Children's Hospital of Philadelphia
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# Repeat Laboratory Testing in the Pediatric Emergency Department: How Often and How Important?

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Little is known about repeat testing for patients admitted to children's hospitals from the emergency department (ED). The objective of this study was to describe the trend of repeat laboratory testing from a children's hospital ED. Laboratory studies were analyzed for July 2002 to June 2010 for complete blood counts (CBCs; 7 years), basic metabolic panels (BMPs; 2.5 years), and coagulation studies (7 years) ordered and reordered in the ED within 8 hours for patients admitted to the hospital. Results for tests were generated and classified into high, low, and normal based on reference ranges. To reflect actual practice, we expanded the normal range from 95% of lower bound to 105% of upper bound. A total of 37,035 CBCs, 11,414 BMPs, and 3903 coagulation studies were ordered. Proportions of these tests repeated were 0.9%, 1.9%, and 1.9%, respectively. Mean time to repeat was 2 hours. For CBCs, 25% of repeats were for a missing component; 35% were for low platelet counts. Sixty-eight percent of initial BMPs were repeated for high potassium. Half of coagulation studies were repeated for high prothrombin time; 36% were repeated for a missing component. On repeat, 75% of BMPs with high potassium levels and 65% of CBCs with low platelet count returned normal values, but 16% of coagulation studies repeated for high prothrombin time returned normal values. Repeat ED laboratory testing occurs infrequently at a children's hospital, and a large proportion of repeats is attributed to missing results. When repeated, abnormal results on initial studies are often returned as normal.

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Authors: Evan Fieldston