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Pediatric Prehospital Protocols Grant
Pediatric Non-Transport
Evidence-Based Practice Summary

Evidence-Based Practice Summary prepared by Colleen Jones, MS, RN, Research Specialist and Janelle Smith, MSN, RN, Research Specialist.

ASK THE QUESTION

Question 1: Does the use of online physician consultation in prehospital pediatric non-transport decision improve outcomes (decreased adverse events, decreased inappropriate transport)?
Question 2: Are pediatric patients who are non-transported based on decisions made by prehospital emergency medical services personnel in the field more likely to experience adverse events than those who are transported?
Question 3: For the pediatric patient in the prehospital setting, is there a significant correlation between parental refusal of EMS transport to the emergency department and subsequent diagnosis of abuse?
Question 4: Does the use of online physician consultation significantly reduce the medical and/or legal risks associated with non-transport decisions for pediatric patients in the prehospital setting?

CRITICALLY ANALYZE THE EVIDENCE

Question 1: Does the use of online physician consultation in prehospital pediatric non-transport decision improve outcomes (decreased adverse events, decreased inappropriate transport)?

Recommendation: Since online physician consultation has some benefit in decreasing inappropriate transports, and there is the potential risk of adverse events with non-transport, online physician consultation should be sought when making a non-transport decision.

Recommendation: Weak
Grade Criteria: Very low quality evidence

In the Haskins (2002) retrospective chart review, it was determined that telemedicine in the prehospital setting does indeed decrease inappropriate transport. It was demonstrated that the younger the patient the increased rate of disposition via telemedicine thus decreasing inappropriate transportation to a facility, i.e., 0-5 years (22%), 6-10(44.8%), 11-15(20%), 16-20(18.8%). The use of online physician communication increased transport rates for intoxicated and altered mental status adult patients in Hoyt 2001 study. The time to transport was significantly longer when the physician to patient call was instituted. Online medical direction is utilized in the prehospital setting to increase patient safety by requiring a prehospital provider to consult a base hospital before administering certain high risk treatments. There is very little evidence in the prehospital setting comparing the relative effectiveness and safety of

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online medical direction. The literature favoring online medical direction (Holliman 1994, Holliman 1994, Wuerz 1995) acknowledged relatively low error rates and usage. Offline medical direction is utilized in the prehospital setting to define parameters of treatment that can be provided by trained personnel. The literature generally supports the use of offline medical direction in the form of written protocols to guide treatment by trained personnel.

Recommendation(s): Very Low Quality Evidence
Number of Studies: Total # 5 ☐ Systematic review/Meta-analysis ☐ RCT ☒ Observational (1-5) ☐ Case Reports
Publication Bias Evident ☐ Yes ☒ No

Design *Limitations*	*Inconsistency* of Results	*Indirectness* of Evidence	*Imprecision*
☒ None (Haskins 2002, Holliman 1994, Holliman 1994, Hoyt 2001, Wuerz 1995) ☐ Insufficient sample size ☐ Lack of blinding ☐ Lack of allocation concealment ☐ Large losses to F/U ☐ Incorrect analysis of ITT ☐ Stopped early for benefit ☐ Selective reporting of measured outcomes (e.g., no effect outcome)	☒ No inconsistencies (Haskins 2002, Holliman 1994, Holliman 1994, Hoyt 2001, Wuerz 1995) ☐ Wide variation of treatment effect across studies ☐ Populations varied (e.g., sicker, older) ☐ Interventions varied (e.g., doses) ☐ Outcomes varied (e.g., diminishing effect over time)	☒ Head-to-head comparison in correct population (Haskins 2002, Holliman 1994, Holliman 1994, Hoyt 2001, Wuerz 1995) ☐ Indirect comparisons (e.g., interventions to placebo but not each other) ☐ Different populations ☐ Different interventions ☐ Different outcomes measured ☐ Comparisons not applicable to question/outcome	**Dichotomous outcomes** ☐ Sample size lower than calculated optimal information size ☒ Total # of events is < 300 based on simulations & dependent on baseline risk & effect sizes (Hoyt 2001) ☐ 95% CI includes negligible effect and appreciable benefit or harm **Continuous outcomes** ☐ 95% CI includes no effect and the upper or lower limit crosses the minimal important difference (MID), either for benefit or harm ☐ Upper or lower limit crosses an effect size of 0.5 in either direction (if MID is not known or differences in outcomes require the calculation of an effect size)

