical therapy.

College outreach and engagement results in the sharing of information in and out of the classroom to foster a synchronous relationship with the community. The small and large accomplishments that are seen in patients dealing with **amyotrophic lateral sclerosis** (ALS) are made possible when we bring together community and university-based knowledge in and out of the classroom to the clinic. In the story highlighted below Edward Kasarskis, MD, PhD, director of UK's ALS Multidisciplinary Clinic, and Tony English, PT, PhD, director of the Physical Therapy program, collaborate to help find novel treatments for this rare type of neurodegenerative disease in Kentucky patients.

QUICK LINKS: **ALS** | **Telehealth**

The UK ALS Clinic employs a collaborative multidisciplinary approach for care and therapy. Members of the research team include students, staff, and faculty from the Colleges of Medicine and Health Sciences. This interdisciplinary team represents professions in medicine, occupational therapy, speech language pathology, and physical therapy. This collaborative effort allows a more comprehensive treatment approach to ensure patients with ALS are better equipped to deal with the multifaceted challenges they will face when negotiating tasks of daily living.

Our faculty are continually developing inventive ways to provide therapies to Kentuckians and beyond. The care delivered using telehealth technology highlighted below is at the forefront of innovation.

> "We're trying to find a medicine that will slow or even stop the progression of ALS so that patients can live longer."
>
> *- Tony English, PT, PhD*

Collaborating across health care disciplines to [COMBAT ALS]

