Introduction:
Although informatics are forming an increasingly important part of critical care delivery, the implementation science behind the introduction of such systems has not been explored (1). Here, we describe a model for improvement through the implementation of a clinical information system (ICCA, Philips) in a large central London Critical care service (121 ICU beds). We also describe quality improvement measurement of the clinical/operational effectiveness and lessons learnt from deploying this model.

Methods:
Research/ethics approvals were obtained. Surveys, interviews, round tables, targeted Delphi exercises and non-participant observation were conducted across four adult critical care units, involving 860 professionals. These methods were used to describe the baseline ‘paper-based’ workflow / inter-professional communication systems; and semi-quantitative quality improvement measures. Secondly, 10 critical care services worldwide were visited to generate a database of experience, lessons and models of optimised informatics delivery.

Results:
Key challenges at baseline in relation to workflow/communication information transfer between different healthcare professionals; the adverse impact of operational strain (occupancy, high patient turnover, fluctuating patient casemix, high staff turnover); transfer of care (key meta data; current medications and medicines reconciliation); and heterogeneity of practice. Site visits revealed the importance of human resources; lead time technology advances; the prioritisation of nursing workflow and pharmacy medicines/prescribing database creation/testing and the importance of the hardware interface and ergonomics. Improvements included patient safety/experience, increased staff time and improved quality of communication/information transfer.

Conclusion:
We have described an effective model for improvement using informatics in one of the largest critical care services in the world.

References: