

# Effective Discharge Communication in the Emergency Department

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Communication at discharge is an important part of high-quality emergency department (ED) care. This review describes the existing literature on patient understanding and implementation of discharge instructions, discusses previous interventions aimed at improving the discharge process, and recommends best practices and future research. MEDLINE and Cochrane databases were searched, using combinations of key terms. Literature from both the adult and pediatric ED populations was reviewed. Multiple reports have shown deficient comprehension at discharge, with patients or parents frequently unable to report their diagnosis, management plan, or reasons to return. Interventions to improve discharge communication have been, at best, moderately successful. Patients need structured content, presented verbally, with written and visual cues to enhance recall. Written instructions need to be provided in the patient's language and at an appropriate reading level. Understanding should be confirmed before the patient leaves the ED. Further research is needed to describe the optimal content, channel, and timing for the ED discharge process and the relationship between discharge process and outcomes. [Ann Emerg Med. 2012;60:152-159.]

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## INTRODUCTION

### Background

Discharge from the hospital is a period of significant potential vulnerability for patients. Patients leaving the hospital after inpatient admission often fail to understand important elements of their discharge and home care plan,<sup>1</sup> leaving them at potential risk of a medical error or adverse drug event.<sup>2</sup> Compared with the inpatient provider, the emergency department (ED) physician faces unique challenges in the provision of high-quality, patient-centered care in a distraction-filled and time-limited environment without previous knowledge of the patients. Precise bidirectional communication at discharge from the ED is a key and often overlooked element in this process. Discharge communication in the ED provides an opportunity to summarize the visit, teach patients how to safely care for themselves at home, address any remaining questions or concerns, and help patients connect to the medical home or primary care providers where their chronic needs may be best managed.<sup>3</sup>

At patient discharge, the emergency provider must effectively complete 3 tasks: communicate the crucial information, verify comprehension, and tailor teaching to areas of confusion or misunderstanding to ensure patient safety in the home environment. This process must balance reliability and efficiency gains provided by standardization with the flexibility required to be effective across a wide range of parental literacy levels and cultural backgrounds. Too often, however, discharge communication becomes an afterthought, limited only to a brief

exchange of forms and prescriptions, leaving patients with uncertainty about the care plan and at risk of errors in medication use. Patients and families with limited health literacy or language fluency are likely to be at particular risk of departing from the ED with insufficient comprehension.

Patients arrive in the ED with various amounts of information, experience with the health care system, language fluency, and health literacy. They are presented with information from the environment (posters, handouts) throughout their ED stay. Focused interactions with nursing and physician providers are opportunities for education during the whole ED stay. In many cases, the discharge education will begin with the initial assessment and conversation with the family. Patient, provider, and environmental factors influence the success or failure of information transmission at discharge.

This review will focus on communication during the formal discharge process, the conversation with a provider before the patient departs from the ED. It will describe the deficiencies of current discharge processes through an examination of their content and method of delivery, discuss the data on patient understanding and implementation of those instructions, and then review the reported interventions that have attempted to improve the discharge process.

### MATERIALS AND METHODS

MEDLINE (1980 to date) and Cochrane databases were searched, using combinations of the following terms: "pediatric," "discharge," "communication," "ED," "patient-

centered,” “adherence,” “compliance,” and “instructions.” A single reviewer (MES-K) examined titles and abstracts and reviewed the full text of relevant articles. References were reviewed from review articles and cited articles. Literature from both the adult and pediatric ED populations was reviewed.

### Problems with Understanding of ED Discharge Instructions

**Content.** There are limited data examining the content of verbal discharge instructions in the ED. A recent study by Vashi and Rhodes<sup>4</sup> examined recorded tapes of clinical encounters, which were assessed by 2 independent coders and compared with a predefined standard. They found that although 76% of patients received an explanation of their symptoms, only 34% of patients received instructions about symptoms that should cause them to return to the ED.<sup>4</sup> An earlier study of audiotaped ED visits demonstrated that the average length of time of the discharge process was 76 seconds, and information on diagnosis, course of illness, self-care, medication use, follow-up, and symptoms that should cause return to the ED were each mentioned less than 65% of the time.<sup>5</sup>

