Case Western Reserve University – University Program Medical School
Block 2: Action Plan 2021-2022

Year 1 (August—November)

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		Integration 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

Block 2 tells the story of cellular, tissue and organismal development and function in the context of the duplication, transmission, and differential expression of the genome, the DNA blueprint that specifies the characteristics of each individual human being. This block incorporates concepts from four clinical disciplines (Endocrinology, Genetics, Reproduction and Cancer Biology) supported by foundational material encompassing three basic science disciplines (Molecular Biology, Cell Biology and Developmental Biology). The overarching goal of the block is to provide students with a conceptual framework for understanding the fundamental molecular, cellular, and physiological mechanisms that underlie human health and disease. The seven different disciplines are integrated through three major themes that are interwoven throughout the Block: genetic changes (mutations) that lead to disease and their patterns of inheritance; the regulation of gene expression and signal transduction at the cellular level and the phenotypic consequences of dysregulation (failure to regulate properly) or mis-regulation (faulty regulation); the normal transmission of hormonal signals between cells and organs and the disruption of communication in disease states; the underlying mechanisms that control human reproduction; and the normal development of a human being from an embryo to an infant together with the genetic and environmental factors that lead to abnormal development. The block incorporates concepts from Bioethics at multiple points including informed consent, respect for autonomy, beneficence/nonmaleficence, and justice.

2. Block Leadership:

- Leader: Jo Ann Wise, Ph.D. (Molecular Biology, CWRU)
- Co-leader Laure Sayyed Kassem, M.D. (Endocrinology, VA)
- Block manager: Nivo Hanson

3. Other Design Team Members:

- Ron Conlon, Ph.D. (Development; Genetics & Genome Sciences CWRU)
- George Dubyak, Ph.D. (Cell Biology; Physiology & Biophysics, CWRU)
- Jonatha Gott, Ph.D. (Molecular Biology; Biochemistry, CWRU)
- Smitha Krishnamurthi, M.D. (Cancer Biology, CCLCM)
- Insoo Hyun, Ph.D. (Bioethics, CWRU)
- Sam Mesiano, Ph.D. (Reproductive Biology; University Hospitals)
- Aditi Parikh, M.D. (Genetics; University Hospitals)
- Jacob Scott, M.D./Ph.D. (Cancer Biology, CCLCM)
- Shashirekha Shetty, Ph.D. (Genetics; University Hospitals)
- Rachel Weinerman, M.D. (Reproductive Biology; University Hospitals)
- Jennifer Yoest, M.D. (Cancer Biology; Pathology, University Hospitals)

Dr. Laure Sayyed Kassem was appointed Co-Leader of Block 2 in 2020. Five new members joined the Design Team in 2019-20 and a sixth joined in 2021: Rachel Weinerman, M.D. replaced Sherif El Nashar, M.D. as a representative from Reproductive Biology. A previous Design Team member, Angelina Gangestad, M.D. (Reproductive Biology, University Hospitals). James Liu, M.D. (Reproductive Biology, University Hospitals) has not resigned from the Design Team but no longer attends meetings. Insoo Hyun resigned as of January 1, 2022.

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

Competency and Definition	Educational Program Objective (EPO)	Block 2 Goals	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 basic mechanisms of DNA replication and transcription including the impact of chromatin structure and epigenetic marks as well as the roles of *cis*-acting signals and *trans*-acting factors	None

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 mechanisms through which gene expression is regulated at multiple steps including transcription, RNA processing and translation and the impact of mutations that lead to disease due to faulty regulation	None
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 genetic basis and inheritance patterns (traditional and non-traditional) that lead to disease states including congenital defects and cancer; these include the consequences of mis-segregation of entire chromosomes, insertions, or deletions of portions of chromosomes, and point mutations that affect single genes	None
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 technical advances that led to the development of personalized medicine and describe how the results of genetic tests can be used to assess prognosis and treatment options for a growing number of diseases including congenital defects and cancer	None

