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ED I-PASS: A Streamlined Version of the I-PASS Patient Handoff Tool for the Emergency Department

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#### **Authors**

Williams, Sarah

Chien, Jeffrey

Ribeira, Ryan

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# LECTURES

## ED I-PASS: A Streamlined Version of the I-PASS Patient Handoff Tool for the Emergency Department

Sarah R. Williams, MD\*, Jeffrey Chien, MD\* and Ryan Ribeira MD\*

\* Stanford University School of Medicine, Department of Emergency Medicine, Stanford, CA

Correspondence should be addressed to Sarah R. Williams, MD at [srwilliams@stanford.edu](mailto:srwilliams@stanford.edu)

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### ABSTRACT:

**Audience:** The target audience for this presentation includes attendings, residents, advanced practice providers, and medical students who work in the emergency department (ED).

**Introduction:** The Joint Commission estimates that 80% of serious medical errors are related to miscommunication between providers during transitions of care (also known as patient “handoffs” or “sign-outs”)<sup>1</sup>. An organized approach to patient handoffs has the potential to significantly improve patient safety in the ED. The multicenter I-PASS study<sup>2</sup> showed that implementing the I-PASS handoff process<sup>3</sup> significantly decreased medical errors and adverse events. However, these studies were conducted on inpatient wards, subject to different workflows than the ED. The attached curriculum presents a streamlined version of I-PASS that can be performed efficiently in the ED.

**Objectives:** The purpose of this presentation is to provide ED providers with a tool that may improve the safety of their patient handoffs. By the end of this presentation, the learner will be able to 1) describe the importance of safe and efficient handoffs, 2) recall each element of the I-PASS mnemonic, and 3) demonstrate an understanding of how it can be feasibly performed in a busy ED setting.

**Method:** This educational module features 1) a PowerPoint presentation with an embedded audio track and hyperlinks to videos, and 2) a multiple-choice question (MCQ) exam. Two appendices are also provided as additional resources: 1) an “ED-IPASS Fast Facts” quick reference guide, and 2) a transcript of the videos with optional debriefing exercises.

**Topics:** This presentation includes a comprehensive, self-contained ED handoff training module utilizing I-PASS streamlined for the ED. It outlines the importance of effective communication in patient handoffs, reviews the I-PASS mnemonic, and illustrates examples of how it may be adapted to the ED setting. Transitions of care, patient handoffs, sign-outs, I-PASS, ED I-PASS, patient safety, emergency department communication, emergency medicine, medical education.



# USER GUIDE

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## Learner Audience:

Medical students, interns, junior residents, senior residents, attendings and advanced practice providers in the ED

## Time Required for Implementation:

Lecture: 10 minutes to view the presentation (including the hyperlinked videos)

MCQ Test: 10 minutes

## Recommended Number of Learners per Instructor:

Unlimited; it is fully self-contained and can be completed asynchronously without an on-site instructor if necessary.

## Topics:

Transitions of care, patient handoffs, sign-outs, I-PASS, ED I-PASS, patient safety, emergency department communication, emergency medicine, medical education.

## Objectives:

The purpose of this presentation is to provide ED providers with a tool that may improve the safety of their patient handoffs. By the end of this presentation, the learner will be able to:

1. Describe the importance of safe and efficient handoffs
2. Recall each element of the I-PASS mnemonic
3. Demonstrate an understanding of how it can be feasibly performed in a busy ED setting

**Assessment:** There is a 10-item MCQ test that includes application questions involving common ED patient scenarios. Optional debriefing exercises are also provided.

## Recommended pre-reading for instructor:

- No pre-learning preparation is needed. References are provided in the PowerPoint for those who wish to explore the topic further.

## Learner responsible content (LRC):

- No pre-reading is needed. References are provided in the PowerPoint for those who wish to explore the topic further. However, the learner is asked to complete a 10-item MCQ test to apply and reinforce the knowledge gained. Optional debrief exercises are also provided.