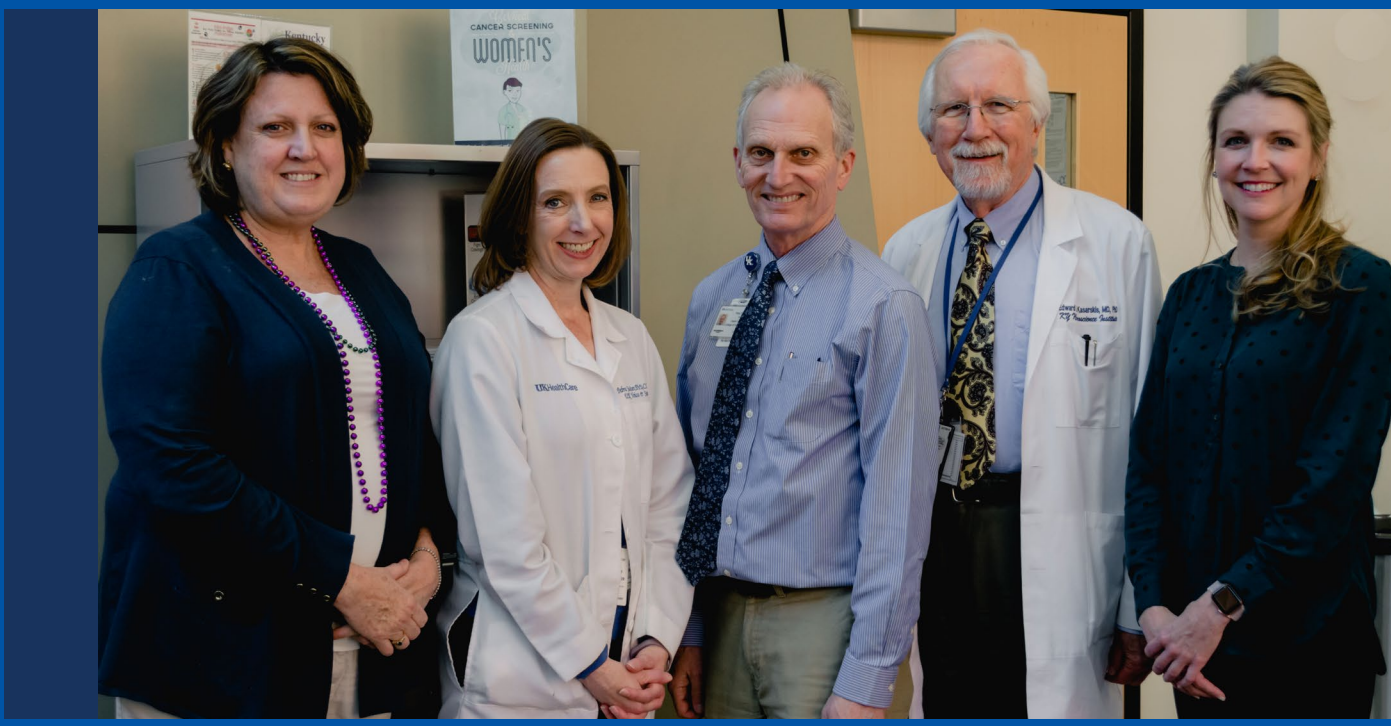


In the nineties, amyotrophic lateral sclerosis (ALS) medical specialist Edward Kasarskis, MD, PhD, director of UK's ALS Multidisciplinary Clinic, asked Tony English, PT, PhD to participate in one of his new research studies. This partnership soon morphed into a clinic and later a collaboration to help find novel treatments for a rare type of the neurodegenerative disease in Kentucky patients.

"Dr. Kasarskis was involved in several drug trials over the years attempting to find a drug combination that will either stop the progression of ALS or reverse it altogether. If he needed a physical therapist to participate in his research studies, he would call me. The ALS clinic moved to Cardinal Hill for a few years, but when the Kentucky Neuroscience Institute was established on the first floor of the Kentucky Clinic, the ALS clinic moved back to campus and the College of Health Sciences began providing physical, occupational and speech and language therapies. There, several practitioners and therapists provide comprehensive evaluations of the patients, who come in every three to four months.

"Through physical and occupational therapy, we're trying to help ALS patients maintain their highest level of function and quality of life," English said. "We educate them on how to modify their day and activities so they can keep their energy levels up and continue doing what they want to do with their families."

In addition to his teaching and practice, English is involved in two drug studies, one of which involves those who suffer from familial ALS. "There are different kinds of ALS," he explained. "One is more idiopathic, where there's no



identified cause other than possibly an inflammatory process, and the other is this familial type. The genetic mutation in familial ALS is what causes the problem. About 10 percent of people diagnosed with ALS have the familial type."

In the study involving familial ALS, the research team is attempting to discern whether or not a particular corticosteroid has a positive impact on function in people with ALS. "In Dr. Kasarskis' years of medical practice, he's seen enough people with this specific type of ALS. In this study, we administer a corticosteroid to see whether or not it slows the process of the disease down or if it helps patients maintain their functional ability. We're also testing those who present with the genetic mutation but don't present with ALS," English said.

The second study in which English is involved is a multi-site study with five or six other ALS clinics across America. "We're using a number of different data collections: muscle strength, gait speed, and others to determine how patients are performing physically while they're taking a different medication. We're looking for physical improvements that could signal a slower progression of the disease ," he explained.

There is still much to be discovered about ALS and the research done by English, Kasarskis, and the rest of the UK multidisciplinary team is incredibly crucial. In addition to English, other members of the ALS team from the College of Health Sciences include: Elise Kearns, PT, lecturer in the department of physical therapy; Debra Suiter, PhD, CCC-SLP, BCS-S, director of the UK Voice and Swallow Clinic; and Julia Smarr, OT.

"Everybody who has ALS at this point in time passes away," English said. "ALS slows the nervous system's pathways to the muscles and weakens them. Ultimately, a patient's diaphragm (muscle that helps us breathe) is affected. The typical length of life after diagnosis of the disease is about four years. What we are trying to do is find a medicine that will slow or even stop the progression of ALS so that patients can become more stable, function at the highest level possible, and live longer."

[TELEHEALTH]

Changing Health Care Education and Delivery

Imagine calling up your health care provider via video chat instead of driving miles to a clinic and taking precious time out of your day. **The concept of telehealth, or the delivery of health care services through electronic information and telecommunication, is no longer a thing of science fiction. It's very real and more common than you think.**

At the UK College of Health Sciences, communication sciences and disorders (CSD) students are learning how they can incorporate this type of cutting-edge service into their future profession.



