Case Western Reserve University – University Program Medical School

Block 3: Action Plan 2023-2024

Year 1 (July – May) 2020-2021

Becoming A Doctor		**The Human Blueprint**	**Food to Fuel**	**Homeostasis**
Block 1 (5 Weeks)	2 Weeks Steps2Succes	Block 2 (11 Weeks)	Block 3 (9 Weeks)	Block 4 (14 Weeks)
Population Health, Epidemiology, Biostatistics, Health Disparities		Endocrinology, Reproduction, Development, Genetics, Molecular Biology, Cancer Biology	Gastroenterology, Nutrition, Biochemistry	Cardiovascular, Pulmonary, Renal, Cell Physiology and Pharmacology
Field Experiences Assessment Week		Integrative Week Assessment Week	Assessment Week	Clinical Immersion Week Assessment Week
Structure (Anatomy, Radiology and Histopathology)				
Foundations of Clinical Medicine (Tuesday Seminars, Communications, Physical Diagnosis, Patient Based Experiences)				

1. Course Description:

There are three topics in our block: nutrition, the gastrointestinal system, and biochemistry. These three topics are related and we emphasize the connections between the topics. At the same time, they are independent subjects with their own principles and language; it is important that you learn them as both related and independent disciplines. In addition, biochemistry and nutrition are basic sciences; these disciplines provide a vocabulary for other parts of the curriculum.

The **nutrition** section discusses the micronutrients (vitamins and minerals) and macronutrients (carbohydrates, proteins and lipids) required for human health. The vitamins and minerals are cofactors for many of the biochemical processes that are discussed in the biochemistry section. We discuss the digestion and absorption of micronutrients. Students also learn how the overall energy balance of macronutrients is necessary for growth and the maintenance of weight. We discuss the diseases and the metabolic consequences of malnutrition and obesity. *Note that the important themes of the nutrition section appear throughout the block, not just in the core sessions.*

The **biochemistry** component has two major threads. The first of these is protein structure and function. Students learn about proteins, both as structural components of cells and tissues and as enzymes. This information is important for understanding proteins as the targets of most drugs. The second thread is metabolism--the transformations of small molecules. We discuss both catabolism (the breakdown of fuels for energy) and anabolism (the synthesis of the body's building blocks). Key features of our discussion of metabolism are: i) the roles of individual

organs, and ii) the regulation of these processes to permit the adaptation of metabolism to various physiological and metabolic states.

In the **gastroenterology** section students learn about the functions of the gastrointestinal tract in health and disease. We focus on the normal physiology of these organ systems, including esophagus, stomach, small and large intestine, liver, pancreas, and gall bladder. The principal functions of these organs are the digestion and absorption of nutrients. We discuss how these functions are accomplished by integrating motility, secretion of small molecules and proteins, digestion, and absorption. This material is integrated with the presentation of the important diseases of these organs.

2. **Block Co-Leaders:**
   Colleen M Croniger, PhD.
   Ashley Faulx, MD
3. **Design Team:**
   Katarina Greer, MD
   Perica Davitkov, MD
   Mark Aulisio, PhD
   Eileen Seeholzer, MD
   Deidre Gunning and Stephanie Johnson-course managers

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

Competency and Definition	Educational Program Objective (EPO)	Block Goals Block 3	Recommended Changes
Knowledge for Practice Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care	Demonstrates ability to apply knowledge base to clinical and research questions Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician	**Understand the biochemical basis for digestion of food, and the absorption, transport, storage, and utilization of fuels in health and disease**	NC

Competency and Definition	Educational Program Objective (EPO)	Block Goals Block 3	Recommended Changes
Knowledge for Practice Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care	Demonstrates ability to apply knowledge base to clinical and research questions Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician	**Understand the importance of nutrition and its impact on metabolism for the maintenance of health and its effects on human disease.**	**NC**
Knowledge for Practice Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care	Demonstrates ability to apply knowledge base to clinical and research questions Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician	**Understand normal GI physiology and major diseases of the GI organs and the liver.**	**NC**
Knowledge for Practice Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care	Demonstrates ability to apply knowledge base to clinical and research questions Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician	**Understand the anatomy of the GI tract.**	**NC**
Common to all Blocks:			

