

# Transition to Residency Courses: Recommendations for Creation and Implementation

Lauren A. Heidemann<sup>1</sup>, Matthew Rustici<sup>2</sup>, Lynn Buckvar-Keltz<sup>3</sup>, Andrea Anderson<sup>4</sup>, Jennifer Plant<sup>5</sup>, Helen K. Morgan<sup>1</sup>, Jon Goforth<sup>6</sup> and Katharyn M. Atkins<sup>7</sup>

<sup>1</sup>University of Michigan Medical School, Ann Arbor, MI, USA. <sup>2</sup>University of Colorado, Aurora, CO, USA. <sup>3</sup>New York University Grossman School of Medicine, New York, NY, USA. <sup>4</sup>George Washington School of Medicine and Health Sciences, Washington, DC, USA. <sup>5</sup>University of California Davis, Sacramento, CA, USA. <sup>6</sup>Wake Forest University School of Medicine, Winston-Salem, NC, USA. <sup>7</sup>Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA, USA.

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**ABSTRACT:** Transition to Residency (TTR) courses help ease the critical transition from medical school to residency, yet there is little guidance for developing and running these courses. In this perspective, the authors use their expertise as well as a review of the literature to provide guidance and review possible solutions to challenges unique to these courses. TTR courses should be specialty-specific, allow for flexibility, and utilize active learning techniques. A needs assessment can help guide course content, which should focus on what is necessary to be ready for day one of residency. The use of residents in course planning and delivery can help create a sense of community and ensure that content is practical. While course assessments are largely formative, instructors should anticipate the need for remediation, especially for skills likely to be performed with limited supervision during residency. Additionally, TTR courses should incorporate learner self-assessment and goal setting; this may be valuable information to share with learners' future residency programs. Lastly, TTR courses should undergo continuous quality improvement based on course evaluations and surveys. These recommendations are essential for effective TTR course implementation and improvement.

**KEYWORDS:** Undergraduate medical education, curriculum development, transition to residency

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**CORRESPONDING AUTHOR:** Lauren A. Heidemann, Department of Internal Medicine, UH South Unit 4, 1500 East Medical Center Drive, Ann Arbor, MI, 48109-5220, USA. Email: lheidema@med.umich.edu

## Introduction

The transition from medical school to residency is a critical period involving tremendous growth in clinical and professional responsibilities. There is increasing awareness that trainees may be underprepared to handle this transition.<sup>1–4</sup> Transition to Residency (TTR) courses, also known as “residency preparation courses,” “boot camps,” or “capstone courses” are recognized as an important mechanism to ease this transition.<sup>5–8</sup>

TTR courses are increasing in number across the United States.<sup>9,10</sup> These courses typically occur near the end of the final year of medical school and involve simulation-based practice, review of high-yield material (eg medical emergencies), and assessment of essential skills (eg performing sign-out, responding to pages).<sup>5,6,11</sup> Recently, the Coalition for Physician Accountability's Undergraduate Medical Education-Graduate Medical Education Review Committee (COPA UGRC) recommended that specialty-specific training be provided to all incoming first-year residents to support this transition.<sup>4</sup>

While there is an established national curriculum in place to guide the implementation of surgical-based TTR courses,<sup>11,12</sup>

other fields do not have a national curriculum and are less uniform in both the structure and content of their courses. Established TTR courses vary widely in duration, ranging from several days<sup>13,14</sup> to 1 month,<sup>5</sup> or more. They can also vary in structure from specialty-specific courses<sup>5,14–16</sup> to a more general capstone-type course.<sup>6</sup> Regardless, a “one-size-fits-all” approach would not be ideal for TTR courses given the diversity of specialties and the variability of prior training received in medical school.