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 principles and pathways of signal transduction and how disruption of intra- or intercellular communication leads to diseases including endocrine disorders and cancer	None
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 normal synthesis, targets, regulation, and mechanisms of action of hormones and the molecular, cellular and tissue changes that accompany diseases that result from dysregulation of hormone production or targeting	None
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 normal development of a human embryo and describe how it is altered in developmental disorders that result from mutations or environmental factors	None
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 human reproduction including male and female gametogenesis, neuroendocrine control of sexual development, hormonal control of pregnancy and parturition and methods of contraception	None

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 how DNA sequence alterations and epigenetic changes, defects in DNA repair pathways and dysregulation of signal transduction pathways lead to cancer, as well as the impact of cancer on public health	None
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 cancer treatment options including surgery and radiation; cytotoxic chemotherapy; targeted therapies including those based on monoclonal antibodies and small molecules, as well as their modes of action	None
Common to all Blocks:	**EPO**	**Block 2 Goals**	**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.	None
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.	None

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.	None
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.	None
Research & Scholarship Demonstrates knowledge and skills required to interpret, critically evaluate, and conduct research	Analyzes 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.	None

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 in 2021-22?	How did the changes work?	What would you like to change next year 2022-23?
General: The block transitioned from remote delivery in AY 2020-21 back to in-person delivery due to the diminished number of Covid-19 cases after COVID vaccines came into widespread use. Virtually all lecturers chose to stand behind the plexiglass shields built around the lectern and remove their masks rather than keeping their masks on and using a mobile microphone.	Lecturers were generally pleased to return to the HEC and did not find the restrictions too onerous. Continued social distancing and mask wearing by students and instructors in other pedagogical situations (IQ groups and Active Learning in Teams, a.k.a. ALT sessions) also worked well.	It is anticipated that in-person delivery will continue If control of the pandemic remains constant or improves. Ideally, if Covid-19 case numbers show a dramatic decline, it might be possible to return to the use of mobile microphones in the lecture hall.
A SOM initiative to provide incoming students with iPads to use during IQ and Active Learning in Teams sessions continued in Block 2. IQ cases were formatted into a book form for easier use. Many students also used the iPads to take notes during lectures.	The main impact was to diminish our carbon footprint by eliminating the vast amounts of paper previously distributed for problem-based learning (IQ groups and ALTs).	Work with the curriculum directors to continue evaluating and expanding use of the iPads. Adopt any other proposed practices to make delivery of educational content greener
Efforts to improve coordination between different lectures and lectures and IQ cases continued. A notable example was the dovetailing of content between the Molecular Therapeutics lecture given by Ron Conlon and the ALT#1 preparatory lecture	This was a very effective mechanism to highlight connections that students might not have made on their own	These efforts will be continued and enhanced as described in the next section
Design Team: Dr. Rachel Weinerman, who took over Dr. James Liu's Reproductive Biology lectures during the 2020-21 academic year, was recruited to the Design Team.	Dr. Weinerman again received outstanding reviews for her lectures.	Dr. Insoo Hyun has accepted a position at Harvard and will be replaced by a different faculty member from the Bioethics Department

Mark Jackson, Ph.D. (Cancer Biology) resigned from the Design Team in January 2021 but agreed to continue as a lecturer. Fortunately, we had recruited another DT member with Cancer expertise, Jennifer Yoest, M.D. in October 2020	Dr. Yoest quickly become a valuable contributor to the discussions in Design Team meetings.	No further changes planned
<u>IQ Cases</u>: To enhance clustering of IQ and lecture content in Genetics, the Tay Sachs and Caudal Regression cases were reciprocally exchanged, the Down Syndrome case was paired with the Tay Sachs case, and the Puberty cases (Reproductive Biology) were moved to a later week	The reorganization did not work as well as expected, and the previous order has been restored in the draft schedule for AY 2022-23 (Class of 2026). In general, related Genetics and Repro content has been clustered by moving the former to later dates and the latter to earlier dates	The most important change is that the Meiosis/ Mitosis lecture will be closer to both the IQ cases to which it is highly relevant (Down Syndrome and Deletion 22q) and will again be paired with the Gametogenesis lecture, which worked well in 2020 by facilitating cross-referencing
Most IQ cases underwent minor modifications aimed mainly at updating resources.	IQ cases continue to be a strength of Block 2, with 87.2% of students rating their effectiveness as “very good” or “excellent” at the end of the block	IQ resources will continue to be updated to stay abreast of developments in the various disciplines included in Block 2
Dr. Weinerman assumed responsibility for presenting and receiving feedback for the Repro IQ cases, most of which were presented by Dr. Sam Mesiano, Ph.D. in 2020	As a long-time IQ facilitator, Dr. Mesiano did a great job presenting the Repro cases. However, it was considered important for an M.D. to take on this responsibility	No further changes planned
Dr. Yoest assumed responsibility for presenting and receiving feedback for the Tumor Suppressor IQ case, which was presented by Dr. Jackson in 2020	Dr. Yoest also serves as an IQ facilitator, and did an outstanding job presenting the case originally authored by Dr. Joseph Bokar	No further changes planned