## Results and tips for successful implementation:

- This curriculum has been piloted amongst residents and faculty at our residency program and several other institutions that are involved in a study to assess its impact on improving transitions of care. It is also being used by the U.S. Navy as part of their I-PASS training. The MCQ test questions were piloted with residents of multiple levels and their feedback was incorporated into the final test.

## Technology necessary:

- A computer that can run PowerPoint is required. There is an audio track, so a speaker or headphone jack is needed. To view the hyperlinked videos, an internet connection is required.

## References/suggestions for further reading:

1. Joint Commission on Accreditation of Healthcare Organizations. Joint Commission Center for Transforming Healthcare releases targeted solutions tool for hand-off communications. *Jt Comm Perspect*. 2012;32(8):1,3.
2. Starmer AJ, Spector ND, Srivastava R, West DC, Rosenbluth G, Allen AD, et al. Changes in medical errors after implementation of a handoff program. *N Engl J Med*. 2014;371(19):1803-1812. doi: 10.1056/NEJMsa1405556
3. Starmer AJ, Spector ND, Srivastava R, et al. I-PASS, a mnemonic to standardize verbal handoffs. *Pediatrics*. 2012;129:201-204. doi: 10.1542/peds.2011-2966

## Linked objectives and methods:

Objectives 1 and 2 will be achieved by the learner viewing the PowerPoint Module, listening to the audio tracks, and viewing the video links which show examples of how to implement I-PASS in a busy ED setting. Objectives 2 and 3 will be demonstrated through application of knowledge in the MCQ test and optional debrief exercises.



## Appendix 1: ED I-PASS Fast Facts

### *A Streamlined Version of I-PASS*

*Sarah R. Williams MD, Jeffrey Chien MD, Ryan Ribeira MD  
Stanford University School of Medicine, Department of Emergency Medicine*

## I - Illness Severity

Unstable, Watcher, or Stable. A “watcher” is a patient who any clinician feels may be at risk of deterioration. Consider grouping your patients by illness severity, discussing the most unstable patients first.

## P - Patient Summary

Patient’s name, age, past medical history, presenting symptoms, ED interventions, current status, diagnosis (if known), and planned disposition (if known).

## A - Action List

Things that will need to be done for the patient while they are under the care of the oncoming physician.

## S - Situation Awareness

Contingency planning. What could happen with the patient while they remain in the ED and how should the oncoming physician respond? Acknowledge things like do not resuscitate/do not intubate (DNR/DNI) status, family members who may be present, social situation, and other factors that may affect the patient’s care.

## S - Synthesis by the Receiver

The oncoming physician should reflect back their understanding of where the patient’s care stands, and any tasks that they will be responsible for while the patient remains in the ED. This closes the communication loop.

Consider combining the last two “Ss” above into a brief discussion between providers.

## Why use I-Pass?

A multi-center study with over 10,000 patients, looking at the efficacy of the I-PASS system showed:

- A 23% decrease in medical errors
- A 30% decrease in preventable adverse events
- No increase in verbal sign out time

Starmer AJ, Spector ND, Srivastava R, et al. Changes in medical errors after implementation of a handoff program. *NEJM*. 2014;371:1803-1812. doi: 10.1056/NEJMsa1405556

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## Appendix 2: Transcripts of Videos and Optional Debrief Exercises

### *ED I-PASS: A Streamlined Version of I-PASS*

*Sarah R. Williams MD, Jeffrey Chien MD, Ryan Ribeira MD  
Stanford University School of Medicine, Department of Emergency Medicine*

#### **Video 1: ED I-PASS: “Grouping by Severity (Unstable)”**

Jeff: Our unstable patient is Ms. Julie Brown. She’s an 82-year-old female with cirrhosis. She is admitted to the intensive care unit (ICU), but still very active. She came to us altered and oliguric with a fever. We have tapped her belly, which was negative for SBP (spontaneous bacterial peritonitis) but she is positive in her urine for infection. She has gotten lactulose, fluids, and antibiotics. She initially was hypotensive but was responsive to a fluid bolus. She is currently waiting for an ICU bed. There should not be anything for you to do unless she decompensates but she requires close reassessment.

