Duke Scheduling Partnership for Interprofessional Clinical Education (D-SPICE):
A Framework for Coordination of Clinical Education Placements

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Background

Duke is a leader in health professions education and cultivation of the future healthcare workforce is central to Duke’s academic mission. All health professions learners across Duke’s four programs (nursing, medicine, physician assistant, and physical therapy) must have effective clinical placements, and such placements are becoming more challenging. High quality clinical placements benefit not only individual learners, but also clinical teams and patients, and lay the groundwork for future recruitment of highest quality learners into the Duke Health team.

There are multiple systemic factors that contribute to placement difficulties. Potential clinical preceptors have greater clinical and administrative responsibilities, shorter appointment times, and often perceive learners as a risk to clinical efficiency and productivity. Many potential clinical education sites are staffed by clinical associates without formal faculty appointment or discrete obligation to contribute to the educational mission beyond voluntary contributions. In addition, the number of students enrolling in each health professions school is on the rise, and these learners face increasing competition for placement from other regional schools, including Campbell and Elon Universities. Although optimal solutions have not been determined, our health professions schools and hospital system devote considerable effort to increase the supply of high quality preceptors, manage the greater demand from the growing number of learners and identifying new clinical venues with adequate educational space and resources.

The logistical challenges of finding suitable environments for clinical education consumes valuable time and resources for all four of Duke’s health professions schools. The lack of a universally standardized approach to scheduling clinical placements for learners continues to create inefficiencies. The high variability in lengths of learners’ rotations and discrepancies in number of required clinical days is a direct result of having four schools following four distinct processes for placement. All of the four discipline’ program coordinators are busy placing their own learners; their task should be facilitated by a system-wide coordination between schools rather than burdened by inconsistencies in the placement process.

Implementation of a coordinated and standardized strategy to the clinical rotation placement process for learners must be a priority for all involved stakeholders, both in the near term and well into the future. Meaningful improvements to the process is vital to Duke University’s continued impact as a health professions education leader that will not only attract bright and highly motivated learners but also best prepare them for the evolving future of optimal patient care. With the available resources and support at Duke University, implementation of these improvements to the clinical rotation placement process will position our medical system where it belongs: at the leading edge of educational innovation. Our institution’s system-wide commitment of human, financial, and all resources, especially Duke’s interprofessional education program, to strategically sound changes for health education placements is a timely and wise investment.
Methods

Team Dynamics and Effectiveness

At the outset, our team met to deeply understand the problem and task at hand, including analysis of the scope and implications of the problem and brainstorming around key stakeholders to access and various potential avenues of approach to discovering solutions. The team discussed interpersonal dynamics, mechanisms for equitably and efficiently sharing responsibilities, and means of clear and prompt communication. Team guidelines for promotion of collegiality and shared purpose were formulated and agreed upon. Importantly, a data management infrastructure was created to ensure no valuable insights were lost along the way and that the team could collaborate asynchronously between in-person meetings. After establishing this framework for collaborative effort, the team transitioned to a structured approach to problem solving inspired by the A3 method pioneered by Toyota corporation.

Key learnings throughout the project period related to teamwork and collaboration included the importance of clearly defining and periodically returning to the core task at hand, incorporating clear and efficient means of communication and coordination, leveraging the unique skills and proclivities of each team member, and placing a high value on collegiality, humor, and joy along the way.

Stakeholder Engagement and Discovery

The team members met with numerous key stakeholders throughout a months-long discovery phase. These key stakeholders offered insights from the School of Nursing, the School of Medicine MD and PA Programs, the School of Physical Therapy, the Health System, and the Private Diagnostic Clinic. Further, we gathered perspectives from stakeholders with various levels of involvement and responsibility, including students as primary stakeholders, administrative staff and rotation coordinators, faculty members and other preceptors, and academic and clinical leaders. Among key leaders, the team met with:

- Marion Broome (Dean, School of Nursing)
- David Bowersox (Associate Dean and CFO, School of Nursing)
- Ted Pappas (Vice Dean for Medical Affairs, School of Medicine)
- Valerie Howard (Associate Dean for Academic Affairs, School of Nursing)
- Mitchell Heflin (Associate Dean for Interprofessional Education and Care)
- Melinda Blazer (Director of Clinical Education, PA School)
- Nancy Knudsen (Assistant Dean for Learning Environment)
- Allison Clay (Assistant Dean for Education)
• Ed Buckley (Vice Dean for Education, School of Medicine)
• Katie Myers (Director, Clinical Education for Physical Therapy)
• Bill Schiff (Vice President, Strategic Services and Network Development, PDC)

In addition, the team brainstormed improvement ideas with technology engineers at the Duke Institute for Health Innovation and developed initial ideas for potential collaboration around technological solutions.

A key learning from the discovery process was the substantial time involved in gathering robust perspectives from a wide range of key stakeholders and inherent delays in coordinating in-person conversations. Our team felt that in-person discussion was strongly preferred if at all feasible in order to ensure clarity of communication and deep engagement of each stakeholder. However, the logistical issues involved in the process were a key limitation throughout and novel means of gaining efficiencies and streamlining the discovery process will be desirable in future efforts.

Design of Solutions

The team then reviewed accrued data, experiences, and insights and formulated a slate of core learnings and recommendations for improvement as detailed below. Throughout this critical phase the team was actively mindful about balancing the core educational and clinical mandates with resourcing and feasibility analyses. The team worked through several rounds of proposed solutions in a collaborative manner before deciding on highest quality solutions suitable for formal recommendation.

Risks and Alternatives

In defining proposed solutions, the team first characterized the risks of both inaction and inappropriate action.

• The risks of inaction included that Duke’s health professions programs would have lower quality clinical education placements and may fall back from the leading edge of educational innovation and quality. In particular, our team deeply explored the domain of interprofessional education, identified key opportunities in this space that relate to clinical education placement improvements, and also identified risks of inaction particular to this domain. Specifically, expected changes to curricular requirements from accrediting bodies will make interprofessional education a necessary component of health professions education. A lack of proactive substantive action in this space would create curricular vulnerabilities and potentially result in impaired workforce development and recruitment over the long term. Another risk of inaction may be preceptor frustration over time, which could further constrain the availability of placement sites in the future.
Risks of inappropriate action might result from implementation of proposed solutions without adequate prior analysis and understanding of the complex systems involved in clinical venues and current placement processes. Disruptions to components of the current system that function well (such as the PA school placement process) would be undesirable. There is also a risk that some proposed solutions may differentially benefit some stakeholders over others given the differences between the needs of each school and program. This dynamic could create resentment and resistance within a system that requires collaboration to yield maximal benefits. Understanding each stakeholder’s values and needs deeply is crucial to ensuring such deleterious effects are avoided. Finally, the required investments and predicted return on investment for each solution is difficult to establish with high fidelity, and so an important risk is the potential for financial or other resource deficit as solutions are tested.

Various alternative approaches and solutions were considered but rejected during the team’s analyses.
- One example was the use of learning and teaching styles to match students to specific educators. The group rejected the concept that there was one solution or one simple answer to this problem, although there was theoretical appeal to a personalized approach to clinical placement. Due to the complex nature of the placement system, we rejected the granularity of such an approach in favor of allowing the local placement coordinators to leverage various options in each scheduling scenario.
- Importantly, at the outset, and repeatedly throughout the project period, the team rejected the premise that the clinical placement problem was too complex or unwieldy to be improved. Furthermore, we rejected the premise that simple maintenance of the status quo was a legitimate option in light of the substantial changes occurring in health professions education, particularly in interprofessional domains. Maintenance of educational excellence was considered non-negotiable.
- Finally, the team rejected the premise that the four health professions schools could not or would not collaborate deeply and meaningfully in achieving mutually beneficial improvements.

