

Introducing the **MCW FUSION**™ *Curriculum*

By Anthony Braza and Sara L. Wilkins

More than a decade ago, MCW medical students matriculating for the 2012-2013 academic year were the first to participate in what was then the new Discovery Curriculum, which featured a greatly expanded clinical experience in the first two years, deeper integration of basic science and clinical education, innovative interactive learning methods and individualized learning opportunities.

And while the Discovery Curriculum became the hallmark of MCW's medical education, faculty members began to recognize additional innovation was necessary, given that in 2016 and 2017, MCW had launched two regional campuses with a three-year accelerated curriculum. Change was on the horizon as early as July 2019, when leaders in the office of academic affairs convened a 12-member curriculum exploration group and planted the seed for the next iteration of MCW's medical school education.

First-year MCW-Milwaukee medical student Autumn Bell (at left) and first-year Master's in Medical Physiology program student Tasnim Mahi (at right) confer with Lisa Ann Cirillo, PhD, associate professor of cell biology, neurobiology and anatomy, and assistant dean of the basic science curriculum, during a patient-based discussion class, October 2024.





Fast forward to July 2023 with the launch of the MCWfusion™ Curriculum – a new, phased curriculum integrating foundational science and clinical medicine, featuring clinically applicable, fully integrated basic science teaching; active, small group and inquiry-based learning methods; patient care and healthcare team experiences; and individualized, differentiated training.

“When we rolled out the Discovery Curriculum in 2012, MCW hadn’t changed the curriculum in decades. We had started to fall behind other medical schools and reviewed a large amount of data on best practices,” notes José Franco, MD ’90, GME ’93, FEL ’95, MCW professor of medicine (gastroenterology/hepatology), who led the planning process as director of the Discovery Curriculum. “We had always exceeded national levels in the number of students who matched into residencies, so people questioned why we needed to change things. But the best schools are those that are continuously changing to meet the needs of their students.”

Dr. Franco currently serves as MCW’s senior associate dean for education and the MCWfusion™ Curriculum project sponsor, along with Martin Muntz, MD, GME ’05, associate dean for curriculum, vice chair and professor of medicine (general internal medicine).

“Any good curriculum is continuously evolving. Learners are different now than 10 years ago. They have an overwhelming amount of knowledge and resources, as well as different skill sets. Some have held leadership roles and possess advanced experiences in healthcare. So we needed to adapt our curriculum to this new paradigm,” says Alexandra Harrington, MD ’04, GME ’08, FEL ’09, MLS(ASCP)CM, the MCWfusion™ Curriculum’s project co-director and MCW professor of pathology.

“Current trends in medical education emphasize holistic support and learner-centered approaches, so our goal was to develop a new, interactive curriculum focused on student well-being that incorporated personalized data-driven coaching and provided opportunities for individualized learning experiences,” says Amy Prunuske, MCWfusion™ Curriculum project co-director and professor at MCW–Central Wisconsin.

THE NEW CURRICULUM TAKES SHAPE

Throughout the second half of 2019, the curriculum exploration group reviewed curricula of other schools to understand new trends in medical education, created a draft philosophy and aims for a new medical school curriculum, and convened a retreat during

which participants reviewed materials and developed sets of organized principles for curriculum.

From December 2019 through August 2020, a curriculum steering committee finalized five operating principles (*see page 19*) and key questions needed for moving forward. From September 2020 through mid-2023, the new curriculum continued to evolve with input from subcommittees, numerous planning and review meetings, design sprints and informational retreats.

The formal curriculum launch retreat was held on June 12, 2023, to enable faculty to develop a familiarity with innovations and changes within the new curriculum and the variety of student resources used to supplement/augment the learning experience, to review processes for course and program continuous quality assurance and improvement, and more – including a celebratory reception.

