

Minutes for Advisory Council Meeting

Committee on Credible Practice of Modeling & Simulation in Healthcare

Date: July 6, 2016

Time: 2:00 PM CST

Means: Conference Call

Attendees: Jeffrey Bischoff
David Eckmann
Ahmet Erdemir
Anthony Hunt
Donna Lochner
Lealem Mulugeta
Gary Pradhan
Martin Steele
Marlei Walton

Not Available: Vasilis Marmarelis
Alison Marsden
Pras Pathmanathan
Grace Peng

Agenda:

1. Introductions of new AC Members
2. Review Committee's progress since our last meeting – 20 min
Progress report: https://simtk.org/websvn/wsvn/cpms/doc/minutes/ac_20160706-pu.pdf
Please let us know if there is anything you think we've missed in the progress report
3. Future Membership – 10 min
 - a. Current vacancies
 - b. Future leadership and membership planning for 2017-2019 term
4. General feedback from the AC on overall progress – 10 min
 - a. What is working
 - b. What needs improvement
5. Goals for 2016-2017 – 10 min
6. Other business – 10 min

Key Points:

See Notes for details.

1. **Committee activities are satisfactory.** Nonetheless, the burden on the co-chairs and Executive Committee members has been apparent.
2. **Membership in the Committee is on track.** Focusing on recruiting energetic participants to act as vice chairs will likely facilitate transitioning of the leadership and revive stagnant activities.
3. **Ten Simple Rules task laid down the foundations for a guidance document to establish credibility of modeling & simulation.** An increased focus on publications, both for the Committee's perspective and based on community input, will lead in to the development of a guidance document.

4. **Outreach activities to engage world wide community and to leverage model credibility in nationwide funding programs has been successful.** The Committee reached out to Europe, through interactions with the Avicenna initiative and by presentations in international meetings.
5. **The interest level to revive the task on glossary is high.** Advisory Council members are interested in leading related activities.

Action Items:

See Notes for details.

1. ***The task on glossary needs to be revived.*** Marlei mentioned her interest in contributing to the glossary effort. Martin added that he would be happy to collaborate. Any contributions from Committee members will be appreciated.
2. ***Ten Simple Rules activity should be finalized through publication of Committee and community perspectives.*** Ahmet and Lealem will work on a timeline and workload distribution in order to submit the “Ten Simple Rules” manuscript on Committee perspective in the next 6 months. Survey data analysis needs to be wrapped up. Lealem will send Gary, new Advisory Council member, a formal invitation for the data analysis group.
3. ***Transitioning of co-chairs needs to be revisited.*** Lealem will have a phone conversation lined up with Raj, a potential member for the Executive Committee. The group needs to bring younger and energetic members during the next term, who will likely replenish the Committee by acting vice chairs.
4. ***New activity on documentation of modeling & simulation workflows will be followed up.*** The revised NASA standards for modeling and simulations will be published soon and Martin will distribute.

Notes:

1. **Introduction to new AC Members.** Lealem summarized that Alison Marsden and Gary Pradhan has joined the Advisory Council. Alison is in cardiovascular research at Stanford University. Gary is from Mayo Clinic working on real time modeling and simulation. Marlei mentioned that Gary had also served as part of the external review panel for NASA's modeling and simulation activities.
2. **Review of Committee's progress.** Lealem went over the progress report. The report was made available online at the project site. He mentioned that a lot of progress was made throughout the last year. While the co-chairs' intent was to meet every six months, this meeting was arranged almost a year after the last one.
 - Lealem did not elaborate on the Committee charge as all the participants had been with the Committee from the beginning.
 - Lealem expanded upon membership updates he already discussed as part of the first agenda item (see above). Shortly after the last Advisory Council meeting Wing-Kam Liu and Jim Thomas stepped down. Marc Horner joined the Executive Committee, with the prospect of having him as a vice co-chair. Marc has been actively involved with Committee tasks. He has been presenting the Committee in the meetings. Lealem noted that the Executive Committee has been looking for another member. Raj from IMAG/MSM community is potentially a good candidate. He is young and energetic. ***Lealem will have a phone conversation lined up with Raj about membership in a couple of weeks.*** During the next terms, Ahmet and Lealem are hoping to take on a more advisory role and maybe let Marc and Raj take on as co-chairs. There are still vacancies for the Advisory Council. ***Attendees were encouraged to send recommendations for Advisory Council membership to Ahmet and Lealem.***
 - Lealem mentioned SimTK infrastructure update, which included a few good features. Subversion source code repository has become difficult to navigate. Members of the Committee were encouraged to use a Subversion client to access. Lealem emphasized the use of subversion, and version control in general, as a way to enhance our credibility and accountability. The project site at SimTK was updated to include all publications. The Committee members can update their CVs accordingly. If

they want to point out to published content, publications link there can be helpful. It is anticipated that once the Committee drafts guidance documents, they will be provided there.