Sarah: Ok so pretty sick, sepsis, likely source urine. Antibiotics and fluids have been given. How much more fluid do you think we need to give before we switch to pressors?

Jeff: 500cc. I’d go no more than a full liter.

Sarah: And has her airway been ok? Do you think she’ll be alright?

Jeff: Thanks, I forgot. She is DNR/DNI (do not resuscitate/do not intubate) but she does want all other medical interventions.

Sarah: Ok so a full care, no code? Is ICU aware?

Jeff: Yes, I’ve had that conversation with them.

#### **Video 2: ED I-PASS: “The Watchers”**

Jeff: In bed #2 is Dave Smith a 66-year-old chronic obstructive pulmonary disease (COPD) exacerbation patient. His disposition is going to be either to the tele floor or the ICU depending on how well he does on bipap. His current bipap settings are 18 over 10, 80% FiO<sub>2</sub>. He’s getting nebs and steroids. Whether or not we can wean him off of bipap will determine his dispo.

Sarah: So does the ICU know that he might be coming?

Jeff: Yes, ICU is aware.

Sarah: So we have a bed available if we need it?

Jeff: They are working on it.



# LEARNER MATERIALS

Sarah: Ok.

Jeff: Next up is Mr. Lee in bed #3. An 89-year-old who had a fall, with a headache but no hematoma. His scan is showing possible artifact vs a subarachnoid. He is neuro-intact but we are pending a formal computed tomography (CT) read for his dispo.

Sarah: So if the head CT is negative does he need a re-scan?

Jeff: Actually, that's a good question. We didn't have his med list on arrival. His daughter is on her way in. If he's on any anticoagulants we should observe him; otherwise he should be good to go depending on his social situation.

## **Video 3: ED I-PASS: "Stable"**

Jeff: So next up, our stable patients. In bed 4 we have Maria Hernandez. A 67-year-old young lady with exertional chest pain. History of hypertension and hyperlipidemia. Chest pain free at this time. Electrocardiography (ECG) is showing non-specific ST segment abnormalities. Troponin negative. Exam is benign. She's going to the obs unit for troponins and EKGs and a dobutamine stress echo due to her arthritis. Please follow up on her chest x-ray. She's also complaining of a mild productive cough. If negative treat with Levaquin because she has a history of a true Keflex allergy. Otherwise everything is written and the bed is ready.

Sarah: Ok, so I'll check the chest X-ray, admit to the obs unit, and let the team over there know about that allergy.

Jeff: Perfect. Next is bed #5. Mr. Levon Johnson. An 18-year-old man with right lower quadrant abdominal pain. Vitals are good but he's really tender in that right lower quadrant. No guarding, no rebound though.

Sarah: So concern for appendicitis?

Jeff: Absolutely. Surgery is scrubbed right now. His ultrasound is equivocal so that's why we're getting a CT scan. After the CT, if you could re-examine him, and follow up with surgery as necessary.

Sarah: Ok so no concern for torsion?

Jeff: No, genitourinary (GU) exam was normal.

Sarah: Ok, so check the CT, go back and check the patient, if anything is concerning give surgery a call, otherwise go home with appropriate precautions. Got it.



# LEARNER MATERIALS

Jeff: Next is Mr. John James in bed 6. He's a 28-year-old young man who came in with a right finger laceration on his kitchen knife overnight. Wound has been cleaned, irrigated, repaired. No neurovascular injury or tendon injury. He's really just pending a tetanus update and discharge.

Sarah: Ok, so conditional discharge. Does he need any discharge instructions for suture removal or anything?

Jeff: I've written them up and I've spoken to him about them.

Sarah: Ok so nothing for me to do. Thanks.

Jeff: And now we have Ms. Janie Charlie in bed 7. A 22-year-old lady with exercise-induced asthma. She forgot her inhaler and was out running. PERC negative, symptoms have resolved with a single neb, and she wants to go home. She's pending a repeat peak flow to freedom.