Sample	CI/RR
Haskins (2002): Retrospective chart review of 345 consecutive ambulance transports to 4 different hospitals. Reviewed whether patients required ambulance transport for evaluation or whether disposition could be made following paramedic and emergency physician assessment via telemedicine to eliminate transport to the ED. **Holliman (1994):** Prospective review of 2001prehospital advanced life support (ALS) "trip sheets" involving online physician medical command (OLMC). Outcome measures included: physician medical command error rates and paramedic error rates after a protocol system was implemented	**Haskins (2002):** The decrease in ambulance transports: • 12.9% to Level 1 urban trauma centers • 10.3% to urban tertiary hospital • 24.6% to children's hospital • 13.9% to suburban community hospital **Holliman (1994):** • Medical command physician error rate was 24/1928 (1.2%)command runs

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and on-scene time interval after standing orders protocol implementation. **Holliman (1994):** Review of 1008 of medical command case reports to compare patient care measures provided by paramedics in alignment with standing orders versus measures ordered by direct medical command or determine types and frequency of medical command orders. **Hoyt (2001):** Retrospective chart review of 147 transport refusals. Online medical control was used on all EMS calls; physician-patient contact (PPC) was utilized when transport was refused by patient or patient's family. Transport refusals and communication with a physician and the time a physician spent on the call talking with the patient were the outcomes measured. **Wuerz (1995):** Retrospective case review of 245 cases of prehospital treatment involving on-line medical directions (OLMD) and standing orders. Measured outcomes included frequency of which an MD, OLMD resulted in orders, describe the nature of these orders and measure OLMD time intervals.	• Paramedic error rate was 8/2001 or 0.4% • Mean on-scene time interval by paramedics was 16 minutes 30 seconds in standing orders protocol system vs 17 minutes and 38 seconds in the previous system. Determined not to be clinically significant. **Holliman (1994):** • Direct medical command gave orders 143/1008 (14.2%) • 2,453/2624 (93.5%) of total patient care interventions were performed following standing orders by paramedics • 6.1% cases medical command ordered interventions not specified in standing orders or not completed by the paramedic • 59/171 (34.5%) command orders were for interventions mandated or permitted on the standing orders • Paramedic error rate was 0.6% • Medical command error rate was 1.8% **Hoyt (2001):** • PPC was used in 70 of 147 transport refusals. 46/70 (66%) still refused transport. • 24/70 (34%) agreed to be transported after talking with the physician • 67/77 (87%) patients declined transport without PPC • 10/77 (13%) who agreed to transport without PPC **Wuerz (1995):** • OLMD ordered clinical interventions in 46/236 19% of the cases even though there was detailed standing orders • 32/60 of OLMD orders were for intervention sore medications included in the standing orders • OLMD requires 4 minutes of physician time per call or 1/3 of the field treatment time

References:

Haskins, P. A., Ellis, D. G., & Mayrose, J. (2002). Predicted utilization of emergency medical services telemedicine in decreasing ambulance transports. *Prehospital Emergency Care, 6*(4), 445-448.

Holliman, C. J., Wuerz, R. C., & Meador, S. A. (1994). Decrease in medical command errors with use of a "standing orders" protocol system. *American Journal of Emergency Medicine, 12*(3), 280-283.

Holliman, C. J., Wuerz, R. C., Vazquez-de Miguel, G., & Meador, S. A. (1994). Comparison of interventions in prehospital care by standing orders versus interventions ordered by direct (on-line) medical command. *Prehospital and Disaster Medicine, 9*(4), 202-209.

Hoyt, B. T., & Norton, R. L. (2001). Online medical control and initial refusal of care: Does it help to talk with the patient? *Academic Emergency Medicine, 8*(7), 725-730.

Wuerz, R.C., Swope, G.E., Holliman, J., & Vazquez-de Miguel, G. (1995). On-line medical direction: A prospective study. *Prehospital and Disaster Medicine, 10*(3), 174-177.

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Question 2: Are pediatric patients who are non-transported based on decisions made by prehospital emergency medical services personnel in the field more likely to experience adverse events than those who are transported?

Recommendation: Non-transport decisions should be initiated by the parent/guardian of pediatric patients, not prehospital providers, yet clinical judgment of providers should be considered when denying caregiver-initiated requests. When prehospital providers agree with the parent/guarding request for non-transport, a final decision should be verified by pre-established criteria of the EMS agency's medical director or with approval of online medical direction.

