Tables and Figures:

Figure 1a-b: Trauma Register (a; original, b; revised based on staff feedback)

Date/Hour of Arrival	**Last name, First name**	Date of Birth, Age	Sex	Commune / Address	Vital Signs	Neurologic Status	Time since Injury	Transport to Hospital
__/__ /___ ___:___		__/__ /___ _____ age	M / F		BP:___/___ P: ____ R:____ Temp: ____ O2Sat: ___	__ Alert __ Awakened to name __ Awakened to pain __ No response	__< 4 hours __4-24 hours __>24 hours	__on foot __ hospital ambulance __private car __ CAN ambulance __motorcycle __ helicopter __taxi

Cause of Injury	Place of Injury	Body Zone Injured	Type of Injury	Other Medical Conditions (at time of injury/trauma)	Procedure/Treatment	Discharge
__Vehicle (__Passenger or __ Driver) __Motorcycle __ Gunshot __Pedestrian hit __ Burn __Fall __ Cut __Other:_____ **Number of Severe Injuries** __0 __1 __>1	___House ___ Work ___Road ___School ___Farm ___Sports ___Public Beating ___Other:_____	___Head/Neck ___ Face ___Chest ___Spine ___Abdomen ___Pelvis ___Upper Extremity ___Lower Extremity ___Back ___Other:_____	__Laceration __Contusion __Fractures [__open vs ___ closed] __Penetrating __Blunt trauma __Dislocation __No Visible Injury	__ Heart Attack __ Stroke __ Septic Shock __ Renal Insufficiency __ COPD __ DKA __ Other : _____	__Casting/plaster __Traction __Xray __Ultrasound __IV Fluids __ Antibiotics __Blood Transfusion __Laceration repair __Pain control __Cervical Coller __Bandaging __Medical Treatment __Thoracotomy/Chest Tube	__Treated and sent home __Admitted ___general service ___ ICU ___ obstetrics ___ surgery __Transferred __ Left against advisement __ Dead on Arrival __ Died in Department

The logbook entries were designed as checklists to minimize time to complete, and to standardize data collection methods. Each entry consisted of 17 sections, and provided detailed information on cause of injury, time to center, severity of injury, treatments administered, and discharge status. To improve the data collection process and allow the book to capture ISS reliably, the book was altered following the pilot month, and revisions are shown below.

Date/Hour of Arrival	Last Name, First Name, MRN	Date of Birth, age	Sex	Address	Vital Signs	Neurologic Status	Time from Injury upon arrival	Transport to the Hospital
___/___ /___ am ___:___ afternoon night	_____ MR#	___/___ /___ _____ years	M / F		BP:___/___ P: ____ RR:____ Temp: ____ O2Sat: ___	__ Alert __ Awakened to name __ Awakened to pain __ No response	__< 4 hour __4-24 hours __>24 hours	__Ambulance __Hospital ambulance __Private Car __ CAN ambulance __Motorcycle __ Helicopter __Taxi __ Other:_____ __Referred from:_____

Cause of Injury	Place of Injury	Body zone and Type of Injury Please mark both type and place of injury on the body			Procedure/Treatment	Discharge
__Accident on public roads (__Car or __Motorcycle) __Pedestrian hit __ Fall __Rock thrown __Burn __Sharp blade __Gunshot __Beating __Dog bite __Other:_____ **__History unobtainable**	___House ___Work ___Road ___School ___Farm ___Sports/on the field ___Public beating ___Other:_____	**___Head and Neck** ☐ Laceration/abrasion ☐ Penetrating injury ☐ Contusion ☐ Fracture **___Abdomen & Back** ☐ Laceration/abrasion ☐ Contusion ☐ Penetrating injury ☐ **Blunt trauma**	**___Face** ☐ Laceration/abrasion ☐ Penetrating injury ☐ Contusion ☐ Occult Fracture **___Pelvis/Extremities** ☐ Laceration/abrasion ☐ Contusion ☐ Fracture ☐ Subluxation	**___Chest** ☐laceration/abrasion ☐Penetrating injury ☐Contusion ☐Rib fracture **___Other** ☐ Burn (Degree:_____) %Body Surface Area:_____ ☐ **No Visible Injuries**	__Suture __Pain control __Bandage __Antibiotics __Ultrasound __Vitamins __X-ray __Plaster/Casting __Traction __Cervical Coller __IV Fluids (N/S o L/R) __Blood transfusion __Thorocotomy/Chest Tube __ Medical Treatment:_____ _____	__Sent home __Left against advisement __Observation __Admitted __Consultation : ___ Internal Medicine ___ Ortho/Operating room ___ Surgery/Operating room ___ Oromaxillary facial service __Transfer to OSH:_____ __ Dead on arrival __ Died in ED

Figure 2: Step-wise roll-out of pilot logbook **--Cayes –Cap --Gonaives --PAP**

Week 1: → Hôpital Cayes Starts
Week 2: →→Hôpital Cap Haitïen Starts, Cayes continues
Week 3: →→→Hôpital Gonaives Starts, Cayes continues, Cap continues
Week 4: →→→→Hôpital PAP Starts, Cayes last week, Cap continues, Gonaives continues
Week 5: →→→→Cayes assessment, Cap last week, Gonaives continues, PAP continues
Week 6: →→→Cap assessment, Gonaives last week, PAP continues
Week 7: →→Gonaives assessment, PAP last week
Week 8: →PAP assessment

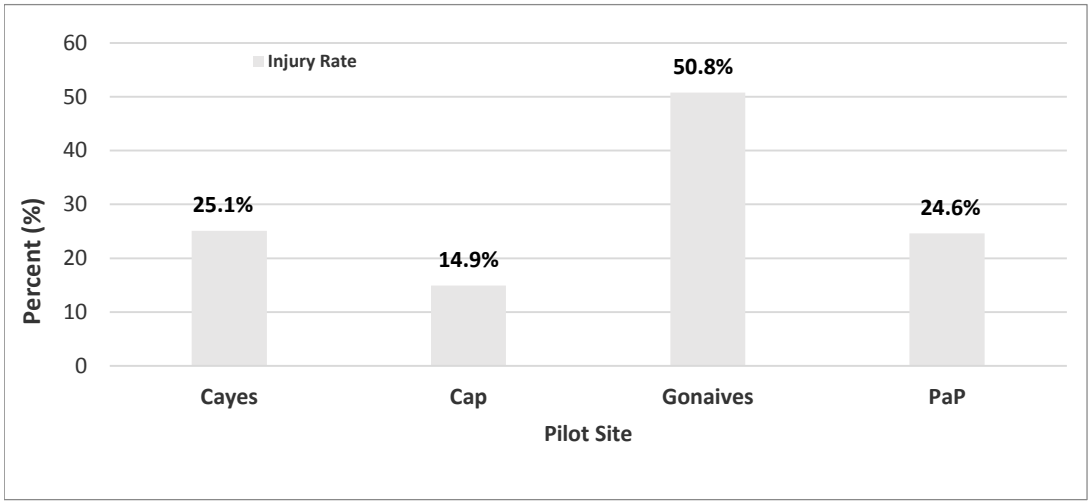
Each site was visited by the research team for one week to implement training, introduce the project and logbook to providers in all shifts, and assist with questions as they arose. The week of implementation for data collection at each site is delineated above. Following four weeks of data collection, each site was revisited to implement data collection and post-pilot surveys.

Table 1: Demographics of Providers Surveyed
(n=48, all four pilot sites)

Healthcare Role	Frequency	Percentage (%)
Student	12	25.0
Physician	17	35.4
Nurse	19	39.6
Time as student, doctor, or nurse		
<1 year	16	33.3
2-5 years	10	20.8
5-10 years	18	37.5
>10 years	4	8.3
Time working at Pilot Site		
1-6 months	2	4.2
7-12 months	35	72.9
13-18 months	0	0.0
19-24 months	2	4.2
2-5 years	4	8.3
5-10 years	1	2.1
>10 years	4	8.3