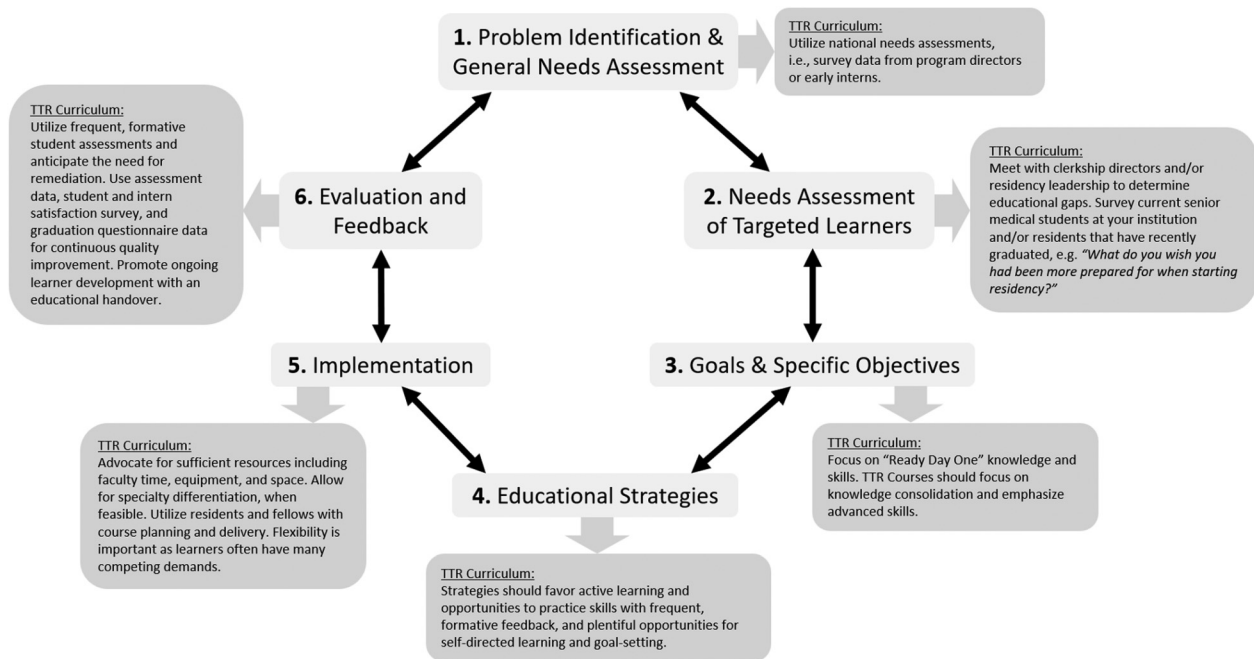
In this article, the authors use their expertise and experiences as TTR course directors and a review of the published literature to describe recommendations that are essential in the development of an effective TTR course. While this manuscript addresses the United States medical education system, similar principles can be applied to transitions in international training.

The authors use Kern's 6-step model for curriculum development<sup>17</sup> to support many of these recommendations (Figure 1). As Kern et al suggest, curricular development is a dynamic process, and many steps overlap or influence one another. Hence, these recommendations are intended to be helpful for both new and established TTR courses.



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**Figure 1** Kerns' model for curriculum development applied to transition to residency (TTR) course based on Kern, D. E. (1998). *Curriculum development for medical education: A 6-step approach*. Baltimore: Johns Hopkins University Press.

Throughout the text, the authors also introduce common challenges unique to TTR courses and strategies to mitigate these challenges (Table 1).

The study does not require ethics approval as it is a perspective.

## Recommendations for Transition to Residency Course Implementation

### *Kern's steps 1 and 2: Problem identification; general and targeted needs assessment*

*Perform a needs assessment.* Conducting a needs assessment is essential to developing a curriculum when considering what content to include in a TTR course.<sup>17</sup> Reviewing national needs assessments can speak broadly to gaps in education,<sup>18,19</sup> while interviewing or assessing senior medical students at the medical school can identify gaps in the undergraduate curriculum. Most TTR course directors choose to conduct a local needs assessment at the development of the course and then periodically thereafter. Residents and residency program leadership should be included in this stage as their involvement serves two purposes: (1) They can help identify specialty-specific content and (2) this helps promote "buy-in" from learners because their future specialty community is contributing to the curricular content. One strategy to help identify content gaps is to ask the early residents, "What do you wish you had been more prepared for when starting residency?"

### *Kern's step 3: Goals and specific objectives*

*Focus on "ready day one" knowledge and skills.* TTR course content should be targeted to ensure that learners are "ready

day one" for residency. Nationally, some professional societies<sup>11,12</sup> have developed specific recommendations for TTR course content and this may be a helpful starting point in curriculum development. Standardization of curricular content<sup>20</sup> may help residency programs to have a better understanding of the foundational knowledge that new residents are entering with, and may also allow for resource sharing (eg for smaller specialties). It is important to keep in mind that transition courses should consolidate knowledge and emphasize advanced skills that may not have been covered comprehensively in other parts of the curriculum. Course directors must resist the common tendency or institutional pressure to insert all other topics or required training for which there is no time in other portions of the curriculum. Additionally, it is helpful to concentrate educational efforts on an "approach to" perspective rather than from a "what is" lens. For example, if discussing altered mental status, focus on strategies for initial evaluation of the acutely altered patient, rather than simply reviewing a list of potential etiologies of altered mentation. Following the Accreditation Council for Graduate Medical Education (ACGME) milestones can allow a comprehensive approach when determining the advanced skills for M4s and ways to implement them into a transition course (Table 2).