Recommendation: Strong
Grade Criteria: Moderate quality evidence

Brown's (2009) systematic review found insufficient evidence to support paramedic determination of medical necessity to transport patients to a medical facility. Paramedics determining medical necessity for transport of pediatric patients may be more difficult and more complex than for the adult population. In two pediatric research studies reviewed by Brown, et al. 2009, it was determined that pediatric patients not transported by ambulance required further medical care with some requiring hospitalization after the nontransport was determined by the EMS personnel.

Newgard, et al. 2012 study determined that the EMS provider assessment and/or judgment identified high-risk patients missed by subjective data i.e., vital signs, Injury Severity Score and were transported to a healthcare facility.

Both Schmidt, et al. 2006 and Pringle, et al. 2005 looked at outcomes of patients who refused transport and who were also refused transport by EMS to a healthcare facility. The EMS decision not to transport was associated with lower mortality rates and lower additional healthcare follow up with a question of whether these patients were healthier and were not as sick. However, non-transported patients in these studies were likely less ill to begin with, and this does not imply that non-transport leads to better patient outcomes as Brown et al. found in their systematic review and meta-analysis.

Recommendation(s): Moderate Quality Evidence
Number of Studies: Total # 4 ☒ 1 Systematic review/Meta-analysis ☐ RCT ☒ 3 Observational ☐ Case Reports
Publication Bias Evident ☐ Yes ☒ No

Design *Limitations*	*Inconsistency* of Results	*Indirectness* of Evidence	*Imprecision*
☒ None (Brown 2009) ☐ Insufficient sample size ☒ Lack of blinding (Newgard 2012, Pringle 2005, Schmidt 2006) ☒ Lack of allocation concealment ☐ Large losses to F/U ☐ Incorrect analysis of ITT ☐ Stopped early for benefit ☐ Selective reporting of measured outcomes (e.g., no effect outcome)	☐ No inconsistencies ☐ Wide variation of treatment effect across studies ☐ Populations varied (e.g., sicker, older) ☐ Interventions varied (e.g., doses) ☒ Outcomes varied (e.g., diminishing effect over time) (Brown 2009)	☒ Head-to-head comparison in correct population (Brown 2009) ☐ Indirect comparisons (e.g., interventions to placebo but not each other) ☐ Different populations ☐ Different interventions ☐ Different outcomes measured ☐ Comparisons not applicable to question/outcome	**Dichotomous outcomes** ☐ Sample size lower than calculated optimal information size ☐ Total # of events is < 300 based on simulations & dependent on baseline risk & effect sizes ☒ 95% CI includes negligible effect and appreciable benefit or harm (Newgard 2012,Schmidt

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			2006) **Continuous outcomes** ☐ 95% CI includes no effect and the upper or lower limit crosses the minimal important difference (MID), either for benefit or harm ☐ Upper or lower limit crosses an effect size of 0.5 in either direction (if MID is not known or differences in outcomes require the calculation of an effect size)
Sample		**CI/RR**	
Brown (2009): Systematic review and meta-analysis evaluated studies reporting paramedics' ability to determine medical necessity of ambulance transport.10 studies were included in the final analysis. **Newgard (2012):** Multisite, population based retrospective cohort including 213,869, adults and children, for who 911 was activated to encompass 5 geographic regions over a 3 year period there were 24,341 children. Primary outcome included an Injury Severity score to measure and allow comparisons with several other triage studies and identifies a patient population likely to benefit from trauma center care. **Pringle (2005):** Retrospective telephone survey of 906 nontransported patients, 310 consented to study. 205 patients refused to be transported and 105 patients were EMS refusal to transport. Comparison of patient outcomes between patients who refused EMS transport and the patients whom EMS did not transport. **Schmidt (2006):** Retrospective, descriptive study using 1059 patient data extracted from electronic data base. Including patients of all ages where EMS was called. The study evaluated factors predicting nontransport and mortality rates in an EMS system with a nontransport policy.		**Brown (2009):** • Negative Predictive Value for paramedic determinations of medical necessity for ambulance transport was 0.91, with lower confidence limit of 0.71; an undertriage rate of 9% is likely and may be as high as 29%. While possible for paramedics can safely and accurately determine medical necessity for transport, this ability has not been demonstrated through published, peer-reviewed research. **Newgard (2012):** • EMS provider judgment was the most commonly cited criterion overall at 40.0% and sole criterion 21.4%. • Adjusted odds ration of Injury Severity Score > 16 for EMS provider judgment was 1.23 (95% CI, 1.03-1.47) • EMS assessment is useful in identifying high-risk patients missed by other criteria **Pringle (2005):** • Patient refusal: - 205/310 (66.1%) were patient refusals. 113 (55.1%) later sought medical care via their physician. 82 (72.6%) went to the Emergency Department. 31(27.4%) sought care in a physician's office. - 65 (57.5%) had a change of medical care or a procedure performed - 15 (7.3%) were admitted to the hospital with an average length of stay 4.33 days (1-17 days) • EMS Refusal - 105/310 (33.9%) denied transport by EMS personnel	

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	- 59/105 (56.2%) later sought care by a physician - 48/105 (49.4%) sought care in ED - 11/105 (18.6%) sought care in a physician's office - 41/105 (69.5%) had a change in medical care or had a procedure performed - 10/105 (9.5%) reported admission to the hospital with an average length of stay 6 days (1-17 days) **Schmidt (2006):** • Older patients were more likely to be transported than younger (OR, 1.03; CI, 1.02-1.03) • Men were more likely to be transported than women (OR, 1.437; CI, 1.002-2.06) • Time of day did not significantly influence probability of transport, slight trend toward increased probability of nontransport during night (OR, 1.51; CI, 0.99-2.30) • Mortality rate among transported patients was 4.9% (CI, 3.9%-6.2%) • Mortality rate among nontransported patients was 1.0% (CI, 0.2%-3.7%)

References:

Brown, L. H., Hubble, M. W., Cone, D. C., Millin, M. G., Schwartz, B., Patterson, P. D., et al. (2009). Paramedic determinations of medical necessity: A meta-analysis. *Prehospital Emergency Care, 13*(4), 516-527.

Newgard, C. D., Kampp, M., Nelson, M., Holmes J. F., Zive, S., Rea, T., et. al. (2012). Deciphering the use and predictive value of "emergency medical services provider judgment" in out-of-hospital trauma triage: a multisite, mixed methods assessment. *Journal of Trauma, 72*(5), 1239-1248.

Pringle, R. P., Carden, D. L., Xiao, F., & Graham, D. D. (2005). Outcomes of patients not transported after calling 911. *The Journal of Emergency Medicine, 28*(4), 449-454.

Schmidt, J. J., Handel, D., Lindsell, C. J., Collett, L., Gallo, P., & Locasto, D. (2006). Evaluating an emergency medical services-initiated nontransport system. *Prehospital Emergency Care, 10*(3), 390-393.

Question 3: For the pediatric patient in the prehospital setting, is there a significant correlation between parental refusal of EMS transport to the emergency department and subsequent diagnosis of abuse?

Recommendation: Since it is unclear if child abuse is associated with caregiver requests for EMS non-transport, prehospital providers should not do any supplemental documentation or law enforcement reporting beyond their normal practice in these situations, unless they have specific suspicion for abuse.

Recommendation: Weak
Grade Criteria: Low quality evidence

No specific studies were found reviewing outcomes of parent refusal of EMS transport and a diagnosis of abuse; however three studies were found comparing chief complaints and refusal of transport. The most common chief complaint was that of trauma and/or injury.

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Gerlacher, et al. 2001 reported that non-transport was less common with children under 2 years old and during the very early morning hours. Kahale, et al. 2006 reported determined that 50.7% of the children not transported were trauma patients treated by paramedics in the field, 45.6% were medical illness, and 4.1% were patients with an undetermined medical condition. Seltzer et al. 2001 study determined that of the 84% of the patients whose parents refused transport received follow up care in the Emergency Department or Physician Office. The chief complaint of his study population was trauma followed by respiratory complaints. Therefore, it is unclear if children for whom their caregivers initiate non-transport or refuse transport are more likely to be victims of child abuse.