Competency and Definition	Educational Program Objective (EPO)	Block Goals Block 3	Recommended Changes
Knowledge for Practice Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care	Demonstrates ability to apply knowledge base to clinical and research questions Demonstrates 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.**	**NC**
Teamwork & Interprofessional Collaboration Demonstrates knowledge and skills to promote effective teamwork and collaboration with health care professionals across a variety of settings	Performs effectively as a member of a team	**Develop and practice the knowledge and skills that promote effective teamwork across a variety of settings.**	**NC**
Professionalism Demonstrates commitment to high standards of ethical, respectful, compassionate, reliable and responsible behaviors in all settings, and recognizes and addresses lapses in behavior	Commonly demonstrates compassion, respect, honesty and ethical practices Meets obligations in a reliable and timely manner Recognizes and addresses lapses in behavior	**Understand and practice the behaviors of an ethical, respectful, compassionate, reliable, and responsible physician.**	**NC**

Competency and Definition	Educational Program Objective (EPO)	Block Goals Block 3	Recommended Changes
Interpersonal & Communication Skills Demonstrates effective listening, written and oral communication skills with patients, peers, faculty and other health care professionals in the classroom, research and patient care settings	Uses effective written and oral communication in clinical, research, and classroom settings Demonstrates effective communication with patients using a patient-centered approach Effectively communicates knowledge as well as uncertainties	**Understand and demonstrate effective communication skills for learning and clinical practice environments.**	**NC**
Research & Scholarship Demonstrates knowledge and skills required to interpret, critically evaluate, and conduct research	Analyses and effectively critiques a broad range of research papers Demonstrates ability to generate a research hypothesis and formulate questions to test the hypothesis Demonstrates ability to initiate, complete and explain his/her research	**Analyze, critique and present research studies from the primary literature.**	**NC**

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 2023-2024?	How did the changes work?	What would you like to change next year 2024-2025?
Biochemistry asynchronous videos , quizzes and interactive session pilot.	In general, it was well received and some improvements were suggested.	From EOB feedback and focus sessions with students the following changes were identified and will be implemented: 1. Too many short videos- Make one video. 2. Have all of the videos accessible in one place like the pharm videos. 3. Add more content and STEP questions to interactive sessions. 4. Add more MCQs to each asynchronous session.
Spread EOB reviews throughout the block instead of all in the last week.	Well received	The EOB reviews were held after each topic was completed. We will continue to do this. The EOB reviews for GI were all on hepatitis. We will organize the reviews and prep the instructors before each review is given.
Spread the Clinical Correlations throughout the block instead of all in the last 2 weeks.	Well received	We spread the Clinical Correlations throughout the block and had them correlate with the lecture and IQ material. This reduced in person required class time at the end of the block.

6. What changes do you anticipate making to the Block next year (AY 2023-2024)?

The principal anticipated changes are:

1. Work on improving the interactive sessions in response to feedback.
2. Work on improving the nutrition curriculum
    a. Add videos about vitamins to each IQ case with OLOs on nutrition. Make notability summaries for each vitamin (like the pharm videos)

b. Label all nutrition curriculum so the students know it is nutrition in IQ, TBLs and lecture

c. Remove one obesity TBL (#2) and replace it with a TBL on preventative medicine and patient vignettes with vitamin toxicities/deficiencies. The new TBL will be in the first week of the block.

d. Plan and implement 5 sessions in the teaching kitchen with Dr. Hope Barkoukis and Dr. Stephanie Harris. Students will be required to attend one session. The teaching sessions will be on how to cook for hypertension (DASH and Mediterranean Diets), planning healthy eating, cooking for type 2 diabetes, low protein/vegetarian diets, cooking to reduce cardiovascular risks.

e. Add interactive sessions for the nutrition and GI curriculum

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

The Biochemistry pilot was successful. While you can't make all students happy, this approach connected with the students who don't regularly attend lectures. This approach can be used in other blocks.

