AP8: Financial Modeling Considerations: There are several things that impact the true expense of this curriculum.

**Basic Science Foundation:** The old curriculum placed all basic science foundation courses into an integrated model (IMS = integrated medical sciences) that did not operate as originally designed and was actually one of the reasons for consideration of a new curriculum design. In the process of uncoupling some of those pieces, the VIT understood that there might be great gains in teaching effectiveness but these were hard to calculate. The intention was to increase the number of coordinating faculty but dividing that content into streams and courses within them. One could argue that this increased the faculty required but it also substantially increased the effectiveness of the teaching and learning. There was also an intention to dramatically decrease the number of cameo appearances by medical school faculty because their involvement often did not focus on core objectives of the course or the most important topics for the dental curriculum. At the same time, there was some intention to involve dental school faculty in and provide a stronger connection to the applications of the information. There was a sense that the 66 faculty involved in the original IMS model should be reduced into the range of 20-30 faculty for the new model. Overall, there would be savings in faculty participants but there was no way to credit the School of Dentistry with better faculty usage in the current university system. Any savings actually was credited to the School of Medicine and not the School of Dentistry. This is part of the quirkiness of trying to calculate true salary costs.

A major concern of the VIT was that there was content currently included in the IMS curriculum that was considered “non-essential” to the education of a general dentist. This arose more because of coordination and communication problems rather than design ones. Often faculty making cameo appearances had no idea of the dental student background or the goals for the course, and simply presented their research areas of interest. VIT estimated that this non-essential content could represent as much as 20% of all the content.

In the newly implemented admission requirements for the School of Dentistry, students now were required to have foundational courses in biochemistry and microbiology. This provided an opportunity to start teaching these topics at a higher level. While there is always a concern that students might need some review, the new curriculum anticipated some savings in course time because of student preparation.

In a similar way, so much content in the older curriculum assumed that students knew almost nothing. Often, courses have started with introductions, reviews, or teaching levels that were very elementary and consumed valuable time in the system. For the new curriculum, there was a strong emphasis on starting at an appropriate level and being efficient in content presentation. An operational rule of the basic foundations team was that course directors should continually apply the test of “what is needed for the practice of dentistry” to the material being emphasized.

**Preclinical Design:** There are several things which impact the over costs of the preclinical educational components: (a) A/B split, (b) number of faculty assigned to preclinical simulation laboratories, (c) time required in preclinical operations, and (d) uncoupling the learning sequence in courses.

The A/B split requires that the course director teach twice in the model. Eliminating the split naturally saves some time.

In the older curriculum, there was approximately one row instructor per row in the simulation laboratory which produced as student/faculty ratio of 7:1, yet all indications of national averages are that this teaching ratio at other institutions tends to be in the range of 10:1 to 12:1. While it is important that the ratio be appropriately determined for the teaching/learning challenges, it is equally important that faculty members participating in the process are well-prepared and highly capable ones so that the efficiency of learning is high. For many of the more recent years, the faculty, residents, or D4 students participating in the teaching were not optimized for teaching/learning. Therefore, better faculty
assignment to these activities could reduce the number required and improve the efficiency of the experience.

Another discussion focused on preclinical time requirements. There was full intention to transfer some planned learning experiences from the simulation laboratory directly into the clinic. There is a common misconception that everything must be learned in the preclinic in advance of the clinic. This produced a linear thinking model and negatively impacted the rapid start-up of students in clinical operations. Certain learning was to be designated as occurring immediately in the clinics. This has worked very well on the basis of early feedback from Phase 1 implementation and needs to continue to be encouraged.

As explained in this report, the original design consideration for preclinical learning was to allow students to move as rapidly as possible through course content and more flexibly operate the simulation laboratory. One student might potentially move through a 14-week course in 10-weeks, finish early, and decrease the number of students requiring faculty help.

**Clinical Sciences:** In the previous curriculum, most of these topics were organized by arranged by clinical specialty with only a limited amount of coordination. The present curriculum is focused on diagnosis, risk assessment, and treatment planning with detailed examples focused on different types of patients. There is some potential here to save in presentation time.

**Clinic:** Within the curriculum there is a huge amount of effort expended teaching clinical operations and skills by faculty to students as part of patient care. There are several key contributions of clinical care expenses. There is a large staff supporting patient scheduling, patient appointments, clinic maintenance, central sterilization, the electronic health record, and student assessment. These expenses are offset to some degree by the extent of reimbursed patient care which depends proportionately on the operation time of the clinic.

One of the goals at the outset was to expand the number of hours of clinical practice for students both inside the School and on rotations to outreach clinics. A common feature of educational systems is that students become more cost effective as they become more skilled and efficient. For any single DDS class, the number of weeks of clinic operation had been in the range of 33 weeks. Spreading other parts of the curriculum over 43 weeks had a positive effective of allowing the DDS clinics to function for more time (10 weeks x 5 days/week = 50 more days per year). There were other impacts at the same time. Closing the clinics for one half day per week for flexible time and other special events such as mega grand rounds had a negative effect on income of losing time (42 weeks x 0.5 days/week = 21 days per year). By increasing the number of days that students could participate in Outreach Rotations during the year, their experiences (quality and speed) were enhanced.

Traditionally, the D4 year has included some classes which were slotted into 8-9 and 1-2 times during the week. After careful discussions, it was apparent that D4 courses were not well attended because students were either on rotations or preparing for practice and/or residency programs and were spending much time outside the system. VIT has recommended that no traditional multi-week courses occur in the D4 year and that 8-9 and 1-2 time slots be used as part of clinic. During those times, faculty could be working with students in an attending-like model on cases, problems, or special analyses. This would improve the student learning experience, promote critical thinking, and create many opportunities for problem solving. This should not be an expense to the system because clinical teaching faculty members are already in place for this design.

**Pathways:** Many features of the pathways design already were in existence but just needed opportunities created for more students to become involved. For the most part, it was anticipated that research and leadership pathways would be revenue neutral. The health care delivery pathway is still experimental. At the present time, the proposal for faculty guides and mentors makes requires additional resources. However, many future changes could mitigate those costs.
**Grand Rounds**: This component is new and represents additional faculty commitment to the DDS program, but does not require the hiring or more faculty, but rather, the participation of more faculty with available time for teaching or mentoring.

The only substantially new cost would be associated with special MEGA grand rounds involving external speakers, 4-5 hour commitments, supporting materials, and outside speaker costs. For the 2-3 times per year imagined for this part of the program, the expenses were relatively small.

**Flexible Time**: The opportunity to provide time for professional development and coordinated faculty-faculty or faculty-student meetings produces a gain in efficiency. There are negative impacts such as lost clinic income. As noted earlier, the losses are offset by the gains in expanded student contact time in the longer curriculum.