Studies examining the content of written instructions have also found multiple important omissions. One study examining written ED discharge instructions for hypoglycemic patients revealed that many were missing key components of home management and patient safety.<sup>6</sup> For example, only 21% advised frequent blood glucose checks.<sup>6</sup> Another study of discharge instructions for patients prescribed acetaminophen-containing narcotics found that none of the 108 patients in the study was instructed to avoid the use of other acetaminophen-containing medications.<sup>7</sup>

**Delivery.** Even the most complete instructions will result in deficient comprehension unless they are presented in a way that is understandable to the learner. However, written ED discharge instructions are often at an inappropriately high reading level, and marked differences in comprehension have been reported, depending on level of educational attainment.<sup>8,9</sup> For example, Spandorfer et al<sup>10</sup> found that although the mean reading level of ED patients was sixth grade, the printed discharge instructions were written at an 11th-grade level. One study in a pediatric ED found that although almost half of the parents had a high school or lower educational level, 5 of 7 discharge instructions required college-level reading skills.<sup>11</sup> In another study of pediatric discharge instructions, parents reported that use of medical terminology was the most frequent contributing factor to their lack of understanding.<sup>12</sup>

Health literacy includes the cognitive and functional skills needed by a person to make health-related decisions.<sup>13</sup> Limited health literacy is highly prevalent (estimated 26% of the population),<sup>14</sup> expensive (estimated increased costs of 3% to 5% across the health care system),<sup>15,16</sup> and associated with a variety of adverse outcomes and indicators of poor health.<sup>17-21</sup> Limited health literacy has been associated with use of a nonstandardized tool for pediatric medication dosing, a lack of knowledge of weight-based dosing,<sup>22</sup> lower medication knowledge,<sup>23</sup> and

improper medication use in adults.<sup>24</sup> The high prevalence of poor health literacy complicates the ED discharge process because many parents will not be able to fully comprehend existing written resources.

In addition to parents with low health literacy, those with limited English proficiency are also likely to be at increased risk of failing to understand discharge instructions. Data from a small study in the primary care literature suggested that patients cared for by a physician who did not speak their language were more likely to miss medications and appointments.<sup>25</sup> A survey in a California ED found significant differences in recall of diagnosis name, medication name, and medication function at discharge between Spanish- and English-speaking patients, with the English-speaking patients performing significantly better on almost all measures.<sup>26</sup> They did not find a significant difference between Spanish-speaking patients who had a bilingual clerk conduct their discharge compared with those who did not.<sup>26</sup> However, significantly fewer Spanish-speaking patients found the written instructions helpful or thought that everything had been explained adequately in their language.<sup>26</sup> An ED-based trial reported that the use of formal interpreters improved both patient and provider satisfaction with communication.<sup>27</sup>

**Comprehension.** Patients leaving the ED are frequently unable to recall important elements of the ED visit and discharge plan. One small study examining elderly patients' comprehension of discharge instructions found that 21% did not understand their diagnosis and 56% did not understand their return instructions, although these were not significantly associated with adverse events.<sup>28</sup> Despite high levels of reported satisfaction with communication, Isaacman et al<sup>29</sup> found that less than half of the important discharge information, including medication details and signs of improvement or worsening clinical status, was recalled at an exit interview. Studies in an academic pediatric ED<sup>30</sup> and a general ED population<sup>26,31</sup> have found similar results. Even in a study population in which 72% of patients could read the discharge instructions aloud to the interviewer, only 49% could outline their treatment plan.<sup>32</sup> Waisman et al<sup>12</sup> performed a study that required parents to understand the type of treatment, frequency, and duration but not the name or dose of the medication for their child. Even with this relatively minimal standard for a correct answer, approximately 20% of parents were still unable to demonstrate understanding of their instructions at discharge.<sup>12</sup> Engel et al<sup>33</sup> conducted structured interviews with 140 adult patients or caregivers who were asked to report their subjective understanding and objective knowledge across 4 domains: ED diagnosis, ED care, post-ED care, and return instructions. Each patient's report was then compared with his or her written discharge instructions. Although 78% of patients demonstrated deficient comprehension in at least 1 domain, patients perceived those deficits only 20% of the time. This is particularly concerning because it suggests that patients and families may not be able to recognize when they need help.