### *Kern's step 4: Educational strategies*

*Incorporate learner self-reflection, self-assessment and goal setting.* TTR courses represent an opportune time for learners to reflect on their medical training and the evolution of their professional identities before advancing to the next phase of learning. Practicing reflection may have multiple benefits into residency.<sup>21</sup>

**Table 1.** Common challenges of transition to residency courses and suggestions for managing them.

CHALLENGE	DESCRIPTION OF CHALLENGE	SUGGESTIONS FOR MANAGEMENT
Struggling learners	Learners are near the end of medical school training, leaving limited time for remediation.	<ul style="list-style-type: none"> <li>Plan ahead. Determine what skills are most important to remediate prior to residency and develop a remediation plan and timeline.</li> <li>Be transparent with students about the potential for remediation.</li> <li>Perform standard setting, when feasible, to help define a pass/fail cut-point. This increases the rigor and justification for remediation.</li> <li>Build in independent study time to allow time for students to engage in remediation.</li> <li>Encourage learners to write about these areas in their ILP and discuss with their future residency program leadership.</li> </ul>
Not enough instructors	Most instructors helping with TTR courses are doing so on a volunteer basis. TTR courses rely heavily on active learning which may require a reduced student: instructor ratio. It can be challenging to find enough instructors and to retain them.	<ul style="list-style-type: none"> <li>Consider using residents and fellows. GME trainees can be a great resource for teaching or facilitating. Connect with residency program leadership early, especially leaders of medical education tracks or programs.</li> <li>Reach out to junior faculty who are seeking teaching opportunities.</li> <li>Send personalized notes of gratitude to instructors (with supervisors copied). Include instructions on how to include this on their CV and ensure they have access to their evaluation data to help build the educator's portfolio.</li> </ul>
Competing demands for students	Students have many obligations related to the Residency Match, graduation, licensing paperwork, and personal life. This can make it challenging for students to attend all elements of the TTR course and can make decisions about what absences to allow difficult.	<ul style="list-style-type: none"> <li>Allow for some flexibility. Be transparent about both reasons that absences will be allowed and the number allowed as well as when make-up work will be required.</li> <li>It is helpful to allow for some sessions to be opt-in, virtual, or asynchronous.</li> <li>Be clear about when attendance is mandatory.</li> </ul>
Insufficient resources	Course directors may have limited access to simulation resources, materials, faculty effort, or funding.	<ul style="list-style-type: none"> <li>Plan meetings with medical school leadership to advocate for the course.</li> <li>Demonstrate the impact of the course (via pre/post assessments or follow-up surveys) to justify the value of the course and the need for additional resources.</li> <li>Optimize fidelity of simulation sessions to use lower fidelity options when it doesn't compromise educational value.</li> </ul>
Asked to include too many other activities	Course directors may be asked to fit in requirements that are not related to the TTR course.	<ul style="list-style-type: none"> <li>Recommend strongly against including anything that does not line up with the stated goals of the course.</li> <li>Emphasize to others that unstructured course time is used for equally important activities such as self-directed learning, remediation, or personal wellness.</li> </ul>
Stress around the residency Match	TTR Courses are often positioned around the time of the Residency Match which can be stressful for students, especially if they do not match into their desired program.	<ul style="list-style-type: none"> <li>Allow students the time and space to discuss and reflect upon the Residency Match.</li> <li>Acknowledge and normalize emotions.</li> <li>Work with medical school leadership to emphasize available institutional resources.</li> <li>For courses held during Residency Match week, consider making that week lighter or preferentially schedule virtual or opt-in activities during that time.</li> </ul>

ACLS = advanced cardiac life support; CV = curriculum vitae; ILP = individualized learning plan; GME = graduate medical education; TTR = transition to residency.

Incorporating guided self-assessment in concert with self-directed learning (SDL) is critical during this transition. SDL is a fundamental attribute of healthcare professional identity.<sup>22</sup> To foster the development of SDL skills, the ACGME requires residents to complete an Individualized Learning Plan (ILP).<sup>23</sup> While TTR courses are often short in length, they can provide opportunities to practice and improve SDL skills by requiring the use of an ILP. Offering a tool that directs learners to personal reflection allows the learner to identify areas of weakness and develop goals that are specific and measurable. Following up at set intervals guides the learners to assess their progress and

direct the next steps within the course. A practical application of this could be to provide learners with a guided prompt for self-reflection on their medical education journey and professional identities prior to the start of the course based on prior evaluations and clinical experiences. Then prompt them to develop an ILP for the course based on areas of growth identified in their reflections. Providing scheduled times to check in, modify, and evaluate progress is essential, ideally with a faculty member whom the student already has a pre-existing longitudinal relationship. This increases learners' engagement and may promote further SDL into residency.

