The primary objectives are geared to the standardization of quantitative CEUS methods and approaches necessary to quantify tumor perfusion characteristics. The initial phase includes the development of a simple phantom set up for generating TICs that are similar to those of liver lesions. Despite this being very different from tumor perfusion it is nevertheless a standard first milestone in order to establish that all imaging systems, contrast agents, labs, produce the same TICs and bolus kinetics parameters when measuring the same flow. The phantom and its main parts are shown below in Fig. 2.

Groundwork project status/results

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Groundwork project status/results (continued)

TICs are collected from the phantom. The user is able to control the bolus parameters (PI, AUC, RT, and MTT) by changing the setting in the pulse dampeners and the length of the tube that allows the bolus spreading. Figure 3 shows TICs collected from this phantom.

Example of possible issues:
When plotting the same data with different analysis software packages, the extracted TICs may not be identical, possibly due to issues with the linearization procedure as shown in the figure below. Another issue, is the fact that different analysis software packages will produce different linearized amplitudes. In the example shown below we normalized all data with respect to the peak of bolus. This will have to be addressed further in the future.

Profile impact/implications for clinical trials and patient care

Even though this committee is at a very early stage, potential impact the standardization can bring will be really significant. No field tests or revisions to existing Profiles have been performed. The initial activities will concentrate on the basics using a tissue-mimicking flow phantom to evaluate the Lumason CEUS contrast agent and 2-3 scanners with CEUS software.