Recommendation

A key learning from the discovery process was that all of the health professions schools share a common set of goals: high quality clinical sites and preceptors, predictability and consistency of site availability, ease of scheduling/coordination, and cost containment. Further, there are current active evolutions in health professions training related to interprofessional education and team-based learning that have created new opportunities for the schools to establish closer and more active partnerships. The team believed these evolutions were a crucial foundation for building new collaborations that would benefit all health professions learners at Duke, not only in terms of the logistics of finding and scheduling clinical placements, but also in terms of the quality of clinical learning experiences. As such, there is a unique
opportunity to achieve collaborative improvements and the timing of the team’s analyses and recommendations is truly fortuitous.

In view of the substantial commonality among the schools, the team recommends the creation of a new framework for collaboration: the Duke Scheduling Partnership for Interprofessional Clinical Education (D-SPICE). The membership of this group will include the key stakeholders described above, or designees, to allow for coordinated implementation of specific changes recommended below. D-SPICE will meet regularly to review progress, collaboratively craft further improvement plans, and ensure a high degree of coordination between the schools. Importantly, while D-SPICE should encourage unity of approach whenever possible, the team believes school-specific innovations should also be encouraged, given the differences in clinical education requirements across programs. The core goals is to enable each program to maximally improve its own processes and outcomes while fully leveraging common resources and achieving efficiencies while not inordinately constraining each program. The group felt that an overtly proscriptive approach would not result in significant improvements, may be too cost prohibitive, and may undercut the collaborative spirit necessary for efficient and productive partnership.

Another key insight is related to the issue of financial cost associated with clinical placements and scheduling. Through the discovery phase we established that cost drivers are multifactorial and highly variable. As such, it was not feasible to derive comprehensive and detailed cost estimates for either the current state or for the proposed solutions. Of note, while cost containment is desirable, some cost is likely unavoidable, in order to ensure highest-quality opportunities for Duke learners. As such, the learning of the discovery phase suggested that a reframing of the cost issue away from mere cost savings and containment, to driving towards high-value expenditures as the primary focus may be a productive framing as schools consider investing in concrete improvements. Our team elucidated several potential sources of return-on-investment for any financial costs/investments associated with improvements in clinical placements. In step with the “quadruple aim” of clinical medicine, there is an analogous “quadruple aim” that could be applied to clinical education. Specifically, any improvement efforts should target: 1) the learner’s experiences, 2) the preceptor’s experiences, 3) educational outcomes, and 4) associated costs and value of investments. Any investments that improve the learner’s experience may reap tangible financial benefits as it relates to future workforce development and the retention of high quality and highly productive graduates at Duke. Investment in the preceptor’s experiences may increase clinical productivity, insulate against burnout, and improve retention through increases in satisfaction and joy in practice. These and other similar considerations are crucial as the schools seek increased value across learning venues. Thoughtful and strategic investments are likely to yield increased “value” in the clinical education experiences of everyone involved and promote a virtuous cycle in which such placements and precepting experiences are desirable, productive, and efficient.
The table below delineates improvement ideas that emerged from key stakeholder engagement that were analyzed and judged by the team to be of high quality and worthy of formal recommendation. Importantly, while the individual solutions meld together seamlessly, they can also be implemented in a customized modular fashion if schools accept and deploy only some solutions but not others.