**Table 2.** Examples of transition to residency course skills and curricular implementation techniques, as applied to the ACGME milestones.

ACGME MILESTONE	EXAMPLE OF SKILL	EXAMPLE OF EDUCATIONAL STRATEGIES
Interpersonal communication skills	Code status conversation	Standardized patient case or role-play
	Leading family meetings	Standardized patient case or role-play
	Breaking bad news	Standardized patient case or role-play
	Informed consent	Standardized patient case or role-play
	Residents as teachers	Observed standardized teaching evaluation
	Physician-nurse communication	Simulated paging
Patient care	ACLS/PALS training	Simulated paging
	Common cross-cover scenarios	Case-based small group discussions or interactive didactics
	Procedural skills	Simulation
Medical knowledge	Emerging topics (eg COVID-19)	Analysis/small group presentation of major review articles or journal clubs
Systems-based practice	Transitions of care: effective sign-out	Role play utilizing standardized tools
	Addressing bias and inequity in healthcare	Case-based small group discussions
Practice-based learning and improvement	Goal setting	Development of individual learning plans
Professionalism	Medical Professionalism and ethical conduct	Reviewing licensure processes and common ethical challenges
Other	Resident well-being	Resident panels, utilizing near-peer educators
	Interprofessional education	Overlapping training modules with advanced practice, nursing, or pharmacy students
	Finances/loan repayment	Financial literacy training

These skills are meant to serve as examples of what a transition to residency course may choose to include. For each course, the skills and competencies chosen to focus on will be individualized depending on each medical school's unique curricular structures and learner needs. ACGME = Accreditation Council for Graduate Medical Education; ACLS = advanced cardiac life support; PALS = pediatric advanced life support; COVID-19 = coronavirus disease 2019.

*Utilize active learning techniques with opportunities to practice skills.* The appropriate TTR course teaching strategies will depend on the course and session objectives. Given that the overarching goal of TTR courses is to prepare graduating students to be effective resident physicians in clinical settings, we recommend that courses employ active learning techniques allowing for the application of medical knowledge and skills practice with feedback. Active learning techniques increase critical and creative thinking, problem-solving abilities, adaptability, communication, and interpersonal skills.<sup>24</sup> Flipped-classroom, audience response systems, and simulation-based training are commonly utilized in TTR courses. These pedagogies are designed to maximize student engagement, maintain a safe learning environment, and provide timely feedback allowing for students to participate in deliberate practice and mastery learning of crucial skills needed in the first few months of residency.<sup>25</sup>

#### *Kern's step 5: Implementation*

*Advocate for sufficient resources.* The addition of a TTR course is superimposed upon core curricular demands in a setting where

finances, faculty time, and curricular time are limited. It is critical to meet with school leadership to advocate for sufficient resources. This may include classroom space, simulation equipment, and audiovisual support. Faculty and staff support is also essential. One institution noted in 2011 that 20% protected time/salary support was allotted for course director(s) and 20% effort for a course administrator.<sup>6</sup> Among the authors' TTR courses in 2022, the faculty directors receive an average of 55% full-time equivalent (FTE; range 10-130%) from their respective medical schools. Demonstrating the impact of the course by pre/post assessments of students can justify its value as can published literature on the benefit of TTR courses.<sup>3</sup>

*Allow for specialty differentiation.* Creating specialty-specific components for a TTR course is worthwhile for multiple reasons. First, students have generally found learning with peers entering the same field to be valuable.<sup>26,27</sup> Specifically, one qualitative study demonstrated that graduates from TTR courses value the ability to reflect and evolve their professional identity as a resident in a specialty with a unique culture.<sup>28</sup>

Second, allowing specialty differentiation may permit higher retention of information by decreasing the cognitive load involved in transferring learning from one specialty context to another.<sup>29</sup> Even in areas where a central framework applies to multiple specialties (eg, approaches to delivering a terminal diagnosis), the approach, words, and patient response may vary significantly between different specialties (eg pediatrics vs internal medicine). Certain skills important for the first year of residency differ between specialties and would be challenging to teach to an undifferentiated audience (eg laparoscopic skills, obstetrical ultrasound, responding to abnormal pediatric vitals). While it is not feasible to tailor a TTR course to every possible specialty, targeting courses toward the first post-graduate-year (PGY1) experience is a recommended strategy. For example, a student planning to match into neurology may enroll in an internal medicine TTR course since the neurology PGY1 year is largely composed of internal medicine rotations.