Patients' ability to comply with discharge instructions is correlated with comprehension,<sup>9</sup> but comprehension is rarely assessed at ED discharge. In a study examining audiotaped ED visits, only 22% of patients were given an opportunity to confirm their understanding of the instructions.<sup>4</sup> An earlier study using similar methodology found that only 16% of patients were asked whether they had questions, and none had their understanding confirmed by the discharging provider.<sup>5</sup>

**Implementation.** Studies have shown that between 12%<sup>34</sup> and 22%<sup>35</sup> of patients have failed to fill their prescription when called after discharge from the ED. Dissatisfaction with discharge instructions was associated with not filling the prescription.<sup>34</sup> In pediatrics, dosing directions and medication devices are often confusing and highly variable.<sup>36</sup> In one study examining parental ability to dose acetaminophen for the child, 40% stated an appropriate dose for their child and 67% accurately measured the amount they intended.<sup>37</sup> Only 30% were able to demonstrate both an accurately measured and correct dose.<sup>37</sup> Parents with limited health literacy have an increased risk of making a dosing error.<sup>38</sup>

### Interventions to Improve Understanding of Discharge Instructions

Successful communication of discharge information is critical because comprehension deficits can result in safety risks for patients after discharge. Theoretic risks include inappropriate home care, including incorrect medication use, and failure to return for concerning symptoms or follow-up as directed. Ideally, the provider conducting the discharge communication would have a variety of approaches available to tailor the conversation to different parental and environmental circumstances. The discharging provider could be the independent practitioner taking care of the patient (physician, nurse practitioner, or physician assistant), a student or trainee working under that individual, the registered nurse responsible for the patient in the ED, a discharge facilitator, or a combination of providers. The individuals conducting the discharge are working within potential institutional constraints on their role (reading or translating given instructions or creating independent instructions) and with their own potential limitations of language fluency, fatigue, and experience. The discharging provider must make decisions about the content of the discharge instructions (ie, how much to modify a template), the method of delivery (oral, written, or pictorial or a combination) and whether to verify comprehension after the instructions are given. The following sections review interventions to improve the content, delivery, comprehension, and implementation of discharge instructions.

**Content.** A successful discharge instruction process should contain all of the relevant information in a format that is understandable to patients. To ensure communication of key content, standardized organization of discharge instructions has been attempted in the inpatient setting, using computerized prompts<sup>39</sup> or checklists.<sup>40</sup> One cardiology study of hospitalized patients demonstrated a significant mortality decrease in

patients given guideline-based instructions on discharge,<sup>41</sup> although other studies of hospitalized patients have failed to find an association between discharge contents and rehospitalization risk.<sup>42,43</sup> Training of resident physicians to provide standardized verbal instructions has been associated with increased parental knowledge immediately after discharge and at follow-up in the pediatric setting.<sup>29</sup> Specific education of emergency nurses has also been associated with improved advice given at discharge.<sup>44</sup>

**Delivery.** Written materials provided at discharge have been associated with improved recall of information in most<sup>45,46</sup> but not all<sup>29</sup> reports. Differences are potentially explicable by the various rates of literacy and use of the written information, as well as the contents of the written instructions. Diagnosis-specific instructions improve understanding,<sup>47</sup> recall,<sup>48</sup> and compliance<sup>49</sup> with treatment recommendations but may not decrease the number of unnecessary repeated visits to the pediatric ED.<sup>50</sup> Simplified forms are associated with increased satisfaction<sup>11</sup> and improved comprehension of instructions.<sup>51</sup> Pictures used to represent ideas or concepts (pictograms) have been used to increase recall of discharge instructions.<sup>52</sup> In very small studies, pictograms improve recall in college students,<sup>53</sup> as well as in those with low literacy<sup>54</sup> or limited formal education.<sup>55</sup> A study of comprehension of prescription drug labels found that "patient-centered" instructions, defined as specific instructions about what number of pills to take at what time, were more likely to be interpreted correctly by all patients, and particularly by those with low health literacy.<sup>56</sup> In that study, the graphic aid decreased the rate of correct interpretation compared with the "patient-centered" instructions alone.<sup>56</sup>

One study in the pediatric ED found that verbal reinforcement of discharge instructions in the parents' language of choice was associated with improved parental recall.<sup>57</sup> However, the relationship between verbal reinforcement and recall was significant only in the Spanish-speaking subgroup, and this study was limited by the fact that the discharge facilitator spent an average of 14 minutes with each family,<sup>57</sup> which suggests the possibility of confounding by time and detail of the conversation and makes it difficult to detect how much of the effect was due to the verbal reinforcement.

