A collaborative model for the development of virtual patients with branching narratives

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Introduction
This poster presents a process by which clinical faculty and instructional designers collaborate in order to develop robust and re-playable virtual patient cases. Branching narratives afford medical students the opportunity to work through increasingly complex cases as part of their pre-clerkship curriculum. To facilitate this process, initial branching case creation can be based on existing linear cases, so there is no need to start “from scratch.” Gameplay elements such as differential scoring and health care cost tracking add a competitive spin as well as model some real-world constraints. The use of multimedia, interactivity, scaffolding, feedback and variety in question types allows the collaborators to develop cases for a wider array of learners. Best of all, no special software is required. These cases can be built in readily available cloud-based survey tools.

Guidelines for Case Development

- **Differential Scoring**
  - Award points based on not just what path was chosen, but when in the process
  - Consider which actions might cause the learner to lose points

- **Health Care Cost Tracker**
  - Limit the number of tests that can be ordered so as to avoid a fishing expedition
  - Keep track of the cost of ordered labs and imaging

- **Re-playability**
  - A compelling narrative with multiple paths makes for a more engaging case
  - Consider the use of scaffolds at break points in the case. Should it direct the learner back to a more ideal path or should the learner be able to wander aimlessly down a dead-end path?

- **Gameplay Elements**
  - Have fellows and attendings play through the cases for feedback and to help determine scoring paths
  - Have anyone else play through the cases to check on the logic and branching flow – hooking it all together can be complicated

- **Workshop**
  - Whiteboards are great for initial case mapping
  - Collaborative ID process to find branch points and set parameters
  - Move to digital mapping of case once structure is set
  - Easier to update and revise once digital

- **Tools**
  - There are a variety of free or University-wide site-licensed cloud-based survey tools
  - Most support complex branching
  - A wide assortment of question types are available on these platforms
  - No need for specialized software
  - Easy collaboration for multiple authors

- **Selected References**
  - Posel N, Fleiszer D, Shore BM. 12 Tips: Guidelines for authoring virtual patient cases.. Medical Teacher 2009; 31(8):701-708; doi: 10.1080/01421590902793867

- **Future Directions**
  - New cases for the “From Classroom to Clinical” capstone in December 2019 in planning stage
  - Future iterations to incorporate further student feedback
  - Future exploration to include differentiation for learner’s experience level within the same basic case

- **Script Concordance Test**
  - Working Differential
  - Rank Order

- **Selected References**
  - Posel N, Fleiszer D, Shore BM. 12 Tips: Guidelines for authoring virtual patient cases.. Medical Teacher 2009; 31(8):701-708; doi: 10.1080/01421590902793867