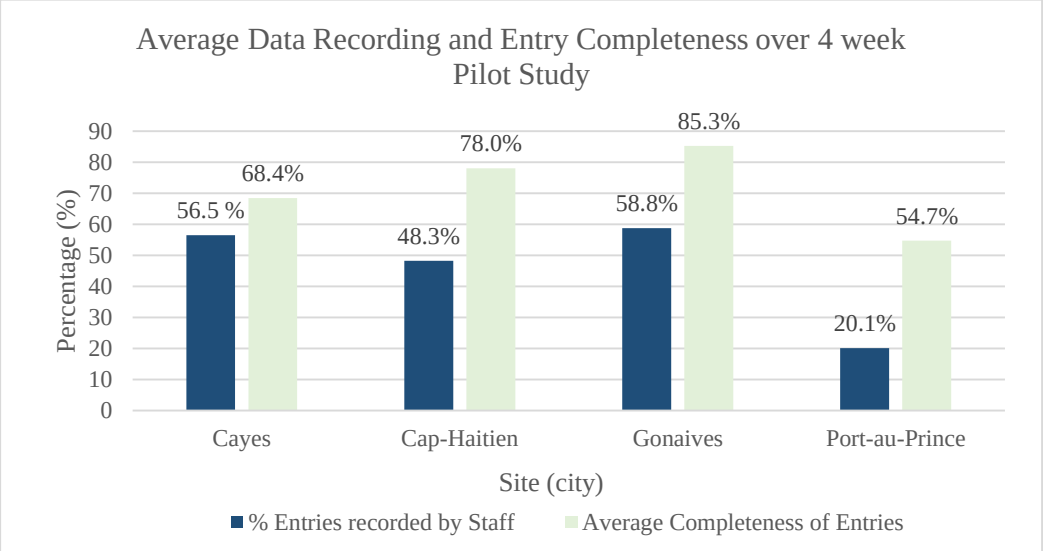
Providers who reported using the logbook at least 2 or more times over the course of the pilot month were asked to fill out a survey around their experience. A total of 48 providers (nurses, physicians, and students) were willing to participate in the survey.

Figure 3: Injury Rate for Each site over Pilot Study Period



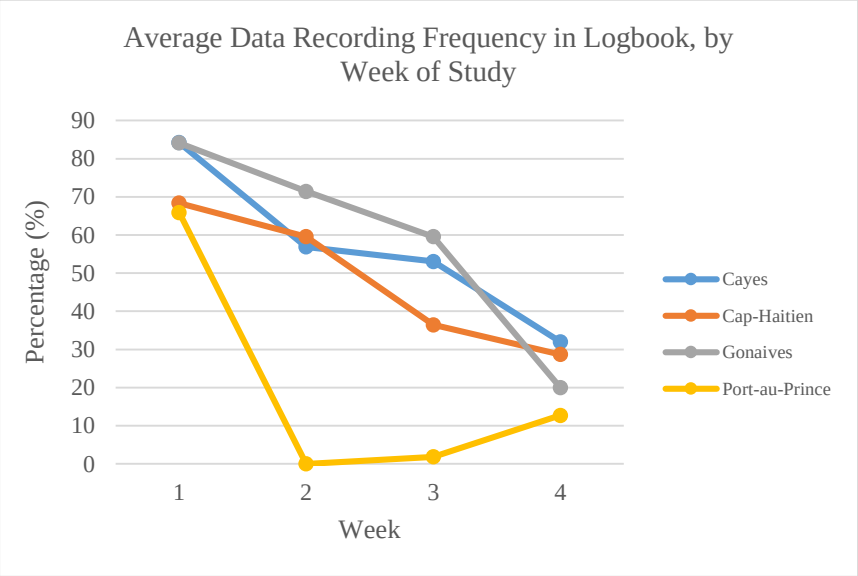
Total number of emergency visits were determined by retrospective review of emergency department logbooks over the 4 week study period. From these registers, whole number of trauma or injury visits were determined, and reported as the proportion, or injury rate, of total patient encounters.