Sarah: All right, so just check the peak flow. What's our goal peak flow?

Jeff: She came to us pretty good at 350, I just want to get her to 400 and then send her on her way.

Sarah: Ok great. And she has a prescription for an metered-dose inhaler (MDI)?

Jeff: Yes

Sarah: Ok so just check a peak flow and then home. Thanks!

## **Video 4: ED I-PASS: "Stable (Boarding Patients)"**

Jeff: This brings us to our 3 boarding patients. They've been called up to the inpatient teams and orders are written.

Sarah: Ok and the inpatient teams are managing these patients now and they know that?

Jeff: That is correct. In bed 11, Ms. Nguyen 43-year-old acute chole. Going to general surgery, antibiotics are on-board. Waiting for the OR.

Sarah: Ok

Jeff: In bed 12, Mr. Rogers. 92-year-old male. Acute cerebral vascular accident (CVA), admitted to neuro, nothing to do.

Sarah: What was the neuro deficit?

Jeff: Right-sided weakness. In bed 13 Ms. Wong, 73-year-old female. Healthcare-associated pneumonia. Broad spectrum antibiotics are on board. Admitted to medicine.



# LEARNER MATERIALS

Sarah: All right, are they all full code?

Jeff: Everybody is full code.

Sarah: Do you anticipate any issues with any of them?

Jeff: Nothing anticipated.

## DEBRIEF TIPS AND OPTIONAL EXERCISES

### Instructors:

1. Consider debriefing each of the videos. For example:
  - a. What was done well?
  - b. What could have been done better?
  - c. Were there any issues present that impacted the quality of the sign-outs? Do these happen to you in your own practice? What might you do differently now?
2. Discuss ways you could implement this at your own institution. What could you do relatively quickly? What would be your next step?
3. If the process presented is not ideal for you (due to your electronic medical record [EMR] or your floorplan, for example), brainstorm ways to potentially modify it so that it preserves the key content but fits better into your workflow.





# LEARNER MATERIALS

## ED I-PASS MCQ Test A Streamlined Version of I-PASS

*Sarah R. Williams MD, Jeffrey Chien MD, Ryan Ribeira MD  
Stanford University School of Medicine, Department of Emergency Medicine  
Developed in Collaboration with the CORD Transitions of Care Task Force*

This can also be completed on Qualtrics:

[https://stanforduniversity.qualtrics.com/jfe/form/SV\\_eVQZTn9cyuf0IPn](https://stanforduniversity.qualtrics.com/jfe/form/SV_eVQZTn9cyuf0IPn)

### ED I-PASS MCQ TEST

1. The I-PASS study examined the impact of utilizing the I-PASS bundle in a study of over 10,000 patient admissions. It is the largest study to-date showing an improvement in patient outcomes utilizing a hand-off tool.

Which of the following is the most accurate description of the impact of this program on medical error rate (preventable failures in care processes) and on the rate of preventable adverse events (events leading to patient harm)?

- a. Medical errors decreased 9%; adverse events did not significantly change
  - b. Medical errors decreased 12%; adverse events decreased 10%
  - c. Medical errors decreased 17%; adverse events decreased 20%
  - d. Medical errors decreased 23%; adverse events decreased 30%
2. How long did the verbal handoff take using I-PASS compared to before the tool was adopted?
    - a. The amount of time to verbally sign-out did not significantly change
    - b. It took significantly longer to sign-out using the I-PASS tool
    - c. It took significantly less time to sign-out using the I-PASS tool
  3. "I-PASS" is a prompt to help providers remember 5 key elements to include during patient sign-out. What do the letters "I-PASS" stand for?
    - a. I: Illness diagnosis, P: Patient med list, A: Action list, S: Situational awareness, S: Supervising team
    - b. I: Illness severity, P: Patient summary, A: Action list, S: Situational awareness, S: Synthesis by receiver
    - c. I: Illness symptoms, P: Problem list, A: Active labs pending, S: Supervising team, S: Sign-out updated
    - d. I: Identification, P: Patient location, A: Anticipatory guidance, S: Suggested interventions, S: Synthesis by receiver