<u>TBLs:</u> In 2020, the time allocated to both the preparatory lectures and application exercises was decreased to accommodate the expanded cancer content. To compensate, the IRAT/GRAT was eliminated, and the name was changed to Active Learning in Teams (ALTs). In 2021, both components were restored to their previous lengths	The longer preparatory lectures were more effective in conveying the concepts required to complete the application exercises. However, as described in the next row, the students were not quite able to complete the ALT#1 problems in the allocated time (1 hour and 50 minutes)	Further changes are described in the next row
Rather than simply adding back the ALT#1 problem that was cut in 2020, a completely new problem focused on a timely topic was written.	The new problem, which was focused on microRNAs, worked well except that some teams were unable to solve it in the time allocated	The miRNA problem will be trimmed to allow time to present the Summary and still dismiss the students on time
The ALT#2 problem cut in 2020 was also replaced with a new problem, which was designed to solidify students' understanding of dominant vs. recessive inheritance	Based on student comments on ALT#1, ALT#2 was revised to ensure that it could be completed within the time allocated. This worked well	No further changes planned
The number of facilitators, which was expanded in 2020 to cover the large number of Zoom rooms, was cut back and a "floating" facilitator was added to aid coordination between the two rooms	This worked well. The ALTs again received high numerical ratings and laudatory student comments on both just in time and end of block evaluations. Facilitators also commented favorably	No further changes planned
In previous years, students requested that TBLs/ALTs be distributed throughout the block. In response, ALT#1 was moved to Weeks 2 and 3	This worked reasonably well, but students now criticized the long gap between the relevant Molecular Biology lectures and ALT#2	In the draft schedule for AY 22-23, the Molecular Biology lectures have been moved instead, and will be closely juxtaposed with both ALTs
<u>Lectures & Schedule</u>: To make room for ALT#1 early in the block, the Introduction to Pharmacology lecture was moved to a later date, juxtaposed with the Cancer lectures and IQ cases in which	From 2018 to 2020, this lecture was scheduled in Week 3, after the Diabetes lectures and IQ cases that feature drug therapies. It worked even less well in Week 7	In the draft schedule for AY 2022-23, the Pharmacology lecture has been moved to Week 1, where it will precede all IQ cases that utilize Drug Drills

drug therapy is particularly prominent		
In 2020, the Block 2 schedule was color-coded by discipline to facilitate appreciation of disciplinary clustering. As this format was viewed favorably by Design Team members, the color-coded schedule was shared with IQ facilitators and, in pared down form, with students	The IQ facilitators and students who made use of this schedule found it very helpful. Unfortunately, many did not learn of its existence until late in the block, if at all. According to a younger member of our Design Team, students are unlikely to access a document if it takes more than 2 clicks	In 2022, we will make a more concerted effort to publicize the existence of the color-coded schedule through Friday Previews of the following week to be sent out by Nivo, as described in detail under #6 below
To compensate for the expansion of Cancer Biology that occurred in 2020, the number of lecture hours allocated to Molecular Biology was cut. In 2021, the content eliminated was incorporated into two PowerPoint presentations that the students were asked to review in anticipation of an interactive quiz on the first day of class	By a show of hands, very few students reviewed the PowerPoint presentations posted on Canvas. Even so, the majority answered the quiz questions correctly, confirming that most of our first-year students are familiar with basic Molecular Biology concepts from their undergraduate coursework	In place of the review slides and quiz approach employed in AY 2021-22, we will return to a practice used in the early years of the WR2 curriculum, namely, scheduling a review lecture covering basic Molecular Biology concepts which will be aimed at the subset of students who have not taken the relevant coursework or have been out of school for several years.
With help from Nicole Pilasky, Teaching & Learning Designer/ Technologist, an interactive Molecular Biology quiz was prepared using Poll Everywhere	Due to a miscommunication with Ms. Pilasky, the slides prepared for the Molecular Biology quiz did not display properly. George Dubyak's Poll Everywhere session later in the block worked well	Dr. Dubyak will continue to use Poll Everywhere or another interactive platform for his lecture. The Molecular Biology Poll Everywhere quiz will be replaced with a review lecture as described above
Two lectures covering Bioethical issues surrounding the use of genetic information and reproductive choices were moved to later dates	Placing these lectures closer to the Genetics and Reproductive Biology content to which they are most relevant worked well	No further changes planned

