

Case Western Reserve University – University Program Medical School

Block 4: Action Plan 2022-2023

Year 1 – July through May

<p>Becoming A Doctor</p> <p>Block 1 (5 Weeks)</p> <p>Population Health, Epidemiology, Biostatistics, Health Disparities</p> <p>Field Experiences Assessment Week</p>	<p>2 Weeks Anatomy Bootcamp</p>	<p>The Human Blueprint</p> <p>Block 2 (11 Weeks)</p> <p>Endocrinology, Reproduction, Development, Genetics, Molecular Biology, Cancer Biology</p> <p><u>Integrative Week</u> Assessment Week</p>	<p>Food to Fuel</p> <p>Block 3 (9 Weeks)</p> <p>Gastroenterology, Nutrition, Biochemistry</p> <p>Assessment Week</p>	<p>Homeostasis</p> <p>Block 4 (14 Weeks)</p> <p>Cardiovascular, Pulmonary, Renal, Cell Physiology and Pharmacology</p> <p><u>Clinical Immersion Week</u> Assessment Week</p>
<p>Structure (GARLA and “Systems and Scholarship”)</p> <p><u>Foundations of Clinical Medicine</u> (Tuesday Seminars, Communications, Physical Diagnosis, Patient Based Experiences)</p>				

1. Course Description:

The Homeostasis Block (Block 4) integrates the following disciplines: Cellular Physiology, Principles of Pharmacology, Bioethics, Physiology and Pathophysiology of the Heart, Lungs and Kidneys. The content areas are introduced individually and then integrated, primarily through IQ cases, SEQs and MCQs, and Practical Correlation Sessions and Simulated Case Presentations during Clinical Immersion week during the second half of the Block.

2. Block Co-Leaders:

Jason Mears, PhD and Vidya Krishnan, MD MHS

3. Design Team:

- Cellular Physiology:** Steve Jones, PhD (section leader) and Jessica Taylor, PhD
- Pharmacology:** Jason Mears, PhD and Tawna Mangosh, PhD (section leaders)
- Bioethics:** Kathryn (Kate) Miller, MD MA (section leader) and Mark Aulisio, PhD
- Heart:** Jim Strainic, MD and Ashish Aneja, MD (section leaders); Jose Ortiz, MD, and Elizabeth Kaufmann, MD, Bhupendar Tayal, MD
- Lungs:** Vidya Krishnan, MD MHS and Ziad Shaman, MD (section leaders); Jeffrey Renston, MD, Arvind Suguness, MD
- Kidneys:** Mimi Lam, MD (section leader) and Niraj Desai, MD

4. **Block Goals:** Please fill in the table below for your Block Goals.

Competency and Definition	Educational Program Objective (EPO)	Block Goals Block 4	Recommended Changes
<p>Knowledge for Practice Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care</p>	<p>Demonstrate ability to apply knowledge base to clinical and research questions</p> <p>Demonstrate appropriate level of clinical and basic science knowledge to be an effective starting resident physician</p>	<p>Apply principles of cell physiology to understand molecular function of the heart, kidneys and lungs.</p>	<p>none</p>
		<p>Understand how drugs affect the body and how the body handles drugs.</p>	<p>none</p>
		<p>Understand a) normal cardiovascular physiology and cardiac cell function and b) how cardiovascular diseases alter normal cardiac physiology and function at both the organ and cellular levels.</p>	<p>none</p>
		<p>Understand a) normal pulmonary physiology; and b) how pulmonary diseases alter normal pulmonary physiology and function.</p>	<p>none</p>
		<p>Understand a) the role of the kidney in maintaining homeostasis and b) the interaction of the kidneys with other organ systems, both in health and in selected disease states</p>	<p>none</p>

Common to all Blocks:			
Knowledge for Practice Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care	Demonstrate ability to apply knowledge base to clinical and research questions Demonstrate appropriate level of clinical and basic science knowledge to be an effective starting resident physician	Recognize and analyze ethical problems in clinical medicine and biomedical research using the principles of autonomy, beneficence, nonmaleficence and justice.	none
Teamwork & Interprofessional Collaboration Demonstrate knowledge and skills to promote effective teamwork and collaboration with health care professionals across a variety of settings	Perform effectively as a member of a team	Develop and practice the knowledge and skills that promote effective teamwork across a variety of settings.	none
Professionalism Demonstrate commitment to high standards of ethical, respectful, compassionate, reliable and responsible behaviors in all settings, and recognizes and addresses lapses in behavior	Demonstrate compassion, respect, honesty and ethical practices Meet obligations in a reliable and timely manner Recognize and address lapses in behavior	Understand and practice the behaviors of an ethical, respectful, compassionate, reliable, and responsible physician.	none