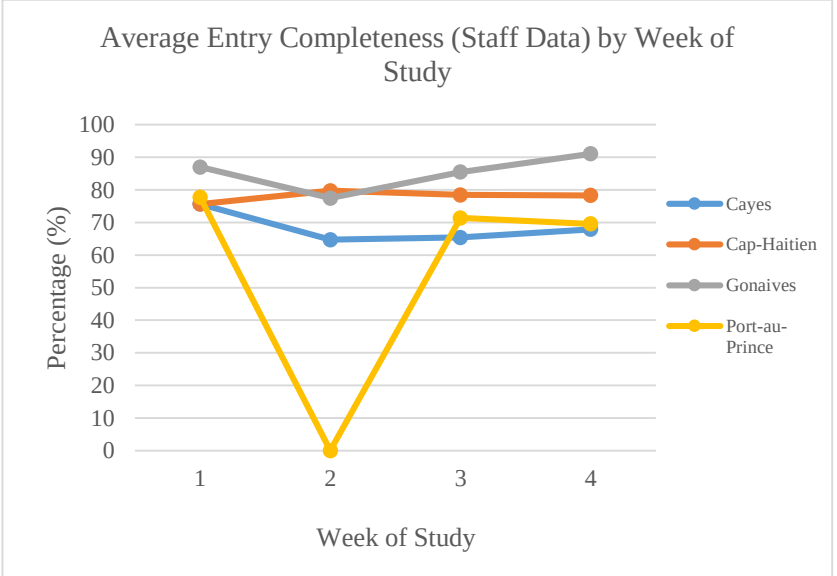
Figure 4: Average Data Recording Frequency and Entry Completeness by Staff over Pilot Study



Analyses of frequency of use were performed by calculating data recording scores and entry completeness scores. Average data recording was determined by looking at the proportion of injuries recorded in the trauma registry logbook by staff, out of all injuries seen in the pilot month according to the old ED logbook. The second analysis was performed by determining the number of empty sections for every patient entry in the logbook. Average rates of entry completeness over each week of the study was then determined for each site.

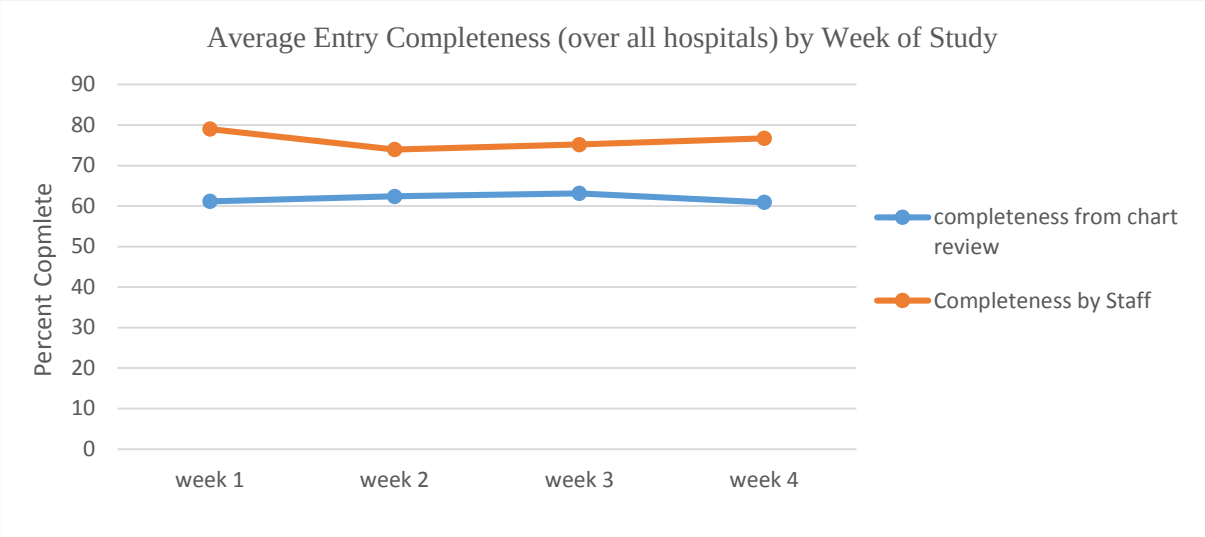
Figure 5a-b: Comparison of Data Recording Frequency and Entry Completeness by each Facility over all 4 weeks





Data recording Frequencies by staff, and entry completeness (by staff) were compared across all 4 weeks of the pilot month based on entries recorded in the logbook. Overall, Gonaives had the highest recording and completeness rates over all facilities during the 4 study weeks. The site in Port-au-Prince had the lowest recording and average completeness rates among all sites.