Recommendation(s): Low Quality Evidence
Number of Studies: Total # 3 ☐ Systematic review/Meta-analysis ☐ RCT ☒ **3** Observational ☐ Case Reports
Publication Bias Evident ☐ Yes ☒ No

Design *Limitations*	*Inconsistency* of Results	*Indirectness* of Evidence	*Imprecision*
☐ None ☐ Insufficient sample size ☐ Lack of blinding ☐ Lack of allocation concealment ☐ Large losses to F/U ☐ Incorrect analysis of ITT ☐ Stopped early for benefit ☐ Selective reporting of measured outcomes (e.g., no effect outcome)	☒ No inconsistencies (Gerlacher 2001, Kahale 2006, Seltzer 2001) ☐ Wide variation of treatment effect across studies ☐ Populations varied (e.g., sicker, older) ☐ Interventions varied (e.g., doses) ☐ Outcomes varied (e.g., diminishing effect over time)	☒ Head-to-head comparison in correct population (Gerlacher 2001, Kahale 2006, Seltzer 2001) ☐ Indirect comparisons (e.g., interventions to placebo but not each other) ☐ Different populations ☐ Different interventions ☐ Different outcomes measured ☐ Comparisons not applicable to question/outcome	**Dichotomous outcomes** ☐ Sample size lower than calculated optimal information size ☒ Total # of events is < 300 based on simulations & dependent on baseline risk & effect sizes (Gerlacher 2001, Seltzer 2001) ☐ 95% CI includes negligible effect and appreciable benefit or harm **Continuous outcomes** ☐ 95% CI includes no effect and the upper or lower limit crosses the minimal important difference (MID), either for benefit or harm ☐ Upper or lower limit crosses an effect size of 0.5 in either direction (if MID is not known or differences in outcomes require the calculation of an effect size)

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Sample	CI/RR
Gerlacher (2001): Cross-sectional study of children 12 years old and less evaluated but not transported by EMS personnel over a one year period. 3057 children met inclusion criteria. **Kahale (2006):** Prospective cohort study of 345 children less than 16 years old who were seen and assessed by paramedics but not transported to the hospital by ambulance during a 5 month period, January1 to May 31, 2003. **Seltzer (2001):** Observational, retrospective telephone follow-up survey involving parents of minors for whom the parent refused transport service. 89 patients met criteria for survey, Telephone contact was made with 44 parents, 32 participated (36% of total)	**Gerlacher (2001):** • The non-transported children chief complaints included: 27.7% injuries, 20.4% motor vehicle accidents and 10.2 % choking episodes. Non-transport was less common for children under 2 years old and during the early morning hours. **Kahale (2006):** • 175 children (50.7%) were trauma cases receiving treatment from paramedics (not transported) which included: 26 dressing application to wounds, 11 received oxygen, 8 limb immobilizations, 4 controlled bleeding, 3 extricated from vehicles and 1 required suctioning. 156 children (45.2%) had a chief complaint of a medical illness and 14 children (4.1%) the primary problem could not be identified. **Seltzer (2001):** • Chief Complaints of non-transported children included: 6 neurological, 2 cardiac, 11 respiratory, 12 trauma, and 1 for epitaxis. Of the 32 participant families who refused transport or were not transported by EMS, 27 (84%) received medical follow-up in either the Emergency Department (ED) or a private physician's office. 89% who were evaluated and/or treated were released home. 3 children were admitted to the hospital, all with cardiac or respiratory complaints.

References:
Gerlacher, G. R., Sirbaugh, P. E., & Macias, C. G. (2001). Prehospital evaluation of non-transported pediatric patients by a large emergency medical services system. *Pediatric Emergency Care, 17*(6), 421-424.
Kahale, J., Osmond, M. H., Nesbitt, L., & Stiell, I. G. (2006). What are the characteristics and outcomes of nontransported pediatric patients? *Prehospital Emergency Care, 10*(1), 29-34.
Seltzer, A. G., Vilke, G. M., Chan, T. C., Fisher, R., & Dunford, J. V. (2001). Outcome study of minors after parental refusal of paramedic transport. *Prehospital Emergency Care, 5*(3), *278-283.*

Question 4: Does the use of online physician consultation significantly reduce the medical and/or legal risks associated with non-transport decisions for pediatric patients in the prehospital setting?

Recommendation: Though it is unclear if online physician consultation reduces medicolegal risk for pediatric patients who are non-transported, prehospital providers should document the initiator and approver of the non-transport decision in the medical record and should consider online consultation to minimize potential risk.