<p>Interpersonal & Communication Skills Demonstrate effective listening, written and oral communication skills with patients, peers, faculty and other health care professionals in the classroom, research and patient care settings</p>	<p>Use effective written and oral communication in clinical, research, and classroom settings</p> <p>Demonstrate effective communication with patients using a patient-centered approach</p> <p>Effectively communicate knowledge as well as uncertainties</p>	<p>Understand and demonstrate effective communication skills for learning and clinical practice environments.</p>	<p>none</p>
<p>Research & Scholarship Demonstrate knowledge and skills required to interpret, critically evaluate, and conduct research</p>	<p>Analyze and effectively critique a broad range of research papers</p> <p>Demonstrate ability to generate a research hypothesis and formulate questions to test the hypothesis</p> <p>Demonstrate ability to initiate, complete and explain his/her research</p>	<p>Analyze, critique and present research studies from the primary literature.</p>	<p>none</p>

5. In the grid below, please list the specific course changes you made this year based on last year's report.

What changes were made 2022-2023?	How did the changes work?	What would you like to change next year 2023-2024?
<p>Most of the curriculum was presented with in-person sessions.</p> <p>Virtual sessions were reserved for review sessions, and for accommodation of presenters when there were unexpected personal/professional urgencies.</p> <p>Smaller rooms (i.e., TBL room 181) were used out of necessity due to scheduling conflicts.</p>	<p>Students (and faculty) enjoyed interactions through in-person sessions. Again, attendance was good at the beginning of the block, but decreased over the block to lower numbers as students largely relied on recorded sessions or alternative sources.</p> <p>In-person sessions went quite smoothly again. Virtual sessions were available from the lecture hall, small group rooms, or at a student's off-campus location, depending on the schedule.</p> <p>Review sessions were formatted to be case-based learning opportunities, as well as question/answer sessions, virtually. Attendance was low, but students who attended benefitted from the discussions.</p> <p>The smaller room format was actually more engaging in some respects. Students were on the same level and closer to the presenter.</p>	<p>Provide active learning sessions for a couple of lectures in each discipline. We will have section leaders identify these and work together to develop new content. Potential workshops (virtual or in-person) for faculty groups to share ideas</p> <p>Continue to use HEC building space for teaching sessions, while maintaining acceptable social distancing. Better utilize the excellent acoustics and comfort in lecture hall, excellent A/V support in all rooms.</p> <p>Continue option for online learning through review sessions and office hours.</p> <p>Continue to format review sessions into case-based learning opportunities and active learning sessions to review key concepts. Consider combining review sessions and office hours.</p> <p>Consider having two facilitators/faculty per room for in-person TBL sessions.</p> <p>Consider incorporating EKG teaching into a TBL format.</p>

What changes were made 2022-2023?	How did the changes work?	What would you like to change next year 2023-2024?
Dr. Mangosh developed an escape room active learning session for student learning.	After developing Pharm videos for IQ cases, Dr. Mangosh has developed active learning strategies that were extremely well received by students.	Incorporate active learning sessions in place of targeted lectures in the different disciplines.
As part of the iPad curriculum development, A/V utilities were implemented with TBLs in an effort to better engage students in these sessions.	This did not work well with the older iPads due to connectivity issues with the Solstice software. Newer iPads with USB-C connections worked well, but most rooms resorted back to the Doc Camera for interactive writing/drawings.	Unless there is better adaptability for the iPads, we will continue to use the Doc Camera during TBL sessions for visual interactions.
Continued to use Poll Everywhere polls for interactive sessions.	Poll Everywhere worked well in most cases. There may be some connectivity issues due to recent updates.	Encourage additional interactive questions for didactic sessions. Incorporate additional interaction – such as face-to-face “turn talks” in the lecture hall. Educate design team members and additional faculty to become more familiar with Poll Everywhere. Continue to work with IT to ensure seamless integration.
Incorporated the use of A/V technology (Wacom tablet, iPads) into the delivery of lecture content.	Few lecturers used these devices, mostly due to unfamiliarity and a potential learning curve. UTech offered sessions to learn these tools.	Continue to use technology as it benefits the curriculum. Continue to provide sessions for faculty to learn how to implement new technologic options.
Incorporated more content on diversity into didactic lectures in partnership with student group.	This effort was discussed with section leaders in an effort to incorporate more content on diversity into didactic sessions.	Continue to reach out to additional lecturers to focus on diversity in medicine to better match other parts of the curriculum.