- Committee activities were wrapped into the U01 funding mechanism of NIH, which was a positive outcome. Some applicants have been reaching out to Committee members to get more information on Ten Simple Rules in order to use in their application's model credibility plan. In this regard, our work already seemed to have some level of impact.
- Lealem went over the list of meeting minutes. In the reporting period, there has been fewer minutes than before. Co-chairs mentioned that the members seemed to be getting busier. ***They emphasized the need to bring younger and energetic members during the next term, who will likely replenish the Committee.***
- Lealem discussed updates to tasks during the second term.
 - The public survey for "Ten Simple Rules" was closed. The data analysis group within the Committee had a lot of progress. They have been meeting regularly and meeting minutes have been uploaded except the most recent one, which will be provided soon. Lealem summarized the analysis. Some responses were rendered as invalid due to missing responses, all questions receiving same score, etc. Criteria were developed to identify the validity of the survey responses. As a result, 148 responses were identified as valid instead of the 182, which were mentioned in preliminary analysis. Lealem emphasized that the conclusions of the survey did not change. In terms of demographics, Lealem noted that most responders had more than five years of experience in modeling and simulation. The team felt that the survey reached out to the right people. Lealem also noted the alignment between the priorities of the Committee and the Community and the potential need to consolidate rules to broader rules. The data analysis group may need to think carefully to consolidate rules. Raw survey data were made available online; anyone can participate in the analysis. Currently, the data analysis group has four members and Marc is also contributing. The more perspective we get, the better.
 - In terms of visibility and outreach, the reporting period was very productive. All Committee members were very responsive to increase the awareness to our activities when they were participating in conferences. Lealem noted that Jeff Bischoff recently presented for the Committee in an international meeting, which was the first overseas presentation for the Committee. He asked Jeff to summarize his experience. Jeff described that the conference was a three day meeting focusing on personalized medicine. Less than half of the presentations focused on mechanics, the rest was mostly on genomics. Modeling was at the heart of most of the talks. He presented a poster for the Committee; one of the 50-60 posters. There was a little bit of traffic with a lot of students. Jeff also had a talk and Grace had a talk. Both mentioned the Committee in their talks and referred to the poster. Two more presentations are coming up; one at IEEE EMBC'16 meeting, the other in Europe at VPH 2016.
 - Ahmet mentioned Avicenna. Avicenna is a European Union initiative aimed towards in silico clinical trials. Ahmet had a meeting with Marco Viceconti who has been leading that activity. Gary also went to their meetings. The final Avicenna roadmap mentioned the Committee and its activities.
 - There have not been any webinars since that of Alison Marsden. The co-chairs hope to get at least one before the end of term. Some groups have been identified. Joy Ku has been spearheading this activity.
 - The literature survey was on halt. As we start drafting guideline document, this activity will become important.
 - There seemed to be a demand for the task on glossary but the activity lost momentum. It is important to get contributions from other members. However, in practice this proved to be difficult. The discussions in MSM Consortium meeting indicated the importance of this activity as there is a communication problem between different disciplines. Ultimately, a glossary related to modeling and simulation in healthcare may be incorporated into a medical dictionary. For those interested, Lealem mentioned the availability of a video tutorial for contributing to the wiki pages

of the glossary. Marlei emphasized that the Committee should continue efforts in this area. If the Committee can publish for others to point to, it may be possible to create an industry standard for communication within groups and outside. Lealem asked if she was volunteering. **Marlei mentioned her interest in contributing to the glossary effort. Martin added that he would be happy to collaborate.**

- A relatively new task was introduced by Tony Hunt. The activity focused on the identification of different modeling and simulation workflows. Tony collected some from Lealem and Ahmet to see how they tackle modeling and simulation in their disciplines. FDA has been doing some work in relation to this activity. Tina and Pras had separate discussions with Lealem. Martin asked about what Lealem meant with the term workflow. Lealem described the breadth of the workflow as the full lifecycle of modeling & simulation from birth to death, including subsections. Martin mentioned the revised NASA modeling and simulation standard which includes lifecycle, i.e., what needs to happen and when in the development and use. **The revised NASA standards for modeling and simulations will be published soon and Martin will distribute.**
 - Progress on membership was already discussed as part of the first agenda item and in discussions on the progress report (see above).
 - Lealem briefly went over the sections of the progress report on plans for the next reporting period and the goals for 2016-2017.
- 3. **Future membership.** Summary of membership related discussions can be found above. Gary Pradhan joined the conference call. Lealem asked him to introduce himself. Gary is with Mayo Clinic in Arizona. He received his PhD from Computer Science at UT Dallas. He is predominantly on the data side, e.g., data mining, machine learning, biomedical data sets. His research interests are in real time computational modeling and simulation to bridge medicine and computer science. He is excited about the Committee as a venue to resolve the challenges in modeling and simulation in medicine.
- 4. **Feedback from AC.** Lealem asked the Committee about their feedback. Marlei praised co-chairs' work to communicate within the Committee and outside. The Advisory Council members were advised to e-mail Ahmet and Lealem any issue they may think of.
- 5. **Goals for 2016-2017.** Lealem already mentioned goals for the next term as part of the progress report (see above).
- 6. **Other business.** David noted that there has been too much to do and worried that a little bit of progress was made on a lot of things. In that regard, he asked for a strategy for the next year, i.e. a home run on one of the activities. Lealem and Ahmet indicated that the "Ten Simple Rules" article on Committee perspective and survey data analysis and its publication would be top priorities. David recommended the co-chairs to think about strategy and a timeline to do that and put the burden on the whole Committee, i.e. assign duties to the Committee members and have them commit to it. **Ahmet and Lealem will work on a timeline and workload distribution in order to submit the "Ten Simple Rules" manuscript on Committee perspective in the next 6 months.** In response to Marlei, they will draft action items to state what is needed to bolster the manuscript. Lealem also mentioned that the data analysis and report for the survey can be completed by February 2017. Gary will be happy to contribute. **Lealem will send Gary a formal invitation for the data analysis group.**