Supplemental Digital Appendix 1
Methods Used in Performing the Schema Crosswalk

1. Data sampling
Our research team first identified the sample of resources to be analyzed in the schema crosswalk. We sought to include a purposive sample that spanned both undergraduate medical education and graduate medical education. The list of included items was not designed to be exhaustive, but rather broadly representative in medical education. We identified four categories for the data:

1. Competencies and Accreditation – frameworks or documents relating to competencies/entrustable professional activities, or those included in the accreditation process for most or all U.S. medical school or residency programs (Chart 2).
2. National and Local Curricula – recognized and available resources or curricula that are currently being used by medical education programs (Chart 3).
3. Recommendations/Calls for Curricula – publications or position papers that recommend systems-related content or competencies (Chart 3).
4. Textbooks – known textbooks relating to applicable systems-based competencies and are also being used (in our experience) by U.S. medical education programs (Chart 3).

2. Document review and analysis
All documents were collected by the research team. Two investigators (J.D.G, M.D.) led the analysis phase. The health systems science (HSS) framework (Chart 1, column 3) was used as the primary instrument in reviewing each document, with definitional constructs from two additional resources co-authored by the investigators as supporting material.4,5 Both investigators first reviewed two samples to develop a review process. Then, each investigator (either J.D.G. or M.D.) independently reviewed each document, identifying all HSS areas represented within the document. Double checks were performed by performing keyword searches (e.g. leadership, teamwork, value). Then, the other investigator reviewed the document, and double-checked the results indicated by the first investigator. Discrepancies or differences were noted, and subsequently discussed/reconciled via regular discussions and written memos.

3. Process for allocating degree of focus
We identified variation in the degree to which the data could address or focus on any systems-based area. We sought to capture this variability in a general sense. One item could be a competency primarily focused on knowledge and skills in high-value care and include several subcompetencies related to high-value care (reflecting a high degree of focus). However, one of the subcompetencies may refer to the importance of high-value care in “population health” (reflecting a low degree of focus). Each item in the schema crosswalk was evaluated using two degrees of focus – “●” (minor focus) and “●●” (moderate/high focus).

Supplemental Digital Appendix 2
2019 Association of American Medical Colleges Graduation Questionnaire Items Related to Health Systems Science

Preparedness for Residency: Indicate whether you agree or disagree with the following statements about your preparedness for beginning a residency program (answer choices – strongly disagree, disagree, neutral, agree, strongly agree).

I have the skills to...

- Report patient safety concerns using system reporting structures.
- Apply the principles of high value care (e.g., quality, safety, cost) in medical decision-making
- Address the social determinants that differentially influence the health status of patients.