## LEARNER MATERIALS

4. Who is responsible for the transmission of high quality handoffs with I-PASS?
  - a. Outgoing provider only
  - b. Incoming provider only
  - c. Both outgoing and incoming providers
  
5. During which phase of the expedited I-PASS sign-out should the person taking over the care of the patient check back and ask questions about the plan?
  - a. Before Illness severity
  - b. During Illness severity/Patient summary
  - c. During Patient summary/Action list
  - d. During Situational awareness/Synthesis by receiver
  
6. You have 15 patients to sign out. 2 are unstable, 4 are watchers, and 9 are stable. Which of the following is the best way to streamline the sign-out, according to the expedited ED-IPASS model, and why?
  - a. Present in order of room number so there is no confusion about the identification and location of the patients
  - b. Present stable patients first, then watchers, then unstable patients, because the stable patient sign-outs are the fastest and least complicated
  - c. Present unstable patients first, then watchers, then stable patients, to optimize the early part of sign-out when attention and focus are highest

Questions 7-8 relate to the following patient vignette:

A 27-year-old female presents to the Emergency Department with pleuritic chest pain and shortness of breath. She recently returned from a trip to India with her family. She states that her menstrual periods have been irregular but she is on Depo-Provera; her last menstrual period was months ago. Her vital signs are: Temp 36.7C, BP 110/78; HR 124, RR 22, O2 sat 93%. Her exam is notable for clear and equal breath sounds bilaterally with good air movement; tachycardia with no murmurs/rubs/gallops; soft, nontender abdomen; and R>L lower extremity edema and calf tenderness. You have ordered appropriate studies. CBC and creatinine are normal. Her pregnancy test and imaging are pending at time of sign-out.

7. How would you classify this patient's illness severity to your incoming colleague?
  - a. Stable
  - b. Watcher
  - c. Unstable



## LEARNER MATERIALS

8. Which of the following would be the single best choice for appropriate content to include in “Situational awareness”?
- “I’m concerned about a pulmonary embolism (PE) and/or deep vein thrombosis (DVT). The patient is tachycardic, tachypneic, and slightly hypoxic, so please keep an eye on her. Her pregnancy test is still pending, so imaging is pending that result. Likely she’ll need to be admitted regardless given her abnormal vital signs. Please call the on-call team as she is from out of town.”
  - “I’m concerned about a PE and/or DVT. Studies are still pending. If the PE study is positive, please admit. Otherwise, treat the DVT but please reassess the patient as she was tachypneic and tachycardic on arrival.”
  - “I’m concerned about a PE and/or DVT. She’ll likely need to be admitted because she’s tachycardic, tachypneic, and slightly hypoxic. Please keep an eye on her respiratory status. She’s from out of town so doesn’t have a regular doctor here, so when all the results come in please admit to the on-call admitting service.”

Questions 9-10 relate to the following patient vignette:

A 17-year-old male presents to the ED with headache. He has a history of migraines, appendicitis status post appendectomy, paronychia, and right ACL repair. He states the headache is similar to his previous migraines and was preceded by his usual visual aura, which has now resolved. It has been gradually worsening over the last 2 days. He denies weakness, numbness, paresthesias, or fever. He has had nausea but no vomiting. He is afebrile with no meningeal signs and has an unremarkable neurologic exam. He presented to the ED for symptom relief as his own prescription has not been effective. He has received medication in the ED already and is pending reassessment for disposition.

9. What elements of this patient’s history would be reasonable to **exclude** from the “Patient summary”?
- History of migraine
  - History of appendicitis
  - Characteristics of current headache
  - Unremarkable neurologic exam with no meningeal signs
10. The fact that the patient is pending post-medication reassessment would be most appropriately included in which component of I-PASS?
- Illness severity
  - Patient summary
  - Action plan
  - Synthesis by receiver



# INSTRUCTOR MATERIALS

## ED I-PASS MCQ Test Key A Streamlined Version of I-PASS

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