Joneen Lowman, PhD, CCC-SLP, associate professor in the CSD program, was drawn to telehealth after teaching a distance learning master's program. "After I started doing tele-supervision in the program it naturally progressed into the delivery of services," she said. "I started researching it myself and getting my own personal training in the field so I could teach students about it."

In 2015, Lowman received a Department of Education personnel preparation grant to prepare eight master-level speech language pathologists annually (40 total) in the effective utilization of telepractice for use with children in rural Kentucky.

"Most students don't know what telehealth is or have a very limited knowledge of it. Some may not even know what the word means," Lowman said. "We hope to drive more awareness of the benefits of telehealth through our program."

Students who are accepted into the Linking Kids to Speech-Language Pathologists (LinKS) program complete two courses in telehealth and three tele-experiences in addition to the accredited CSD curriculum. During their second year of study, students complete the remaining CSD requirements and the telehealth coursework.

> "We hope to drive **more awareness** of the benefits of telehealth through our program."

In the summer of year two, students enroll in an introductory course in telehealth. The course addresses general principles of these digital service delivery model (what is telehealth, what are the laws and regulations, what is the basic technology, etc.) As part of the course, students participate in a mock peer-to-peer simulation of interacting with a patient in a telehealth setting.

In fall of year two, students complete a course specific to pediatric assessment and treatment practices via telehealth and work in pairs to deliver speech-language services to a child. In the third semester of the LinKS program, they participate in a seminar course focused on developing a telehealth program within a school setting. LinKS students independently delivery telehealth services to students in a school setting as their final tele-experience.

According to Lowman, this type of scaffolded teaching approach translates to great real-world success. "We had one student from our first cohort hired by a private practice in Kentucky. She has piloted a telehealth program with speech-language pathologists, occupational therapists, and physical therapists," she said.

A typical telehealth session will look different for every provider, but the easiest way to envision it is to think about FaceTiming with your practitioner. This type of face-to-face interaction (where the patient and provider can see and hear one another) is called synchronized communication.

Depending on the software used, telehealth services can become quite sophisticated.

"In our program we use Zoom teleconferencing," Lowman said. "Using this, I could screen-share a document with a child who is learning sentence structure and ask them to type a grammatically correct sentence. Or, I might put a document on the screen that asks a patient learning categories to circle all the animals on the sheet. So, we can do things where the child can click on a picture and it disappears or reveals something underneath it. There's so much you can do with this technology."

In addition to LinKS, the College of Health Sciences is hoping to develop a telehealth certificate. **"This certificate would be graduate level and interdisciplinary,"** Lowman explained. "It will pull in students from a variety of health care disciplines such as physical therapy and physician assistants."

Lowman also encouraged students and practitioners to think outside of the box when it comes to telehealth.

"I believe it's a real misnomer to assume telehealth is only for people living in rural areas who have limited access to care," she said. "We're seeing a huge need for telehealth in urban and suburban areas, and in inner cities who can't get therapists to come there. Families today operate under huge demands on their time. An online therapy session from home is a much easier alternative to schedule around in the busyness of our everyday routine."

Outreach & Community Engagement

[METRICS]

METRIC	DEFINITION	CHS BASELINE	CHS 2021 TARGET
Database tracking engagement and outreach	Databases dispersed among colleges and units	**Calculation method under review**	
Faculty and staff developing expertise to deliver quality community engagement and outreach	Faculty teaching community-based courses Staff teaching community-based courses		
Opportunities for students to participate in a community-engagement experience	Undergraduate community engagement courses		
Partnerships between university and community stakeholders	Partnerships among colleges and units		

Faculty & Staff

[FEEDBACK]

Send us your strategic plan related comments, questions, and ideas.

CLICK HERE TO SUBMIT FEEDBACK

