

# renalert



*Real Time Alerts  
to detect acute  
kidney stress*

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Renalert LLC is developing the real-time monitoring Renalert System to provide continuous feedback on kidney status. It utilizes a smart scale measuring real time urine flow rate and proprietary algorithm to detect early declines in kidney function.

Acute Kidney Injury (AKI) carries a higher associated yearly mortality rate than breast cancer, prostate cancer, heart failure, and diabetes combined. Even the most mild form of AKI following cardiac surgery increases 5-year mortality by 2.2x and operative costs by 1.6x. AKI occurs in 25-67% of all ICU patients, and 5% of all ICU patients require dialysis. Estimates in the recent AKI literature cite up to 40% of all surgical cases (621k OR beds) which pose risk of AKI and would require monitoring. AKI as a major killer costs the US healthcare system \$10 B and UK NHS \$1.2 B per year through added length of stay and complications.

Measurement of urine output (UOP) and serum creatinine (SCr) remains the gold standard for AKI diagnosis, but UOP is only measured visually each hour, while SCr increases 24-48 hours following injury onset. Renalert's real-time urine measurement technology brings instant clinical utility simply by improving the accuracy and timeliness of UOP data. Moreover, it could prompt earlier intervention to ameliorate or prevent AKI. Our plan is to initially target the cardiac surgery market, where AKI complicates 30-40% of cases and yet physicians can readily manipulate a patient's hemodynamics to prevent AKI sequelae.

Renalert's software system will integrate with the EPIC EMR to provide real time urine output (FDA Class II 510k exempt) and renal alerts (FDA Class II, under development), while its modular hardware components (FDA Class I) currently interface externally with any existing Foley catheter bag system in a manner proven to reduce non-reimbursable catheter associated urinary tract infections (CAUTIs) as an ancillary benefit.

The company completed a successful pilot with 54 cardiac surgery patients showing observational significance in detecting AKI earlier than SCr, and its algorithm is in the process of being refined in 6 clinical studies in partnership with

clinicians and leaders at Northwestern Memorial Hospital, Johns Hopkins Hospital, and a strategic large medical device manufacturer. Thus far, over 130 cardiac surgery patients have been monitored. *Anesthesia and Analgesia* has published a feasibility paper. Intellectual Property is currently in nationalization phase in select global markets.