Situation:
There is variation in practice across YNHHS Radiology departments with placement of pelvic/gonadal shields during CT exams, including for pediatric and pregnant patients.

Background:
CT scans use ionizing radiation in order to produce diagnostic images. A common misconception by radiology and clinical team members is placing a lead shield around the patient's pelvis during a CT is protective and helps reduce radiation dose to this part of the body. Most radiation to the pelvic region during a CT scan that is not imaging the pelvis is from internal scatter radiation within the body, while a lead shield is only effective in reducing external scatter radiation (radiation from outside the patient's body).

Assessment:
A phantom study was conducted by YNHHS medical physics team to measure the actual radiation dose inside the pelvis during various CT scans of the head and chest with and without a lead shield in place. This confirmed that a lead shield did NOT alter the radiation dose to the pelvis compared to measurements done without the lead shield. A lead shield may also pose some risk of harm. With fast moving CT table technology, there is a risk of getting the shield caught in the system hardware and if the lead shield is accidently included in the field of view of the CT being acquired, it will result in increased radiation dose if automated tube current modulation is being used. During the COVID-19 pandemic infection control practices for lead shields are also critical. This takes technologist time and medical supplies to ensure each shield is thoroughly cleaned before/after patient use.

Recommendation:
YNHHS Radiology does not recommend routine placement of lead shields over the pelvis during any CT scans (including pediatric and pregnant patients traditionally viewed as "higher risk"), as it does not provide measurable benefit in gonadal radiation dose reduction. The ALARA (as low as reasonably achievable) principle should always be used with proper scan settings and limited z-axis to minimize any un-necessary radiation exposure. A pelvic lead shield can be selectively used for patients who display high levels of anxiety/concern and request one or if it helps decrease patient movement during the CT.