The lecture on the use of high throughput approaches in personalized medicine, which was introduced near the beginning of the block in 2020, was moved to the cancer section in 2021, and a new lecturer, Dr. Jennifer Yoest, was recruited	This worked well, because one of the most prominent uses for high throughput approaches in clinical medicine is genotyping tumors for diagnostic and prognostic purposes	No further changes planned
Dr. Yoest also took over the "Hallmarks of Cancer" lecture, which had been delivered by Dr. Joseph Bokar for many years and by Dr. Hillard Lazarus in 2020	This worked well. Dr. Yoest received outstanding ratings from the students	No further changes planned
To accommodate movement of the High Throughput lecture to the Cancer section, the Stem Cell lecture added in 2020, which was not well-received, was converted to a Clinical and Basic Science Correlation session in 2021	The most essential concepts related to stem cell therapy were covered by Ron Conlon in his Molecular Therapeutics lecture, which was well received. The Stem Cell CBC will also be retained (but see #6 below)	No further changes planned
<u>Review sessions:</u> With the return to in-person instruction, many instructors chose to use the Avacor, which is now a permanent fixture in the lecture hall, for their review sessions	The consensus is that this facilitated interactions between the students and instructors, most of whom also brought a PowerPoint presentation but chose to have the Avacor material represented in the recording	No further changes planned
<u>End of Block Evaluations:</u> In 2020, we requested, and were granted, modest changes to reflect the under-representation of the basic science disciplines in the Block 2 IQ cases. We requested further changes along the same lines in 2021 but these were declined, and some of the previous modifications were reversed. These actions were explained	A mutually agreeable compromise was reached after exchanging several detailed emails with Dr. Qua. Prior to requesting modifications to the EOB evaluation form, Block 2 leaders were unaware that a current key goal of the WR2 curriculum is to develop a uniform EOB evaluation form that can be used by all blocks, in	No further changes planned

by Dr. Kelly Qua, Director of Medical Education Research, Program Evaluation & CQI	anticipation of the next LCME visit,	

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

Design Team:

Dr. Insoo Hyun, a well-known Bioethicist who first joined the Block 2 Design Team in 2018 resigned from his position at CWRU at the end of December 2021 to accept a position at Harvard University. His move was originally scheduled for 2020 but was postponed because of the COVID pandemic. During the AY 2020-21, Dr. Hyun was temporarily replaced by his colleague Dr. Marsha Michie; we do not yet know if she will return to Block 2. As documented under #2 and #3 above, only 6 of the 13 current Design Team members joined prior to 2019, and a seventh joined only 2 years earlier. The new recruits replaced members from all Block 2 clinical disciplines (Cancer Biology, Endocrinology, Genetics, and Reproductive Biology). Thus, we are very grateful for the continuity provided by long-time members Ron Conlon (Development), George Dubyak (Cell Biology), Jonatha Gott (Molecular Biology) and Smitha Krishnamurthi (Cancer Biology). As documented under #5, the new members have taken responsibility for key lectures previously delivered by their predecessors on the Design Team.