Dr. Franco notes, “We learned what worked and didn’t work with the Discovery Curriculum and rolled out MCWfusion with the



(l-r) Second-year MCW–Milwaukee medical students Anika Agrwal, Elena Valentyn and Lauren Cohen attend a patient based discussion class, October 2024.

understanding that we would update it in future years. We learned that students learn best in small group settings, and during the pandemic, we were able to incorporate virtual learning – a format we hadn’t used before. We also learned that we could modify the last two years of the curriculum to incorporate an individualized component. There are common components all students need to learn, but students will be following different career paths, and they will now be able to learn skills specific to their path. We also noticed that most patients receive care in an ambulatory setting, so now the curriculum includes extra time in the ambulatory setting.”

GOALS AND STRUCTURE OF THE MCW FUSION CURRICULUM

The goals of the MCWfusion™ Curriculum are: 1) to produce competent well-rounded physicians who will be excellent clinicians in any specialty and are prepared to practice in the rapidly evolving, future healthcare environment and become lifelong learners; and 2) to provide students with opportunities to develop skills for specific career goals. The new curriculum is aligned with core competencies and incorporates competency-based assessments that drive learning. Additionally, it better integrates basic science and clinical science learning and gives students increased flexibility to ensure that they are developing the competencies needed for a successful transition to residency.

Phase 1 of the new curriculum features integration of foundational science and early clinical learning (see pages 19–20).

Phase 2 features the core clinical experiences (see page 20). During **Phase 3**, students will individualize their training, differentiating towards their specialty residency choice (see page 21).

Doctoring threads are integrated throughout all phases, emphasizing communication skills, health equity, critical thinking, patient care skills, health systems science, character and professional development, and interprofessional education and practice (see below). Students are supported through learning communities, which are designed to foster student well-being and pair students with faculty navigators to provide academic coaching.

Patient-based discussions feature consistent and standardized learning sessions during which students will study cases that apply foundational science concepts to authentic clinical scenarios. Through participation in the Scholarly Concentrations program (formerly known as “Scholarly Pathways”), students will use inquiry methods to identify a focused area of study. A Spiral Week structure (see page 19) is utilized to promote integration and student development and connections throughout all phases.

The new curriculum is aligned with core competencies and incorporates competency-based assessments that drive learning. The MCWfusion Curriculum is based on five principles that were

Doctoring Threads

Seven doctoring threads create opportunities for students to obtain the knowledge, skills and attitudes required to be successful clinicians and are incorporated into all three phases of the curriculum. Thread content is deliberately integrated across all courses and clinical experiences, allowing for spaced repetition.



CHARACTER AND PROFESSIONAL DEVELOPMENT THREAD

Aims to spark medical students' curiosity about their personal and professional development, encourages students to actively discover and foster their character strengths, and provides opportunities and experiences foundational to their professional identity formation.



COMMUNICATION THREAD

Trains students to effectively communicate with patients and families by developing relationships with individuals across a broad range of socioeconomic and cultural backgrounds, trains students how to engage in difficult conversations, and provides patient education that facilitates shared decision-making.



CRITICAL THINKING THREAD

Relies upon critical appraisal, where the medical literature is evaluated using principles of epidemiology and biostatistics, and diagnostic reasoning, where probabilistic reasoning and diagnostic schema are used to guide medical decision-making. Students learn to understand the principles of evidence-based medicine, speak the language of diagnostic reasoning and possess associated tools to utilize in deliberate practice.



HEALTH EQUITY THREAD

Trains students to be caring and competent physicians with a focus on both cross-cultural understanding and cultural humility. Students learn why health inequities exist, why they matter and the roles physicians play in mitigating them. This thread also addresses how to effectively eliminate health disparities and how to advance health equity through coalitions, system improvements and policy advocacy.



HEALTH SYSTEM SCIENCE & PATIENT SAFETY THREAD

Teaches students how to successfully navigate the complexities of the healthcare system and positively impact the quality and safety of their patients' care.



INTERPROFESSIONAL EDUCATION AND PRACTICE THREAD

Exposes students to key competencies around communication, values/ethics, roles and responsibilities, and teams/teamwork. Students will participate in interprofessional collaborative practice experiences in the healthcare setting with an aim toward delivering high-quality care with health workers from different professional backgrounds.