In the inpatient setting, the use of a nurse focused on the discharge process who assisted patients with making follow-up appointments, medication reconciliation, and patient education was associated with decreased hospital use (ED visits and readmissions) within 30 days.<sup>58</sup> In the ED setting, use of a nurse discharge coordinator for elderly patients was associated with a trend toward the reduction of ED visits but did not reach statistical significance.<sup>59</sup> Structured teaching at discharge from the hospital has been associated with reduced readmissions in pediatric asthma.<sup>60,61</sup> Structured teaching at discharge from the ED has been shown to increase the proportion of parents given appropriate advice but did not increase appropriate follow-up.<sup>62</sup> However, parents receiving standardized verbal instructions had

significantly greater knowledge about their child's illness than did controls.<sup>29</sup>

The results of one study that did not find a relationship between parental literacy and recall of discharge instructions<sup>63</sup> suggest that a structured verbal discharge process may help to reduce the disparity caused by limited health literacy. In this study, although not every patient received written discharge instructions, all providers were told to include the diagnosis, treatment plan, and follow-up instructions in their verbal discharge instructions.<sup>63</sup> A study examining adults with asthma discharged from the inpatient service found that limited health literacy was associated with lower medication knowledge but not with difficulty learning or retaining instructions, suggesting that appropriate targeted interventions can successfully improve comprehension in this group.<sup>23</sup>

**Comprehension.** No trials of ED-based processes to formally check for comprehension have been reported in the literature, to our knowledge. A small study of the informed consent process found that having patients repeat the key points to the provider until able to do so correctly was associated with increased recall of the information.<sup>64</sup> A "read-back, teach-back" communication strategy in which the provider assesses patient recall and comprehension and need for clarification after each concept has been associated with improved outcomes in the primary care<sup>65</sup> and surgical literature.<sup>66</sup> In the informed consent literature, a detailed intervention for providers, focusing on a sequence of communication steps with checks for comprehension after each step, was associated with improved communication skills, increased use of open-ended questions, and more clarification of parental questions.<sup>67</sup> However, one study from China and Thailand reported that some patients felt pressured or anxious when "quizzed" during the informed consent process to ensure comprehension.<sup>68</sup>

**Implementation:** A Cochrane review reported that counseling, written information, and telephone calls improved adherence to short-term medication regimens.<sup>69</sup> Another review of interventions demonstrated that simplification and reminders were successful in improving adherence to medical treatment.<sup>70</sup> In the ED, parental assistance with medication delivery<sup>71</sup> and pictograms<sup>72</sup> have also been associated with decreased medication dosing errors and improved medication adherence. Demonstration of medication dosing and marking of the correct dose on the dosing instrument have been associated with decreased dosing errors in both English- and Spanish-speaking patients.<sup>73</sup>

Appropriate primary care follow-up is a key element of post-ED care and is frequently recommended as part of the discharge communication. Both the pediatric<sup>74</sup> and adult<sup>34</sup> literature contains reports of very low rates of follow-up. A variety of interventions to improve follow-up have been attempted, with limited results. Educational interventions and mailed reminders<sup>75</sup> and telephone reminders<sup>76</sup> failed to improve primary care provider follow-up or decrease ED visits. Providing a scheduled appointment in the ED was associated with

increased frequency of follow-up in one study,<sup>77</sup> although another reported a low rate of follow-up, even in the group given scheduled appointments.<sup>78</sup> In the inpatient setting, the use of a nurse focused on the discharge process who assisted patients with making follow-up appointments, medication reconciliation, and patient education was associated with increased primary care provider follow-up.<sup>58</sup>

Extensive interventions, including transportation vouchers and reminders<sup>79</sup> or work excuses, child care, transportation assistance, and mailed and telephone reminders<sup>80</sup> appear to have only moderate success in increasing primary care follow-up from the ED. Financial incentives have shown mixed results as well.<sup>81,82</sup> One study reporting high attendance in the follow-up clinic and impressive clinical outcomes held the clinic in the ED itself,<sup>83</sup> raising questions about the ED's role and whether the patients could have long-term benefits without revisiting their primary care provider or medical home.

