Using Computer Alert Systems in the Emergency Room to Screen for Child Abuse

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What was the research about?

Young children who come to the emergency room, or ER, with bruises and other injuries may be victims of physical abuse. However, hospital staff don't always order standard tests that help detect child abuse.

The research team did two studies looking at ways to improve identification and referral of children at risk for child abuse. The first study tested a new alert system at a children's hospital. The team wanted to know if the system helped doctors

- Identify children under age two who are at risk for physical abuse
- Evaluate children for abuse
- Check all children equally, without differences based on their race or income

In the second study, trained ER nurses filled out a short form for children under 13 years old. The research team wanted to know if using the form in ERs improved how often doctors reported possible abuse to Child Protective Services.

What were the results?

Study 1

Children at risk. The alert system effectively identified children under age two who were at risk for physical abuse.

Checking for abuse. ER doctors who saw the alerts checked for abuse about as often as doctors who didn't see them. Whenever doctors ordered tests based on the alerts, they ordered all the recommended tests.

Checking all children equally. Doctors checked for abuse more often when children had public insurance compared with children who had private insurance. There was no difference in how often doctors checked for abuse based on children's races.

Study 2

Checking for abuse. ER nurses completed the form for 68 percent of patients under 13 years old. ER doctors reported possible abuse to Child Protective Services more often when they had the results from the form than when they didn't.

Checking all children equally. There was no difference in how often doctors reported abuse to Child Protective Services based on children's race or their family's income. In addition, there were no differences in how often doctors reported abuse between different hospitals.

Who was in the study?

Study 1

To make sure the alert system was effectively identifying children under age two who were at risk for physical abuse, the research team looked at 226 children who triggered the alert. Of these children,

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68 percent were white, 61 percent were male, and the average age was nine months. The children got care at one children's ER in Pennsylvania.

Next, the research team wanted to learn if doctors were checking for abuse, and checking all children equally. This part of the study included 306 children under age two who went to the same children's ER in Pennsylvania and triggered the alert system. Of these, 66 percent were white, 56 percent were male, and the average age was nine months.

Study 2

The second study included health records for 17,163 children under age 13 who went to one of 13 ERs in a hospital system in Pennsylvania. Of these, 72 percent were white and 21 percent were African American. The average age was 6 years, and 46 percent were male.

What did the research team do?

For the first study, the research team created an alert in the hospital's computer system to signal doctors to check for abuse. For example, if an infant had bruises, it would trigger the alert.

For the second study, the research team tested a five-question form at 13 ERs. The team asked nurses to fill out the form for all children under age 13. If the nurse answered yes to a question, the computer system would alert a doctor to the concern for abuse. The

alert would suggest the doctor speak with a social worker and check for abuse.

What were the limits of the study?

The first study took place at a children's hospital where doctors may be more familiar with signs of abuse and therefore more likely to look for it than at other hospitals. All the doctors at the hospital knew about the alert system. So, they may have been more likely to notice signs of abuse even when they didn't see an alert.

For the second study, the research team didn't have data on why ER nurses filled out the form for some patients and not others. For example, if a child had a history of ER visits, the nurse may have been more likely to fill out the form. This may have affected which children had a completed form in their record.

Future research could test these systems in different medical settings.

How can people use the results?

ER doctors and hospital managers can use findings from the first study to improve screening in the ER for physical abuse in children under age two.

Hospitals can use the findings from the second study to decide if they want to use the form to help identify possible abuse in children under 13 years old.

To learn more about this project, visit www.pcori.org/Berger123.