PATIENT CARE SKILLS THREAD

Trains students in the discreet and observable acts of clinical care, which are fundamental for the basic clinical method. These skills include taking a history, performing a physical examination, interpreting diagnostic tests, performing procedures, documenting patient encounters and selecting and monitoring therapeutics. Students engage in deliberate practice of these skills in the clinical learning environment to achieve proficiency.

“By integrating these seven essential patient-centered skills into our curriculum, we’re ensuring that our graduates are equipped to address complex healthcare challenges from the start of their careers,” says Dr. Prunuske.



(l-r) Second-year MCW-Milwaukee medical students Aaron Kleinertz, Emmanuel Okwudi and Cameron Otto attend a patient-based discussion class, October 2024.



developed by groups of faculty, staff and students at the onset of the planning process.

THE FIVE PRINCIPLES

The five principles for the curriculum redesign include:

- integration of foundational and clinical science learning throughout all years of the curriculum
- a systemic approach and focus on assessment that drives learning and assures that students achieve desired competencies
- individualized approaches to learning that are ultimately tailored to student interest and career goals
- a student-centered, inclusive culture with a focus on wellness
- an evidence-based instructional approach that is inquiry driven and utilizes active learning

LEARNING COMMUNITIES

Throughout the new curriculum, Learning Communities (LCs) provide a longitudinal structure to facilitate coaching and support. LC objectives include:

- foster student well-being
- serve as structure for achieving curricular objectives
- master adaptive learner skills and growth mindset for student lifelong learning through faculty coaching
- provide interface for coordination of other student support systems

Each LC comprises eight students and a faculty navigator.

The LC program is a component of the following courses:

Phase 1: *The Good Doctor*; Phase 2: *Thriving During Clerkships*; and Phase 3: *Preparing for Residency*. The LCs meet weekly/biweekly in Phase 1 and during the Spiral Weeks in Phases 2 and 3.

Small group discussions in the LCs include content from the Character and Professional Development Thread and may include other thread content. Many of these topics require psychologically safe learning environments, which LCs strive to provide. Coaching during Spiral Weeks includes individualized learning plan development and review. LC coaches work with students to help improve performance and unlock potential, establish and meet goals, understand and resolve challenges and focus on growth. Students meet with their respective coaches twice per semester.



First-year new curriculum students attend a patient-based discussion class in the Discovery Classroom, May 2024.

“Learning Communities are like homeroom,” says second-year medical student James (“Jimmy”) Dowd. “You are with the same eight people throughout medical school, which creates community and allows for close-knit connections. The faculty navigator stays with the group the entire time as well. They are never in a position to give you a grade, so they can help with advice and guidance and direct you to resources. They are a coach.”

SPIRAL WEEKS

During Spiral Weeks, students will integrate thread and foundational science content, foster meaningful MCW connections and create individual development plans for excellence and remediation. Additionally, students will participate in required thread sessions, have the opportunity to make up clinic days, complete missing assignments and reassess exams if needed.

As part of the Spiral Weeks, students will develop individualized learning plans (ILPs) to help identify goals and track outcomes relevant to their overall personal and professional goals. Learning Community navigators will review and share feedback regarding students’ ILPs. *(continued on page 21)*



Phase 1 - Foundational Sciences

Phase 1 is designed to expose students to the foundational sciences and replaces the two-year model in the Discovery Curriculum. Phase 1 runs for 18 months on the MCW–Milwaukee campus and 15 months on the MCW–Central Wisconsin and MCW–Green Bay campuses.

Melinda Dwinell, PhD, professor of physiology and eminent scholar, and Theresa Maatman, MD ’11, GME ’14, associate professor of medicine (general internal medicine), serve as Phase 1 integration directors. *(Phase 1 continued on page 20)*

(l-r) MCW–Central Wisconsin first-year medical students Sindu Donepudi, Hannah Kolarik, Bradley Nagel, Autumn Capper and Natasha Neumann, were photographed in May 2024 during Phase 1 of the new curriculum.