*Table: Problems and Proposed Solutions*

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<thead>
<tr>
<th>Category</th>
<th>Current State and Problems identified</th>
<th>Proposed Solutions</th>
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<tr>
<td><strong>Preceptors</strong></td>
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<tr>
<td></td>
<td>● Inadequate preceptor development</td>
<td>● Develop additional clinical education sites by incorporating learner needs into the planning process of network expansion</td>
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<td></td>
<td>● Lack of incentives for preceptors</td>
<td>● Recruit additional clinical educators through formalizing scheduling accommodations, productivity protections, and targeted incentivization</td>
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<td>● Low utilization of advanced practice educators</td>
<td>● Implement discrete effort support for site champion preceptors tasked with curating educational experiences and supporting partner preceptors</td>
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<td>● Track educational productivity through the development of “educational RVUs” (eRVU) that are considered for incentivization and promotion</td>
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<td>● Increase involvement of advanced practice providers such that the preceptor team itself is reflective of an interprofessional focus</td>
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<td>● Create interprofessional education sites that meld the clinical learning experiences of learners from different clinical programs and achieve efficiencies as learners learn not only from preceptors but from each other</td>
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<td><strong>Students</strong></td>
<td>● Students with limited experiences and ability to substantially assist in clinical care</td>
<td>● Establish an Interprofessional Bootcamp program focused on priming learners to actively contribute to care immediately upon arrival at a clinical venue</td>
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<td></td>
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<td>● Establish specialized online pre-courses for clinical rotations</td>
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<tr>
<td>Clinical sites</td>
<td>Placement logistics/system</td>
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| - Lack of physical space  
- Over-utilization of a small subset of sites  
- Lack of engagement and utilization of many clinic sites | - Allow for supervised student participation in note writing and in-basket management  
- Develop Interprofessional Education simulation modules  
- Find alignment between the specific hourly/daily clinical experience requirements of each program to find synergies and allow for innovative collaborative interprofessional clinical activities beyond individual patient encounters  
- Utilize outlying community sites more avidly for placement  
- Develop discrete work space for students in each venue to promote active contributions  
- Create discrete IPE learning units  
- Increase use of simulation sites |
| - Four schools compete for rotation placements  
- Duke students compete against outside schools  
- High cost to manage rotation placements | - Develop centralized system/database in collaboration with DIHI (initial brainstorming completed)  
- Formalize prioritization of Duke students in Duke clinical placement sites |

Importantly, while the core problem at hand is related to the logistics of finding and coordinating clinical placement sites, the solutions go well beyond plainly logistical tactics. A coordinating scheduling system and process is essential but not sufficient. At root, there are current challenges in matching supply and demand for clinical placement sites, ensuring the highest quality experiences, and also improving the experiences of preceptors themselves. Simply facilitating scheduling processes would not achieve the increased value that can be captured in all of these domains.

The various solutions proposed above can be taken and implemented as a bundle, or as individual focused improvements. Importantly, the preeminent theme that emerged is the potential yield of inter-professional strategies in not only increasing the quantity of placement options, but also the quality of those options. We believe interprofessional strategies will improve the quality of experience for both learners and preceptors as we target the full quadruple aim of educational innovation.

Implementing positive changes will require courageous investment by key leaders predicated on a deep commitment to collaboration and earnest trust between all Duke entities.
Given the centrality of clinical education to not only the educational mission, but to clinical growth and innovation as well as clinical investigation, such an investment is not only wise but absolutely necessary. The shifting landscape of health systems and health education nationally have positioned Duke to respond meaningfully in a way that will yield benefits for years to come.

**Next Steps and Key Elements for Success**

The key next step is a convening of stakeholders within the structure of D-SPICE. A detailed review of the current state assessment, core theoretical concepts, and concrete solutions above will drive initial planning for first-phase deployment of changes across the schools. Key elements for success include recognition of the need for adequate support and incentivization of key stakeholders, particularly high quality preceptors. Having actively engaged and highly skilled clinical preceptors is the one absolutely non-negotiable ingredient for success in clinical education. Adequate investment in growing this cohort will not only improve the current state, but will yield benefits for years to come. However, such an investment with require deep partnership and collaboration and a comprehensive view of the implications of such investments as they relate to the experiences of learners, the experiences of preceptors, educational outcomes, and the capturing of maximal return on investment on various fronts. The focus on interprofessional education as a timely, evidence-based centerpiece and as a common shared work among the schools will provide a critical scaffolding to achieve alignment among the varied stakeholders involved.
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References