What changes were made 2022-2023?	How did the changes work?	What would you like to change next year 2023-2024?
Global Warming curriculum	Worked with students and Dr. Malloy to review and incorporate suggestions related to discussions of global warming as it affects health. Suggestions were incorporated into a couple of IQ cases.	We will continue to review content to identify ways to incorporate the impact of global warming on medicine.
Offered virtual office hours to students to supplement curriculum	Office hours were offered by the section leaders. There was little interest from the students.	Review sessions served as office hours in many cases and students were not as interested in these informal sessions. We can continue to offer in the future, but active learning sessions may change student perspectives and interactions with faculty.
Clinical Immersion Week	Very positive student feedback comments. There were some variations in student experiences by site. There were also differences in patient interaction experiences based on availability.	Site variability can be improved by having more planning sessions prior to the week and having a basic structure for the experience. However, it is also noted that the variability in patient experiences and variability in facilitators' clinical practices are meant to be part of the real-world experience.

6. What changes do you anticipate making to the Block next year (AY 2022-2023)

- 1) We are happy to welcome Dr. Jessica Taylor to the Block 4 Design Team in the discipline of cell physiology.
- 2) We are working to convert at least 2 lectures per discipline into video content for student consumption during the block. These videos will need to be tailored to the content, but likely each 50-min lecture will be converted into 2 to 4 videos ranging from 5 to 15 min in length, to be created with the assistance of the Dr. Daniel Salcedo and the CWRU Simulation Center.
- 3) For each two 1-hour lecture format sessions that are replaced with video content, we will include a 1-hour interactive session (TBL, S&I, workshop) where student attendance will be expected.
- 4) We will work with Block 5 to create background video content on immunology to lay a framework for the pulmonary sections (particularly asthma and ILD) – as was suggested during the Block review retreat. This will allow further discussion of biologic treatments that are currently available for these disease states.

5) We will work with the curriculum office to integrate the materials in Elantra in advance of the block. This includes updates to supporting content (videos, modules, etc.)

7. What successful, innovative components of your block are best practices that you would like to share with the other Blocks?

The reviews, particularly those with active learning sessions such as escape rooms, were positively received. Overarching slides were incorporated for TBLs to provide structure while not stifling interactions. We continued to share answers with detailed slides/documents to students after these required sessions to provide excellent review material. We also worked with UTech to implement interactive technology in the TBL rooms to encourage student engagement during the exercises and to summarize key concepts. We will continue to work to optimize application exercises and facilitator training, especially for new participants.

We continue to believe that our end-of-week Summary & Integration sessions that extensively utilize an audience response system (currently using Poll Everywhere) are a best practice of the block. This guides discussion and identifies trouble areas that can be addressed in additional review sessions.

The in-person Clinical Immersion Week experience was extremely well-received by students and is essential to the integration of block concepts and clinical experiences. Student comments indicated this might be a valuable experience in other blocks as well.

Our CaseMed Minute videos, made by Block 4 faculty to provide additional detail about specific points of physiology introduced in Block 4 curriculum, have continued to be viewed and appreciated by students. Based on requests by students and recommendations of faculty themselves, these short videos (ranging from 3-12 minutes in length) cover areas of content deemed to be ones that would benefit from more detailed explanation (done in dynamic form, often accompanied by drawing of diagrams), over and above the brief mention of these topics in our “framing” lectures in the curriculum.

We remain diligent in reviewing diversity in didactic materials and small group sessions moving forward. This emphasis was strongly implemented with the “IQ Diversity” project that began in the previous academic year. Section leaders were encouraged to incorporate and review their colleagues’ delivery of content to ensure that the examples/cases reflect the diversity of our community and highlight areas of social determinants of health.