Major changes in the Block 2 Schedule:

As documented under #5 above and in previous Action Plans, Block 2 has been updated on numerous occasions to accommodate new developments in the disciplines it covers, most notably through expansion of the Cancer Biology section in AY 2020-21. In addition, the time devoted to presenting core Block 2 content has decreased since the inception of the WR2 curriculum due to the incorporation of two longitudinal threads, Pharmacology and Bioethics, which were not originally included in Block 2 but now occupy 5 hours of lecture time. Students have always found Block 2 challenging, at least in part due to the sheer number of disciplines they are expected to master in a relatively short period of time. This year, Nivo compiled attendance data for both “synchronous” (in person) attendance at lectures and “asynchronous” attendance, i.e., watching the video recordings. A head count of the number of students present in the lecture hall revealed a sharp decline after the first few lectures, and a similar trend was observed for review sessions. Moreover, students did not generally view the videos in the same time frame that related IQ cases and ALTs were taking place, which undermines our efforts to coordinate the various components of the block. A comparison of the number of

video views over time showed a dramatic increase at the end of the block, indicating that students were attempting to compensate for not keeping up throughout the block.

In recent years, we have noticed an even more dramatic decline in attendance at our Clinical and Basic Science Correlation (CBC) series, which are not recorded but provide important opportunities for students to observe doctor-patient relationships and learn about important clinical research being conducted by members of the Block 2 Design Team. The trend culminated this year with zero students signing up for the final session, which was canceled. As Block 2 CBCs have been scheduled from 12:10 - 1:00 on Wednesday for many years and generally attracted around a third of the class, we undertook an investigation to ascertain what had changed.

The view that the advent of IPE marked a transition from students viewing Block 2 as challenging to increasing numbers feeling overwhelmed is supported by comments received during Student Feedback sessions.

While this advice might be sound for later blocks, which are more IQ-centric, it is misguided for Block 2, in which the basic science disciplines, especially Cell and Developmental Biology, are taught almost exclusively in lecture format. The Molecular Biology lectures are augmented by Active Learning sessions that students are required to attend. Because the ALTs were designed in collaboration with instructors from Genetics and the sessions included facilitators from both disciplines, they helped students appreciate complementarity between the two disciplines.

To combat the problems described in the preceding paragraphs, we will adopt a multi-faceted strategy suggested by a series of emails exchanged with Dr. Colleen Croniger a few weeks ago. Dr. Croniger pointed out that the so-called "Integration Week" immediately preceding the Block 7, Block 2, and NBME practice exams, which is largely devoid of scheduled activities, is unique to this block. A longitudinal comparison of Block 2 schedules revealed that Integration Week came into being in 2017, the year that the activity that had been scheduled in Block 2 Week 10 since the inception of the WR2 curriculum, Clinical Immersion, was discontinued. Although the rationale, that CI was not very valuable to students at such an early stage of their medical education, seems sound, only a small fraction of the time it previously occupied was filled by end of block review sessions. Until 2017, EOB reviews were scheduled during the early evening (5 – 7:30) on Clinical Immersion days. While the students required to take the remediation exam may not be entirely representative of the class of 2025, it seems likely that many of their peers also did not make wise use of the unstructured time during Integration Week.

Our plan involves multiple interdigitated actions. First, we will take Dr. Croniger's suggestion to extend Block 2 instruction through Week 10, which has the added advantage of providing time to implement the second step, slowing down the flow of information for which students are responsible throughout the block. Mechanisms that could aid students in keeping up with the material, especially lectures, presented throughout Block 2 were the subject of a very animated discussion at our Design Team meeting on January 28. The first suggestion to be discussed, incorporating Friday sessions aimed at consolidating what the students had learned that week, similar to a strategy used in Block 4, was quickly dismissed on practical grounds: even disregarding the first week, which introduces 7 disciplines taught by 8 instructors, most weeks in Block 2 cover 3-4 disciplines and a similar number of instructors. Moreover, no single instructor is sufficiently well-versed in all disciplines to take charge of the integration session, and it would be a stretch to identify even a pair of instructors. We also discussed videotaping

multiple short vignettes focused on concepts that students find particularly difficult; this activity may be undertaken by some instructors but can be done outside of regular class time.