*Use residents and fellows in course planning and delivery.* Resident and fellow contributions to course design help to ensure that content is practical and at the appropriate level<sup>30</sup> and can provide a rich pool of instructors for the course. Many TTR courses already incorporate “resident as teacher” sessions, and therefore using resident teachers in the course helps to model the importance of this skill. Utilizing these near-peer teachers in content delivery creates a safe learning environment and may increase learner buy-in, sense of community, and professional identity formation.

*Be flexible.* Transition courses occur at the end of medical school when students have many other obligations related to the residency match, paperwork and surveys, and personal milestones. Course instructors should be prepared to receive many requests from students and should be transparent ahead of time about how these will be handled. If make-up work is required, this should be collected in a time-sensitive manner relative to the missed session. Strategies to help aid flexibility include the incorporation of virtual didactics, asynchronous content, and remote assessments when this is appropriate from a pedagogical standpoint (Table 1). Additionally, allowing for some sessions to be optional allows students to design the course around their learning needs and other competing demands.

#### *Kern’s step 6: Evaluation and feedback*

*Include formative assessments of varying domains.* Assessments in TTR courses are important for providing formative feedback, assisting in goal setting for the individual learner as they enter residency. Furthermore, student performance on assessments may also help with continuous quality improvement (CQI) of the course. Assessments should target varying domains including medical knowledge, communication skills, and technical skills. Several national societies have developed validated assessments

of medical knowledge<sup>31</sup> and checklists for procedural skills.<sup>32</sup> Additionally, some schools have started to incorporate simulated paging curricula<sup>33-35</sup> which assess advanced clinical decision-making as well as interprofessional communication.

*Anticipate the need for remediation.* While assessments are meant to be formative, it may still be necessary for underperforming students to undergo a remediation process, especially for skills that are higher stakes (eg responding to unstable vitals) or skills performed with limited supervision during residency (eg informed consent) (Table 2). Instructors should be transparent ahead of time about which activities may require remediation and block dedicated time for students to engage in such activities. Instructors may benefit from performing standard setting to set the cut-point at which learners should engage in remediation. It is prudent to appropriately allocate resources to ensure sufficient time, equipment, and faculty to complete remediation prior to graduation. From a student perspective, it is imperative that under-performers have the opportunity to improve their skills and bolster self-confidence.

*Plan for the cycle of CQI.* Since 2015 the Liaison Committee on Medical Education has mandated a process of CQI.<sup>36</sup> A successful TTR course plans for the CQI process from the outset, using student performance data such as entrustable professional activities, surveys of student satisfaction, and surveys of residents who have graduated from the course to determine what is helpful. In addition, when possible, early intern year milestone data should be gathered from residency programs. This process allows for modification of the curriculum based on student feedback, changing medical school curricula, shifting expectations of residents, and incorporation of emerging topics.

*Consider an educational handover and follow up with residency programs.* TTR courses have the potential to bridge the chasm between medical school and residency.<sup>37</sup> Mapping TTR course assessment data to ACGME milestones can facilitate tracking learner development as well as providing a shared assessment language with residency program directors (Table 2).<sup>38</sup> A post-Match handoff provides an opportunity for transparent, learner-centered communication and is an ideal time for consolidating student performance data to feed forward to residency programs. There are, however, important caveats that should be heeded. First, transparency with the learner is essential since learners may be nervous about communication with their residency program. In addition, learners’ consent may be required. Lastly, one should ensure that any assessment data fed forward is both valid and valuable. Given these challenges, a good starting point for new courses is to feed-forward individual learning goals. This is favored by learners,<sup>39</sup> and is in line with the COPA UGRG recommendations,<sup>4</sup> which highlight the importance of individual goal-setting during the TTR. The process of creating educational handovers has been described for

learners entering Emergency Medicine,<sup>40</sup> General Surgery,<sup>38</sup> Pediatrics<sup>41</sup> and Obstetrics and Gynecology<sup>42</sup> residency programs. Ideally, there should be a 2-way communication between medical schools and residency programs, and the process for program directors to provide feedback on individual learners is beginning to be realized<sup>43</sup> through standardization and centralization of program director surveys.

## Conclusion

In summary, TTR courses support learners in the critical transition from medical student to resident. Developing and running a TTR course takes planning and faculty time as well as a commitment to a process of CQI. New courses may benefit from using the recommendations shared in this article.

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