Figure 6: Average Entry Completeness by source (provider-recorded vs retrospective) over study period, all hospitals



Patients logged in the registry following conclusion of the pilot month were tagged for comparison. Average entry completeness for all data were determined by counting the number of missed sections per patient entry. Comparison of entry completeness rates for patients recorded at the time of arrival vs upon retrospective chart review were performed. On average, across all study months, staff recorded higher proportions of information upon the patient's arrival than in retrospective review.

Figure 7: Frequencies of Variables Recorded, All Sites, N=1169

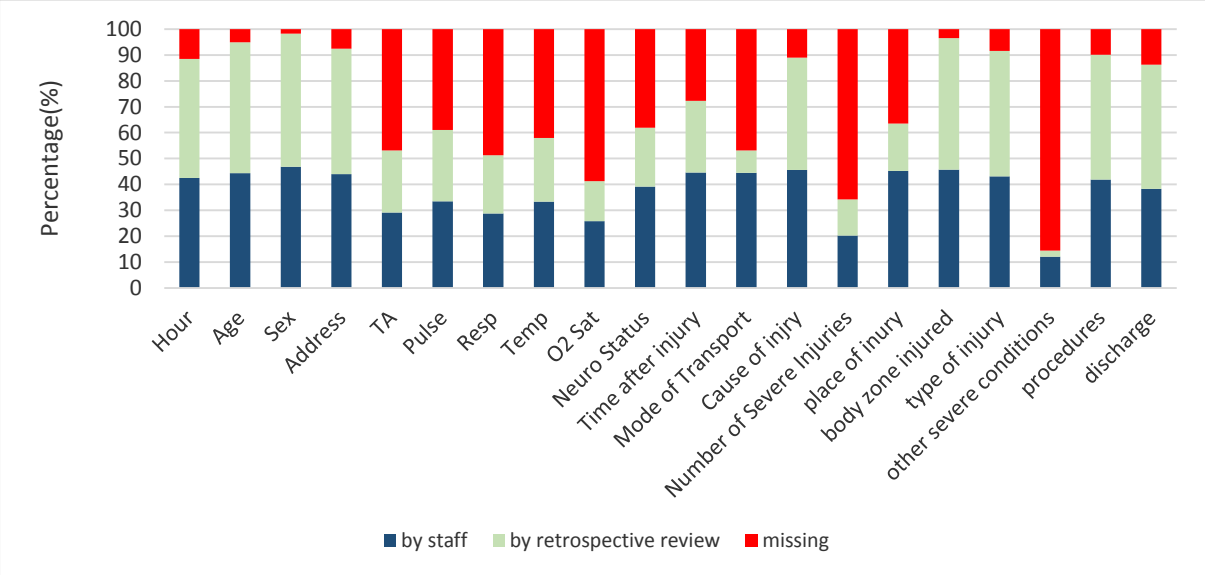
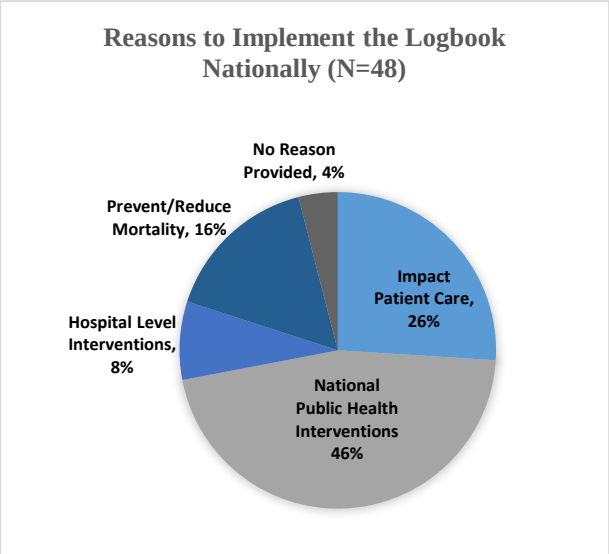


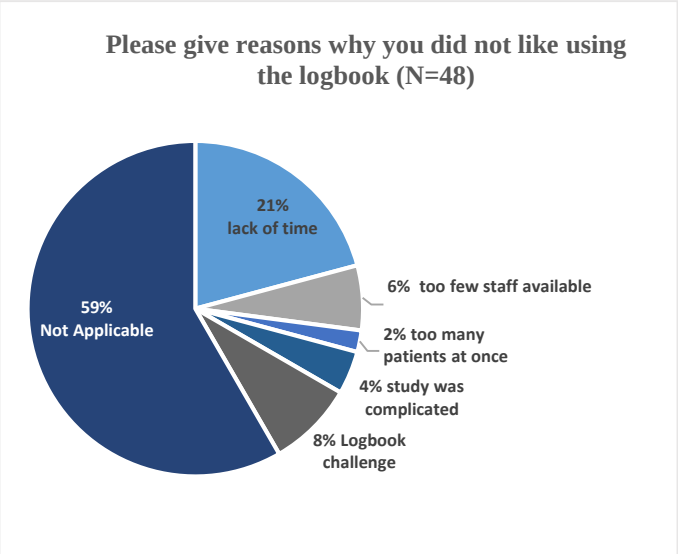
Figure 7 demonstrates an analysis of the frequency of completion of variables collected by the form, sorted by source of data used. For all patient entries, the numbers of times each variable was recorded by staff, chart review, or missing were determined, and calculated as a proportion of 1169 total patient entries.

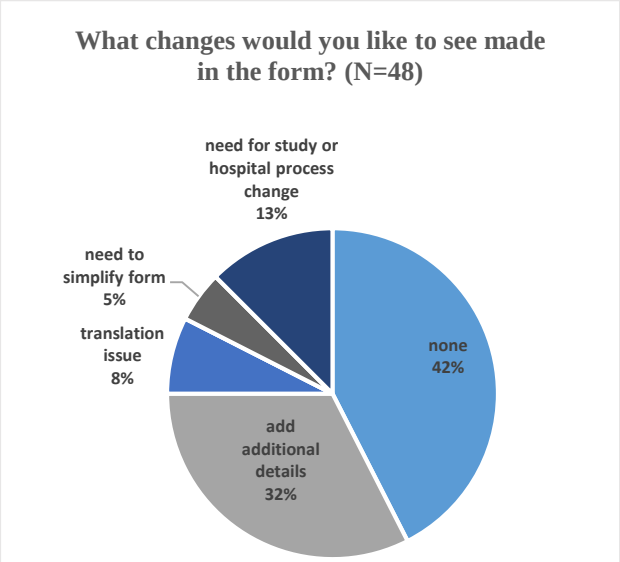
Table 2: Post-Pilot Survey Results: Perceptions of Logbook-based Injury Registry

Question (translated from French)	Mean Score of agreement (1-strongly disagree, 5-strongly agree)
Training : 1. I had enough time in my schedule to do the training & learn how to use the logbook	3.95
Training : 2. The information at the training helped me understand why this study is taking place	3.96
Tool Burden : 3. I am comfortable using this tool	4.1
Tool Burden 4. I had enough time to incorporate the tool into my work schedule with patients	3.89
Tool Burden: 5. I prefer a checklist format for recording the details of injuries and care of my patients	4.4
Tool Burden : 6. This form makes my work more difficult	2.5
Tool Utilization 7. I felt comfortable assessing the neurologic status of my patients	4.0
Tool Utilization 8. I knew how to determine the number of severe injuries of my patients	4.2
Tool Utilization 9. I was able to complete all portions of the logbook for all or most of my patients	3.89
Future Implementation 10. I am willing to continue filling out this logbook for my patients coming into the Emergency Department, now and in the future	4.13
Future Implementation: 11. In the future, I can see how this tool would help other hospitals, and the country of Haiti	4.3
Future Implementation 12. I think this tool should become a standard of care at all Emergency Departments in Haiti	4.2
Study Overall 13. In general, I was satisfied with how the tool affected my ability to do my job effectively	3.96
Study Overall 14. Overall, I found value in participating in this research study testing the logbook.	4.06
Survey Users:	
Physician	19 (40%)
Medical Student	12 (25%)
Nurse	17 (34%)