Other suggestions and variations were discussed but none were deemed satisfactory. In the end, we settled on a strategy that also solves the other problem described above, namely that students are skipping our Clinical and Basic Science Correlation sessions in droves. In the current draft schedule, which is under review by the Design Team, four of the six CBC sessions will be held on Friday from 11 – 11:50 am, and these sessions will be evenly distributed throughout the block. The other two CBCs will be moved to Tuesday from 12:30 – 1:30, a slot that we already know is viable because it is sometimes occupied by Ron Conlon's Optional Review Sessions, which generally attract more students than the Thursday morning reviews. The remainder of the mornings and early afternoons in Week 10 will be used to double the number of review sessions in most disciplines.

Diversity and Inclusivity:

If time permits, we propose to use a toolkit designed for medical educators to evaluate diversity and inclusivity with the goal of identifying any weaknesses in the Block 2 IQ cases and developing strategies for improvement. A subcommittee of the Design Team will be charged with deciding between the toolkit developed at UCSF and the one developed at SUNY.

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

During the final 2 weeks of Block 2 last fall, the Leader implemented a practice suggested by a student during the final feedback session: to provide students with a "big picture" preview of the following week, which was sent to them as part of Nivo's Friday notes. Students found these lists of bullet points, which highlighted connections between current lectures and IQ cases and mentioned relevant lectures that took place earlier in the block, very helpful. For AY 2022-23, weekly previews will be provided throughout Block 2. As in the last 2 weeks of AY 2021-22, these will be drafted by the leader and edited by the lecturers and IQ case authors who are scheduled to present during the upcoming week.

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

In addition to revamping the Block 2 schedule as described under #6 above, we plan to make several more focused changes outlined and described in the table below.

Changes anticipated for next year	Reason for changes (evidence)
General: A major change in the Block 2 schedule will be to extend instruction into Week 10. In parallel, the days and times that Clinical and Basic Science Correlation sessions will be changed	The detailed reasoning that led to Block 2's decision to give up its Integration Week was provided under #6 above. We believe that

	these changes will improve students' experiences in Block 2
We also plan to take stock of our Weekly Goals with two objectives in mind: 1) ensuring that all lectures, IQ cases and ALTs are represented; and 2) that they fulfill their stated purpose of providing a conceptual framework for Block 2 that is less granular than the specific LOs for individual sessions	While aligning the Weekly Goals with the new draft schedule, the block leader noticed that many of the bulleted lists are identical to the LOs for the corresponding lecture, and that at least some IQ cases are not represented in this document
<u>Design Team:</u> As mentioned under #6 above, we need to recruit a new Bioethicist to the Design Team.	Dr. Insoo Hyun resigned from his position at CWRU
At least one other member of the Block 2 Design Team will need to be replaced in the near future, possibly during AY 2022-23	Several individuals, including the Block Leader, are approaching retirement age, and one is contemplating imminent retirement
<u>IQ cases:</u> In addition to the standard annual IQ resource updates, we will take a very careful look at all 15 cases in Block 2 to ensure that references to lectures included in the version provided to facilitators reflect the current schedule	During the Friday meeting of IQ Facilitators, the Block Leader became aware that the times mentioned for several of the lectures are not correct
A more conceptual initiative will be to introduce more basic science content into our IQ cases. Although for the most part, this proposal is still in the planning stages, one specific idea has already been discussed by Drs. Wise and Kassem: incorporating information about the impact of genetic and epigenetic changes on the etiology and progression of Type 1 and Type 2 Diabetes mellitus	The overarching goal of this initiative is to further enhance integration between disciplines within the block

Inter-block coordination: A "summit" focusing on epigenetic mechanisms will be convened during the week of February 14 by Dr. Oliver Schirokauer. Block 1 will be represented by is Leader and Co-Leader, Drs. Karen Mulloy and Kimberly Gifford, as well as Dr. Schirokauer. In addition to Dr. Wise, Block 2 will be represented by Dr. Ron Conlon, who will take the lead because his scientific expertise as well as the material he teaches in Block 2 is more relevant. The need for inter-block coordination on this topic is an outgrowth of a discussion that took place in a Block Leaders meeting last summer	Evidence for a disconnect between the picture of epigenetic mechanisms painted in Blocks 1 and 2 comes mainly from the students. For example, they seemed "upset" by the information Dr. Conlon provided about imprinting during his first lecture on Principles of Development. Imprinting is also discussed later in Block 2 by Dr. Anna Mitchell in her Non-traditional Inheritance lecture. Block 2 welcomes the opportunity to help ensure that a unified and scientifically rigorous picture of epigenetic mechanisms is provided to our students

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

The overall goals of the block remained largely unchanged. No major concept areas were added or deleted.

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

Overall, teaching evaluations were strong. All but one of the 16 instructors rated at the middle of the block received scores of 3.7 or better, and 12/16 received mean scores between 4.0 and 5.0 (Block 7 and 8 Instructors were excluded from these counts.) As the Block 2 instructor who received a 3.0 this year was rated 4.2 last year, the discrepancy probably reflects a scheduling conflict that was not identified in time to reschedule the lecture, which required it to be delivered via Zoom. The distribution of scores for lecturers rated at the end of the block were very similar. Thus, we do not believe that any action is warranted at this time.

11. Response to PEAC Report

No new recommendations from PEAC have been received since the report referenced in the 2018 Block 2 Action Plan.

13. Academic Productivity

Nothing to report.

14. Acknowledgements:

First and foremost, we want to thank **Dr. Jonatha Gott**, who led Block 2 until May 2019 and continues as a valuable member of the Design Team who also serves as an IQ facilitator as well as an ALT prep lecturer and facilitator. This year, Jonatha went above and beyond the call of duty by helping to revise the schedule, where her knowledge of the IQ cases was instrumental in developing a version that we believe will stand the test of time.

Second, we want to express our sincere gratitude to the past and present members of the Block 2 Design Team for their dedication to continuously improving the content and delivery of the block. We are also grateful to the other faculty members who contributed to the block in various ways as lecturers, IQ facilitators, and ALT facilitators.

Third, we want to extend our heartfelt appreciation to our course manager, **Nivo Hanson**, who balances several other jobs with shepherding the Block 2 team towards its goals. Nivo continues to be truly instrumental in the success of Block 2.

Fourth, we gratefully acknowledge the considerable support received from the office of assessment, especially Kathy Dilliplane. Kathy was especially helpful during the always difficult process of deciding where the line between a passing and failing grade should be set.

Fifth, we want to thank Kelli Qua for patiently explaining the need for Block 2, despite its unusually large number of disciplines, to use the same assessment form as all other blocks. We were pleased that she adopted our suggestion to include separate lines for “synchronous” and “asynchronous” views of the recorded lectures (but see below).

The tremendous work done by Celinda Miller in pushing us to update our IQ cases in a timely manner and ensuring that facilitators were where they needed to be was another crucial element of Block 2’s success.

Finally, we wish to thank the AV and IT technical support teams, especially Paul Salzgeber, Megan Slabach, and Darren Johnson, who cheerfully came to our aid when needed and compiled data on the number of times our lectures and review sessions were accessed at multiple points during the block.

Class of 2025 was asked questions of Block 2 components. Results are reported below as compared to results of previous three years. Responses/Expected: 181/184 (98%)

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

Block 2: The Human Blueprint				
General Block Aspects				
Block Components	2018-2019 %	2019-2020 %	2020-2021 %	**2021-22 %**
Approachability/accessibility of faculty **	72	57	70	**72**
Effectiveness of large group lecturers	56	36	52	**--**
Effectiveness of attending live lectures (i.e., synchronous)	--	--	--	**50**
Effectiveness of viewing recorded lectures (i.e., asynchronous)	--	--	--	**72**
Effectiveness of IQ cases	83	83	80	**87**
Overall quality of this block	58	29	64	**67**
Block Concepts/Integration of Block Concepts and Longitudinal Themes				
Endocrinology*	91	88	90	**93**
Reproductive biology*	73	69	83	**80**
Genetics*	87	81	74	**79**
Cancer Biology*	78	83	84	**80**
Bioethics	51	64	52	**60**
GARLA	--	60	55	**60**
Histopathology	44	64	66	**62**

* "Well" or "Very Well"
** The wording of the question was Approachability of faculty in 2018-19 & 2019-20