8. What specific changes (lectures, TBL, IQ cases, other) do you plan to make to the course next year?

Changes anticipated for next year	Reason for changes (evidence)
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Create a pulmonary TBL on the topic of interstitial lung disease	Two lectures on this topic (ILD and Mechanics of Breathing) will be converted to videos. In lieu of these lectures, we will create an interactive session to clinically apply the concepts.
In addition to in-person learning sessions, identify continued virtual supplementation of curriculum (review sessions, office hours, etc.)	In-person interactions are invaluable, but virtual sessions are effective in providing easily accessible sessions to directly address students' questions and review content
Create cardiology videos to introduce overall discipline and to introduce major topics (electrophysiology, heart failure), key words and concepts.	Cardiology is an important and complex topic. We want to address the student feedback to provide more scaffolding for the topic with additional resources.
Create video content to replace 1-2 lectures per discipline	Poor student attendance of lectures, provide important Block content
Work with GARLA leaders to ensure topics are integrated with weekly themes	Student comments on mismatched Block 4 and GARLA content.

9. Please review your Block objectives. Have you added or deleted major concept areas to your Block?

None

10. Describe how faculty teaching quality was reviewed for your block. What faculty development opportunity was offered in response to student feedback?

New lecturers were encouraged to share any materials that would help them prepare in advance of their sessions, and feedback was provided quickly to help revise materials as needed. Section leaders also review Block 4 faculty teaching evaluations (lecture and TBL) and if faculty are rated poorly, the possible reasons for this are considered. Faculty in need are referred to the Center for the Advancement of Medical Learning for coaching. Participation in workshops on lecture skills is particularly encouraged. If teaching is particularly poor or efforts to align the lecture content with expectations of the curriculum cannot be achieved, then replacement teachers will be sought.

11. Response to PEAC Report

No new recommendations from PEAC were received since the report referenced in the 2019 Block 4 Action Plan.

12. Acknowledgements:

Block 4 continues to be extremely well managed by our course managers, Nivo Hanson and Beth Day. Nivo continues to provide excellent support and Beth has been an excellent addition to our team. Their efforts and professionalism (and patience) are deeply appreciated. We sincerely thank Kathy Dilliplane for her assistance in managing the formative and summative assessments for our block. We continue to be appreciative of Yifei Zhu and Kelly Qua for program evaluation overall and for each component. Celinda Miller provides outstanding IQ program support, and we are grateful to everyone in the Office of Curricular Affairs for assistance with TBLs. We also appreciate Darin Johnson, Paul Salzgeber, Megan Slabach, Nicole Pilasky and other IT partners for excellent technical support for lectures, TBLs, Block 4 virtual content and the training of all faculty on technology implementation (Wacom tablet, iPads, Poll Everywhere, etc.) Carol Chalkley's assistance with organizing Week 12 Clinical Immersion Week across 3 sites, in addition to coordinating the Cardiology Clinical Reasoning and Cell Physiology Review during the week, was invaluable and she does an amazing job juggling all the pieces that contribute to this important student experience. We continue to be thankful for the continued guidance and advice from Dr. Amy Wilson-Delfosse in managing Block 4 and all of its complexities. We also wish to thank Drs. James Finley and Al Connors who both, despite retiring from clinical work, have continued to take an active role in supporting Block 4 content. We also wish to acknowledge the entire Office of Curricular Affairs for their collaborative spirit in coordinating an integrated curriculum that included highly effective in-person and virtual sessions. They are all invaluable and we could not put forth a quality Block 4 without them!

Class of 2026 was asked questions of Block 4 components. Results are reported below as compared to results of previous three years. Responses/Expected: 184/186 (99%)

Percentage of Students who rated "Good" or "Excellent"

Block 4: Homeostasis				
General Block Aspects				
Block Components	2019-20 %	2020-21 %	2021-22 %	2022-23 %
TBLs	--	51	61	60
Lectures	--	--	66	51
IQ cases	--	--	90	90
Summary and Integration Sessions	--	--	--	77
Overall Quality of this Block	83	73	93	93
Block Concepts/Integration of Block Concepts and Longitudinal Themes				
Cell Physiology	65	51	--	65
Cardiology	--	--	74	69
Renal	92	92	99	92
Pulmonary	76	68	73	84
GARLA*	54	60	84	71
Histopathology*	76	64	80	66
Pharmacology	62	51	80	82
Bioethics	67	60	85	84

*The wording of the questions was changed to:

Rate the quality of your overall educational experience in GARLA

The Histopathology lectures were an effective tool for my learning. (Agree/strongly agree)

Starting from 2021-22 scale changed from 5-point scale "Poor-Fair-Average-Very good-Excellent" to 4-point scale "Poor-Fair-Good-Excellent"