Figure 8: Perspectives from Staff around Importance, Feasibility, and Utility of the Logbook Trauma Registry







Providers who reported using the form at least 2 times over the pilot month were asked to participate in a survey evaluating their experience using the logbook. The questionnaire included three free-form questions, giving providers an opportunity to write out their thoughts without prompting. Written responses were translated into English and examined for possible themes. Researchers compared their induction of themes for answers and performed iterations of coding until thematic labeling agreed for >85% of the responses.

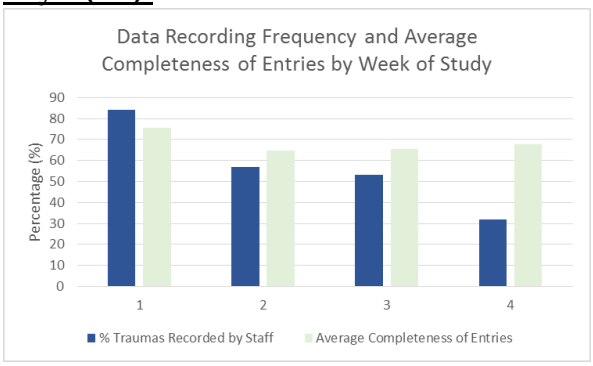
Appendix 1: Structural and Staff Observations by Site:

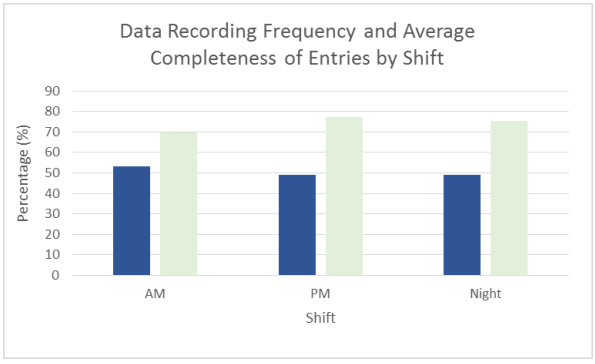
Site 1: Aux Cayes	Site 2: Cap-Haitïen
Hospital: primary public hospital for the region. **Services offered**: surgical, obstetric, pediatric, and general medicine wards, emergency department Imaging: ultrasonography and radiologic, but not available 24/7 **Emergency department**: 1-room, 8-10-bed facility **Staffing:** 1-2 second year residents per shift, more students in am shift, 3-8 nurses per shift, with fewest staffing during highest peak periods of trauma **Observations:** The room was always overcrowded, with families and patients waiting to enter the room and be seen. Handoff between physicians and nurses was less organized between shifts, and staffing was seen to be lowest during periods of highest volume. Like in most emergency departments in Haiti, departments had few resources available, and patients must procure all necessary materials to receive treatment.	**Hospital**: Large public hospital near the center of Cap-Haitïen, which also serves much of the Northern provinces in Haiti. **Services**: The hospital was located a few minutes walking distance away from the region's blood bank, and had 24/7 coverage by orthopedics. Also offered internal medicine, pediatrics, critical care unit, and primary are **Emergency Department**: structurally very large, containing much space for patients and families to wait in without overcrowding. In addition, the facility had separate single rooms along the perimeter, which were used individually by clinicians for performing initial examinations, repairing small lacerations, and for changing bandages. **Staffing:** first and second year residents rotating through the department, as well as at least one senior emergency medicine physician per shift. The department was usually full, with at least 3 residents attending to new patients at a time. **Observations:** The staff preferred to include the requested details for the registry in the patients' charts, and then spend the last 30-45 minutes of a shift transcribing relevant patients into the logbook. At the end of the night shift, the emergency medicine director would meet with the night shift residents and review all cases that had happened overnight, as well as check the logbook.
Site 3: Gonaives	Site 4: Port-au-Prince
Hospital: Constructed and overseen by the Canadian government, and usually includes a Canadian physician with the administrative body of the hospital. Largest and primary public hospital in Gonaives **Services offered:** all medical services, radiology routinely available, even at night, surgeon and medicine attending physicians on-call and available on-call most evenings during the week **Emergency Department:** 35-bed department, with separate wards for men, women, and children, in addition to a separate triage area. The triage area is further divided into 3-beds for intensive care or intervention, a washroom, and a closed off room for initial assessment and minor procedures. **Staffing:** The emergency department is staffed by second year residents and staff nurses, with one	**Hospital:** Many last-resort cases are seen at this facility, as it is still the main public hospital in the capital city. **Services offered:** Limited in depth, broad in scope; large outpatient facility for subspecialty clinics, has 8 surgical ORs, internal medicine, obstetrics, small pediatric clinic in outpatient side. Basic portable x-ray and labs available **Emergency Department**: There are two types of emergency departments: one is a primary emergency department where all patients are first seen upon arrival to the hospital. This department is more like a registration/waiting area; most patients are seen briefly by an intern, who then directs them to another part of the hospital for care. The second type of emergency department are receiving areas for each of the subspecialized wards in the hospital (general medicine, pediatrics, ortho, neuro). The logbook was kept in the

