Use of Flight Criteria to Reduce the Number of Flights for a Neonatal-Pediatric Transport Team: A Quality Improvement Initiative

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ABSTRACT

Purpose: Helicopter emergency medical systems have improved survival in the adult trauma population. There is, however, a lack of clear data on the benefits of flight in pediatric and neonatal transport. There are also potential cost and safety issues associated with air transport. Furthermore, there is currently no validated tool to help determine the appropriate mode of transport, and the decision for air transport is often debated. Most agree that a flight is warranted if the patient’s condition is not improving or if there is a need to improve the patient’s outcome. In reality, other factors also impact the decision to fly, including patient acuity, referring facility, and comparison with other hospitals. We, therefore, created a tool to guide appropriate flight utilization. We hypothesized that the use of pre-determined flight criteria would reduce the number of times that flight was chosen for trips where there was limited perceived benefit.

METHODS

• Our Midwest tertiary children’s hospital, the neonatal-pediatric transport team serves a 300 mile radius, including urban and rural communities, and performs approximately 1200 transports per year, of which about 25% are by air. We created a flight tool to guide our decision making process when choosing the mode of transport for each mission. This tool included evaluation of patient acuity, weather, distance, traffic, team availability, and physician request. Scores were assigned to each category, and the total score guided the decision to fly versus drive. Referring physician request was pre-determined as an absolute reason for flight, weather permitting. We intended use of these criteria on July 1, 2012 and prospectively employed this tool until June 30, 2013. We then retrospectively reviewed the criteria to trips from July 1, 2011-June 30, 2012 for comparison purposes.

• The number of flights that did not meet criteria was flight was unchanged, despite implementation of a flight tool (33% retrospective versus 35% prospective, p=0.51). Of the flights that did not meet criteria to fly, we flew 67% of the time for physician request. Conclusion: Application of pre-determined flight criteria did not change the number of times flight was chosen as the mode of transport. Two-thirds of the flights that did not meet criteria to fly were traveled by air to elicit physician request. Further studies will help elucidate whether our tool is underutilizing the need for flight, or if we need to provide education to refer care on use of air transport services.

RESULTS

- We had 1087 trips in the 2011-12 period and 1222 trips in the 2012-13 period. We flew for 23% and 20% respectively.
- In 2011-12, there were 67% pediatric flights and 33% neonatal trips.
- In 2012-13, we had 62% pediatric flights and 38% neonatal trips.
- Of the flights that did not meet criteria, about 2/3 were pediatric and 1/3 were neonatal.
- We had adequate data to evaluate 234 of 252 flights (93%) from 2011-12 and 233 of 249 flights (94%) from 2012-13.
- The percent of flights that did not meet criteria to fly was not significantly changed despite implementation of a flight tool (33% retrospective vs. 31% prospective, p=0.51).
- Of the flights that did not meet criteria to fly, we flew 67% of the time for physician request, in the prospective year. The remainder occurred for multiple, underlying reasons, as determined by the transport RN and accepting physician in real time.

CONCLUSION

- Application of pre-determined flight criteria did not change the number of times flight was chosen as the mode of transport.
- Two-thirds of the flights that did not meet criteria to fly were traveled by air due to referring physician request.
- Further studies will help elucidate whether our tool is underutilizing the need for flight, or if we need to provide education to refer care on use of air transport services.

DISCUSSION

- We found poor compliance with completion of our flight tool - 202 sheets completed out of 1222 trips (remaining data gathered from chart review). It is possible that the tool was only utilized if flight was considered.
- We plan to re-evaluate our tool for future use and simplify the scoring system by making “physician request” a Yes/No question, rather than a numeric value.
- If a tool is used at all, it is intended to determine mode of transport, it must be concise and considered standard practice by all team members.
- Outreach education for referring physicians may improve the utility of any pre-determined criteria intended to preclude the selection of air transport.
- Future studies are needed to evaluate the utility of pre-determined flight criteria.

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