Recommendation: Weak
Grade Criteria: Very low quality evidence

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Prehospital refusal to transport to the Emergency Department by either the patient or EMS services is a serious legal liability for all EMS systems. Mandatory physician consultation is recognized in medical and legal documentation recommendations as being one of the crucial elements for adequate protection against legal litigation. Most EMS systems incorporate formal non-transport policies in order to protect themselves from legal liability. Weaver 2000 found that less than a third of 86 EMS systems had adopted the minimum criteria recommended, including physician consultation, to their policies. Seldon 1990 also evaluation documentation from paramedic run reports and found that even though contact was made with medical control there was no significance between the patients that nontransports were deemed appropriate or inappropriate. Stuhlmiller 2005 studied the effect of online medical command (OLMC) on decision to transport by EMS and direct communication with the patient who refuses transportation. Communication directly by the OLMC to the patient resulted in 9 of 32 patients (32%) agreeing to be transported to a facility for treatment.

Recommendation(s): Very Low Quality Evidence
Number of Studies: Total # 3 ☐ Systematic review/Meta-analysis ☐ RCT ☒ 3 Observational ☐ Case Reports
Publication Bias Evident ☐ Yes ☒ No

Design *Limitations*	***Inconsistency* of Results**	***Indirectness* of Evidence**	***Imprecision***
☐ None ☐ Insufficient sample size ☐ Lack of blinding ☐ Lack of allocation concealment ☐ Large losses to F/U ☐ Incorrect analysis of ITT ☐ Stopped early for benefit ☐ Selective reporting of measured outcomes (e.g., no effect outcome)	☒ No inconsistencies (Selden 1990, Weaver 2000, Stuhlmiller 2005) ☐ Wide variation of treatment effect across studies ☐ Populations varied (e.g., sicker, older) ☐ Interventions varied (e.g., doses) ☐ Outcomes varied (e.g., diminishing effect over time)	☒ Head-to-head comparison in correct Population (Selden 1990, Weaver 2000) ☐ Indirect comparisons (e.g., interventions to placebo but not each other) ☐ Different populations ☐ Different interventions ☐ Different outcomes measured ☐ Comparisons not applicable to question/outcome	**Dichotomous outcomes** ☐ Sample size lower than calculated optimal information size ☒ Total # of events is < 300 based on simulations & dependent on baseline risk & effect sizes (Weaver 2000) ☐ 95% CI includes negligible effect and appreciable benefit or harm **Continuous outcomes** ☐ 95% CI includes no effect and the upper or lower limit crosses the minimal important difference (MID), either for benefit or harm ☐ Upper or lower limit crosses an effect size of 0.5 in either direction (if MID is not known or differences in outcomes require the calculation of an effect size)

Sample	**CI/RR**
Selden (1990): Retrospective study evaluating 2,698 consecutive paramedic run reports on all patients, adult and pediatric. Criteria for appropriate release from transport were evaluated.	**Selden (1990):** • No significant association of contact with medical control for appropriate or inappropriate release of the patient for non-transport.

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Weaver (2000): Observational study included a 17 question survey administered to 86 of 100 (86%) EMS representatives of 100 of the most populated cities in the U.S. The survey was to determine the percentage of EMS system utilizing formal refusal-of- transport policies and to evaluate the legal adequacy of these policies. **Stuhlmiller (2005):** Retrospective review of 137 recorded Online Medical Command (OLMC) patient- initiated refusal to transport calls.	**Weaver (2000):** • 78% of 78 EMS systems permitted their EMTs and paramedics to honor a patient's refusal unsupervised. 15% required contact with a medical control physician; this is one of the crucial elements in medical and legal documentation of nontransport litigation. **Stuhlmiller (2005):** • 119 patients (86.9%) refused transport • 18 patients (13.1%) agreed to transport • 28 patients (20.4%) with whom OLMC spoke during encounter, 9 (32.1%) agreed to transport, compared to 9 (8.3%) of 109 patients who did not speak to the OLMC ($p < 0.001$)

References:

Selden, B. S., Schnitzer, P. G., & Nolan, F. X. (1990). Medicolegal documentation of prehospital triage. *Annals of Emergency Medicine, 19*(5), 547-551.

Stuhlmiller, D. F. E., Cudnik, M. T., Sundheim, S. M., Threlkeld, M. S., & Collins, T. E. (2005). Adequacy of online medical command communication and emergency medical services documentation of informed refusals. *Academic Emergency Medicine, 12*(10), 970-977.

Weaver, J., Brinsfield, K. H., & Dalphond, D. (2000). Prehospital refusal-of-transport policies: Adequate legal protection? *Prehospital Emergency Care, 4*(1), 53-56.

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