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)
Create a TBL for preventative medicine and vitamin deficiencies/toxicities	Students comment that the STEP exam questions are on vitamin deficiencies/toxicities, and they don't feel prepared.
Remove TBL#2 on obesity	Student feedback felt it was redundant to TBL#1 on obesity pathophysiology
Add nutrition notability videos to IQ cases	Students feel that they are not being taught nutrition in block 3
Add TBL on purine nucleotides and amino acid metabolism and highlight the key concepts for gout and urea cycle respectively.	In review of the SSEQ performance, students struggled with gout and the urea cycle even though these are IQ cases.

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

   No changes

10. **Did formative (MCQs and SEQs) and summative assessment (SSEQs) in the Block support achievement of block objectives? What specific changes do you plan to make to the course next year?**

We note that student performance on the SSEQ exam was similar to previous years. This suggests that the asynchronous videos and interactive sessions were successful in teaching the students.

Changes anticipated for next year	Reason for changes (evidence)
Review all SEQs and make necessary changes	To make them higher order thinking and more reflective of the SSEQ
Review SSEQ questions	Keep improving the exam- make some new SSEQ to increase our number of questions we can use. Continue to make rubrics for each question and map it to the curriculum taught

Create a catalog of all SSEQ questions that have been used in the block	Create a resource that will make it easier to write exam questions and monitor the usage of our existing question bank. Tabulate student scores to know how our questions "perform".

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

The Block leaders reviewed the feedback for each lecturer to maintain the quality of teaching in the block.

12. Response to Student Feedback

Block 3 – Food to Fuel – Highlighted Faculty Responses to Student Feedback	
Student Feedback	**Action Items**
Students comment that the STEP exam questions are on vitamin deficiencies/toxicities, and they don't feel prepared.	Create a TBL for preventative medicine and vitamin deficiencies/toxicities
Student feedback felt it was redundant to TBL#1 on obesity pathophysiology	Remove TBL#2 on obesity
Students feel that they are not being taught nutrition in block 3	Add nutrition notability videos to IQ cases
In review of the SSEQ performance, students struggled with gout and the urea cycle even though these are IQ cases.	Add TBL on purine nucleotides and amino acid metabolism and highlight the key concepts for gout and urea cycle respectively.
Students feel very little nutrition is taught in Block 3	Label all nutrition curriculum so the students know it is nutrition in IQ, TBLs and lecture Plan and implement 5 sessions in the teaching kitchen with Dr. Hope Barkoukis and Dr. Stephanie Harris. Students will be required to attend one session. The teaching sessions will be on how to cook for hypertension (DASH and Mediterranean Diets), planning healthy eating, cooking for type 2 diabetes, low protein/vegetarian diets, cooking to reduce cardiovascular risks.

13. What changes have you have made, or you anticipate in making to better prepare students to care for diverse population.

This year	Next Year
Reviewed Block 3 curriculum for any bias	Review all IQ cases, TBLs and Lecture LOs to correct potential bias.

14. Acknowledgement

We would like to thank Stephanie Johnson, Beth Day, Nivo Hanson, Deidre Gunning, Celinda Miller, Yifei Zhu, Minoo Darvish and the entire Curricular Affairs staff for their excellent work.

15. Response to PEC Report

The Block 3 design team appreciates the review and comments from the Program Evaluation Committee on the curriculum in Block 3 of the WR2 curriculum. The design team reviews these reports as well as student feedback to implement necessary changes.

Class of 2027 was asked questions of Block 3 components. Results are reported below as compared to results of previous three years. Responses/Expected: 182/184 (99%)

Percentage of Students who rated “Good” or “Excellent”

Block 3: Food to Fuel				
General Block Aspects				
Block Components	2020-21 %	2021-22 %	2022-23 %	**2023-24 %**
Lectures	--	85	75	**70**
Team-Based Learning Sessions (TBL)	45	71	38	**54**
IQ cases	92	95	95	**96**
Overall quality of this Block	85	99	92	**87**
Block Concepts/Integration of Block Concepts and Longitudinal Themes				
Biochemistry	88	91	89	**78**
Nutrition	44	71	51	**50**
Gastroenterology	--	97	89	**93**
Bioethics	38	81	77	**63**
Pharmacology	--	80	75	**75**