Project Title: Early Detection and Reduced Peritonitis in Peritoneal Dialysis Patients

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We have discussed this clinical challenge, and each member of our team, our Clinical Advisor(s), and our Professors agree that this project addresses a clearly defined clinical need, is relevant to clinical practice, and meets the course requirements for a BME Master of Engineering degree.

Please initial indicating your support:

L. Chen

Team Members:

Potential Contribution to Patient Care: The AAKH order set a goal of putting 80% of new dialysis patients on home dialysis by 2025. Attenuating the major downside of peritoneal dialysis -infection- is likely to make a big impact in the next five years and in a ESRD population that is mostly undergoing PD. Less infection of the peritoneal cavity will result in 3 major health contributions:

1. Less distress and better quality of life for the patient
2. Fewer patients seeking emergency care for infection
3. Longer-lasting viability of the peritoneal cavity, and thus a longer time to utilize peritoneal dialysis as a therapy

Clinical Challenge (Problem Statement): The purpose of this project is to decrease the incidence of peritonitis for current and future peritoneal dialysis (PD) patients by identifying infection in its early stages and refining/replacing the mechanics of existing PD devices.

End stage renal disease healthcare is experiencing a shift from in-center hemodialysis to home dialysis due to the recent executive order on Advancing American Kidney Health (AAKH). Peritoneal dialysis is considered the simplest form home dialysis option and will likely be the form that most new dialysis patients will utilize. However, the major complication preventing consistent, long-lasting peritoneal dialysis viability is commonly occurring infection of the peritoneal cavity, or peritonitis. Peritonitis incidence rate is approximately 0.67 per patient per year in the United States.

Clinical Advisor(s):

Professors:

Clinical Service Line: Renal

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BME 6550 Clinical Challenge Statement 2019-2020

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