Implementation of ShuntCheck for Evaluating Cerebrospinal Fluid Shunt Patency at a University Hospital

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Introduction

- Cerebrospinal fluid shunts have high failure rates and diagnostic tests for patency have varying risks
- ShuntCheck utilizes a non-invasive transcutaneous temperature probe to assess shunt patency

Methods

- Mobilized computer workstations with ShuntCheck capabilities were developed for inpatient assessments
- An algorithmic model was developed to assess the cost-effectiveness of using ShuntCheck to evaluate shunt patency compared to radionucleotide studies
- Sensitivities and specificities of diagnostic modalities were obtained from literature review and costs were obtained from our hospital billing department

Results

- Using our proposed algorithm, screening patients for shunt failure using ShuntCheck was cost-effective in the case of a patent shunt after nine patients were screened
- Differential cost savings in this setting was $505
- Cost was comparable between the two screening arms when assessing patients with slowed shunt flow

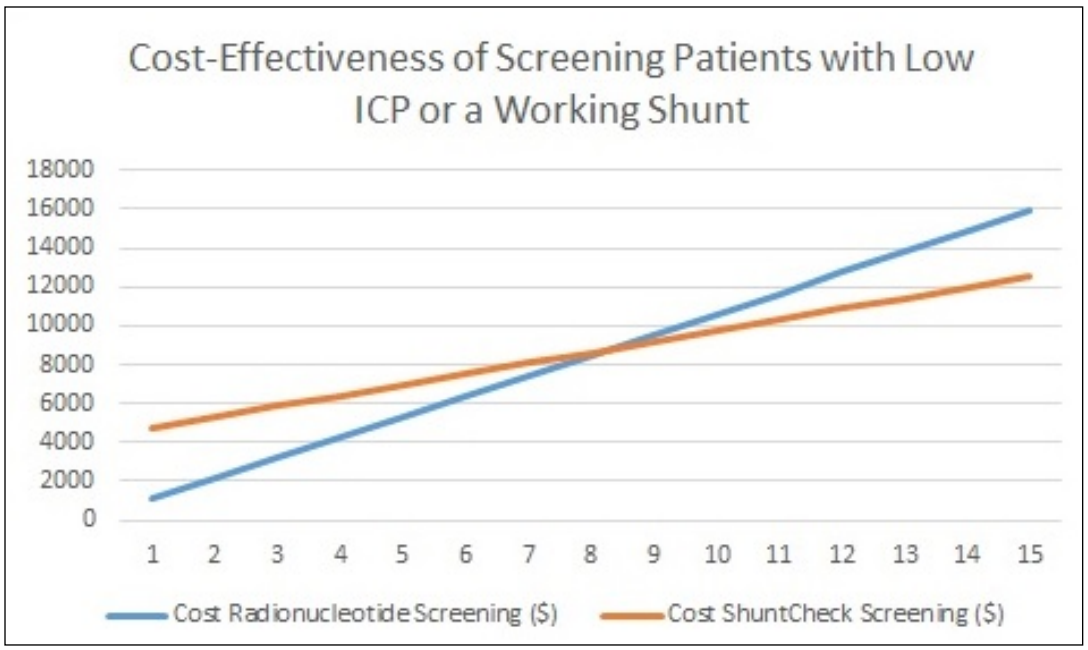
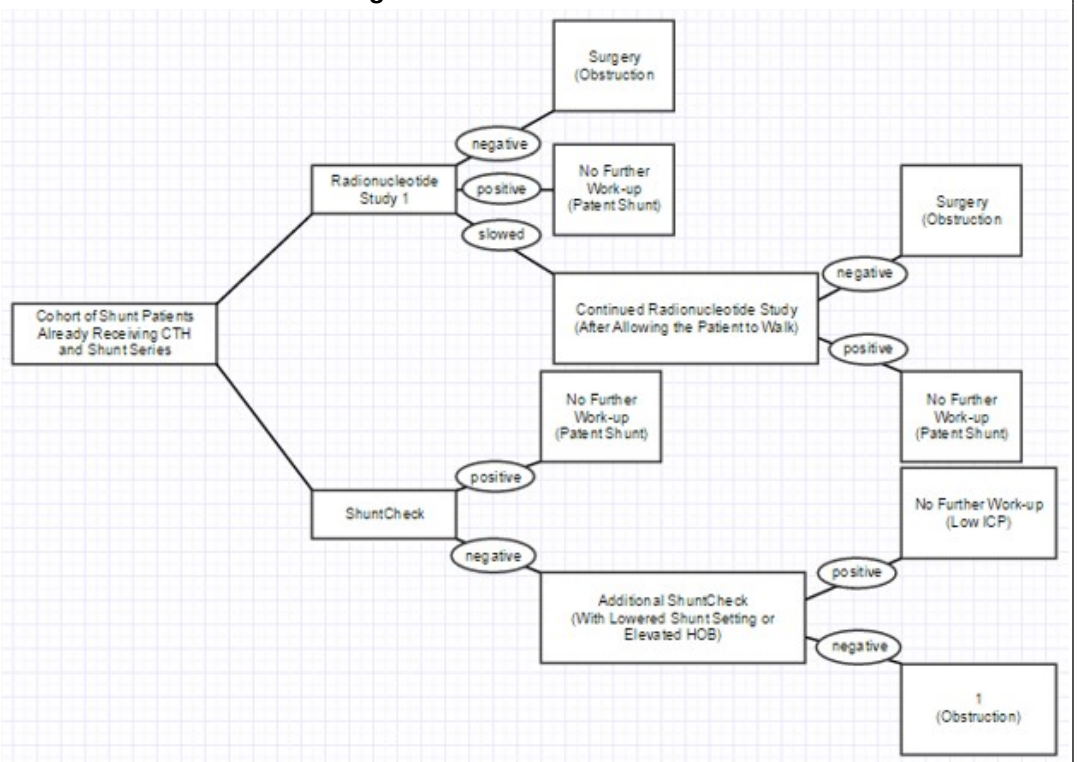


Figure 1: Decision Tree Model



Positive indicates confirmation of adequate flow while negative indicates absence of adequate flow.

Conclusions

- ShuntCheck is a safe, inexpensive, and accurate method of assessing patency of CSF shunts
- Further studies are needed to confirm the sensitivity and specificity of ShuntCheck

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