Phase 1 courses include:

- 10 Integrated Science Blocks that are organ systems–based and utilize an inquiry–based curriculum with in–person case–based learning
- Early Clinical Learning that comprises four courses: *Launch*, *Climb 1*, *Climb 2* and *Soar*. These courses provide students with early clinical experiences with an assigned preceptor to practice their clinical skills.
- *The Good Doctor*, a longitudinal professional development course that includes Learning Communities (*see page 19*) to facilitate coaching and support
- Scholarly Concentrations (formerly “Scholarly Pathways”), a two–year required component of the curriculum that offers individualized training. These include: Basic to Translational Research; Bioethics and Medical Humanities; Clinical to Translational Research; Clinician Educator; Global Health; Health Systems Management and Policy; Quality Improvement and Patient Safety; and Urban and Community Health.
- Individual Professional Development and time for United States Medical Licensing Examination Step 1

Patient–based discussions (PBD) are standardized case–based active learning sessions in which students apply foundational science concepts to authentic clinical scenarios and integrate doctoring thread objectives. In Phase 1 of the new curriculum, these weekly sessions occur during the 10 Integrated Science Blocks.

Student roles include serving as moderator, reader, searcher, scribe(s), section leader and chat monitor. A facilitator (a foundational science or clinical faculty member) guides each PBD to monitor learning outcomes; helps learners make connections between clinical perspectives and the underlying foundational science concepts; promotes student inquiry; models a growth mindset; and provides feedback.

Notes second–year medical student Jimmy Dowd, “In patient–based discussions, each week there is a clinical scenario in which you are introduced to a theoretical patient that aligns with what you are learning that week. For example, if you are on the neuroscience block, you may have a patient with multiple sclerosis. You then discuss the tests you would order, treatment course and what other disciplines you will need to bring in. You build on relationships and skills through discussions and by taking turns with different group leadership roles.”

First–year medical student Miracle Powell is surprised at how fully integrated the curriculum is into every element of healthcare. “With *The Good Doctor* course, we learn about health disparities in Wisconsin and social determinants of health. I expected to learn about the body in our physiology and anatomy blocks, but I didn’t think I would also be taught about these other facets of healthcare in my first year,” she says. “The course highlights local health disparities in chronic disease, specific to Milwaukee ZIP codes and taught us about the barriers patients are confronted with from a socioeconomic and environmental lens.”

The early integration of clinical experiences has enabled Powell to work with a preceptor in a clinical setting. She currently is rotating with Amanda Brandow, DO, GME ’05, FEL ’08, MS ’08, MCW professor of pediatrics (hematology/oncology) and director of the comprehensive sickle cell disease program at Children’s Wisconsin.

“The early clinical integration helps me to be a better physician,” Powell shares. “I can directly experience how providers interact with an interdisciplinary team and patients. There are social workers, advanced practice providers and fellows present, as well as other doctors, and I get to see how it all works together. I gain perspective on what each person does and what they look at. The early clinical integration has provided context to what we are learning in class and reminds me of why I wanted to go to medical school in the first place.”

Phase 2 – Core Clinical

Phase 2 is the clerkship year of the curriculum and replaces the M3 year in the Discovery Curriculum. Phase 2 comprises 12 months on the Milwaukee campus and begins in January 2025. Phase 2 comprises 10 months on the regional campuses and began in September 2024.

Phase 2 features integrated clerkship experiences with integrated formative knowledge assessments, Spiral Weeks in the *Thriving During Clerkship* course, continuation of Scholarly Concentrations and protected time for student well–being. The Spiral Weeks include concentrated didactic time; workshops preparing students for the upcoming clerkship; integrated problem–based discussions reinforcing foundational science; integration of doctoring thread content; and Learning Community meetings with peers and mentors.

Bipin Thapa, MD, MCW professor of medicine (general internal medicine) and assistant dean for clinical science curriculum, serves as the Phase 2 director. Leslie Ruffalo, PhD, MCW associate professor of family medicine (community), serves as the *Thriving During Clerkship* course director.

Phase 2 on the Milwaukee campus includes

16 weeks each devoted to the following:

- hospital medicine (hospital internal medicine, hospital pediatrics, psychiatry, and emergency medicine and acute care)
- surgery (general and subspecialty surgeries, obstetrics and gynecology, and anesthesia)
- ambulatory (family medicine, outpatient internal medicine specialties, and outpatient pediatrics specialties).

Phase 2 on the Central Wisconsin campus includes

longitudinal integrated clerkships with one– to two–week rotations during which students experience each specialty multiple times. These clerkships span family medicine, general pediatrics, obstetrics and gynecology, hospitalist medicine, psychiatry, general surgery and anesthesiology.

Phase 2 on the Green Bay campus includes

clinical blocks in general internal medicine, family medicine, emergency medicine and acute care, psychiatry, surgery, pediatrics, anesthesia, and obstetrics and gynecology.



First-year MCW-Milwaukee medical student Miracle Powell (at right) rotates with Dr. Amanda Brandow at Children's Wisconsin, October 2024.



Second-year MCW-Milwaukee medical student James (Jimmy) Dowd walks across the connector between Froedtert Hospital and MCW, October 2024.



(l-r) First-year MCW-Green Bay medical students Tristin Aguiar and Cole Stodola participate in the Disaster Simulation session during The Good Doctor course, April 2024.

Phase 3 – Individualization

Phase 3 is the differentiation and individualization phase of the new curriculum and replaces the M4 year in the Discovery Curriculum. Phase 3 comprises 17 months on the Milwaukee campus (beginning in January 2026) and 10 months on the regional campuses (beginning in July 2025). Phase 3 course requirements include two acting internships; at least one Integrated Science Selective course; and the *Preparing for Residency* course. Elective courses will fulfill remaining credits for completion of Phase 3.

Hershel Raff, PhD, professor in the departments of academic affairs (medical education), medicine, physiology, surgery and the MCW School of Pharmacy, and Matthew Vickery, MD '13, GME '18, FEL '19, MCW assistant professor of radiology (general), serve as Phase 3 directors.

Phase 3 courses include:

- Acting Internships
- Clinical and Research Electives
- Integrated Science Selectives, which will enhance student mastery of foundational science content, especially as it applies to diagnosis and clinical decision-making in the student's specialty of choice. This is a new course category with at least 50 percent focus on foundational science.
- *Preparing for Residency* Course
- Scholarly Project

Phase 3 tracks are guided menus of required experiences for students and include specialty-oriented acting internships, clinical and research electives, integrated science selectives and specialty-specific course sessions in *Preparing for Residency*. Tracks ensure adequate general physician training and support individualization of medical training as students differentiate toward their career specialties.

Phase 3 is in development. Work accomplished to date has included preparing Discovery curriculum courses for transition to the new curriculum; defining graduation requirements for Phase 3; planning curriculum retreats; and creating proposals for Integrated Science Selectives.

As Dowd approaches the end of Phase 1 of the new curriculum, he shares, "Over the past year, I have seen my confidence building. I was working with a trauma surgeon in the surgical ICU and saw what I was able to retain from my courses, and how I was able to connect what I learned from my blocks to the patient's case, and that gave me confidence. I believe the design and structure of the new curriculum will benefit me as a physician because I will have an extra six months of clinical experience where I will be hands-on and learning practically, and applying the skills and foundational knowledge that I learned during Phase 1."

"The people of MCW – the students in my year and other years, faculty and staff – are the reason why I enjoy being a medical student at MCW. I think the new curriculum emphasizes the community culture that is felt on campus and within the school and fosters collaboration that leads to growth for everyone involved," Dowd concludes.

First-year medical student Miracle Powell adds, "I chose global health as my Scholarly Concentration, which allows us to tailor our medical education to our own interests. This makes me feel that I made the right choice coming to MCW. The concentrations give me the chance to maximize my education."

"I am proud of how receptive MCW was to roll out another curriculum nine to 10 years after the last one. We didn't sit on our accomplishments. Our students benefited from the Discovery Curriculum, and they are benefitting even more from the new fusion curriculum," Dr. Franco says. "The support for this was overwhelming. We looked for 25 faculty to work with the small groups, and we received 45 applications. The leaders of the effort are getting the credit, but everyone came together to make this happen. The new curriculum is a success story for the entire MCW community." ■