A small Canadian study interviewing patients who did not complete their follow-up found that only 42% reported understanding the reason for their referral.<sup>84</sup> In addition to communication failure, patient choice and physical/social barriers were also reported as primary reasons for failing to complete a referral.<sup>84</sup> These results suggest that the decision about how and when to follow up is likely multifactorial and may be related more to clinical status, insurance considerations, and convenience/access than discharge communication itself.

**Chronic illness: the asthma example:** In addition to the management of acute issues, the discharge process often becomes a chance to encourage improved management of chronic conditions, such as diabetes, or ongoing health behaviors such as seat-belt use or alcohol intake. The following section focuses on asthma as an example of some of the challenges facing ED-discharge-based attempts to change a patient's management of a chronic illness.

Although longer-term education programs have been associated with improved outcomes, particularly in asthma,<sup>85,86</sup> it has been very difficult to show a clinical benefit to ED-provided asthma education. A randomized controlled trial of telephone asthma education after ED discharge demonstrated increased possession and use of a written asthma plan in the intervention group but no improvement in clinical symptoms<sup>87</sup>; another similar intervention demonstrated no improvement in asthma or wheeze during 12 months.<sup>88</sup> An ED-based study with a comprehensive intervention (dedicated asthma educators meeting with families for more than 30 minutes and an asthma hotline available for parental questions) showed improvement in only 1 subgroup of those who received the intervention.<sup>89</sup> One asthma initiative that accepted children from the ED, hospital admission, or primary care provider referral and involved an intensive intervention (case management, primary care provider coordination, home visits, pest management, and smoking cessation and education) was able to show a significant reduction in ED visits and hospitalizations.<sup>90</sup> Overall, these data demonstrate that it may be difficult to change the course of

**Table.** Interventions to improve the ED discharge process.

Domain	Potential Intervention
Content	Standardization
Delivery	Verbal instructions Translated into patient's language Instructions written at appropriate level Visual cues, video or electronic adjuncts
Comprehension	Check for comprehension Consider read-back-teach-back methods
Implementation	Dosing demonstration Patient reminders Assistance with follow-up appointments Connection to care programs for chronic illness

chronic asthma with ED-based interventions but should not be taken to suggest that appropriate instructions and structured teaching in the ED are unable to improve home management after an acute episode. Additional research remains to be conducted evaluating ED-based education for other chronic conditions.

## RECOMMENDATIONS FOR PRACTICE AND DIRECTIONS FOR FUTURE RESEARCH

At discharge from the pediatric inpatient service, parents reported that they wanted understandable verbal and written information, opportunities to ask questions, self-management plans, and clear instructions on follow-up,<sup>91</sup> and patients likely require similar information on discharge from the ED (Table). The safe and effective ED discharge must address all of these issues in an efficient manner that can be tailored to the particular learning needs of individual patients. Patients need structured content presented verbally and with written and visual cues to enhance recall. Written instructions need to be provided in the patient's language and at an appropriate reading level. Rapid screening tools for patient health literacy can assist in assessing the needs of an individual parent or the population of a particular ED.<sup>92,93</sup> Supplemental written information, visual/multimedia adjuncts, longer discussions with providers, and read-back-teach-back methods have all been associated with improved comprehension of informed consent<sup>94</sup> and may improve understanding in the ED setting as well. Demonstration of medication use and dosing is vital, especially in pediatrics, in which instructions for over-the-counter medications are often unclear.

Further research is needed to define the ideal content, channel, and timing of the discharge process in the ED setting. The appropriate elements of the discharge process and the ideal written or pictorial aid for patients remain to be defined. Additionally, the feasibility of implementing "read-back-teach-back" interventions<sup>48,49</sup> in the ED remains to be investigated. Regarding the channel for discharge communication, advanced technologies, including computer kiosks for parental report<sup>95</sup> and mobile discharge videos,<sup>96</sup> have shown promising preliminary results. Although communication at discharge is

crucial to patient understanding and safety, the educational process should occur throughout the entire ED visit. Further research is required to evaluate how best to structure that ongoing dialogue such that patients can process new information, ask questions, and have their understanding confirmed before discharge. Finally, the relationship between discharge process and outcomes, including preventable morbidity and mortality and cost to the health care system, also remains to be characterized.

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