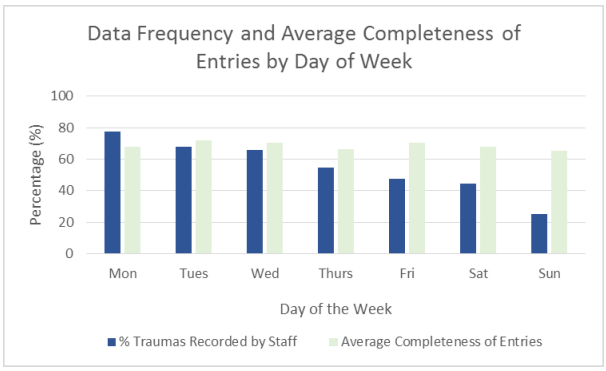
attending physician on-call to supervise medical care over most shifts. **Observations:** Notably, residents at this facility address trauma patients systematically. Full-exposure exams are part of the workup, and the nursing staff have access to an automated vital signs monitor. Neither of these characteristics were found in any of the other facilities. Patient influx in this hospital was more sporadic, where there would be periods of no volume, followed by sudden swells of 3-5 cases at once. During periods of inactivity, nurses and physicians would use some of the time to catch up on paperwork.	primary Emergency Department to ensure catchment of all possible traumas or injuries entering the facility. This department included a registration desk for the intern, and 10-15 chairs around the perimeter of the space for patients. **Staffing:** The primary registration emergency department is staffed only by one intern, with occasional supportive staffing by one nurse. **Observations:** Residents were willing to fill out the logbook as patients came in, and would write one-line assessments and referrals in the patient charts before sending the patients to their next destination. With irregularity in nursing support, residents expressed often feeling overwhelmed by the workload when large volumes of patients arrived at once, and stated that during these instances, filling out the logbook was "nearly impossible".

Appendix 2 (a-l): Regional differences in recording and entry completeness by week of study, shift, and day of the week

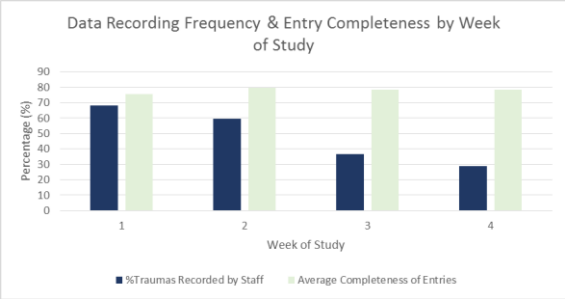
Cayes (a-c):

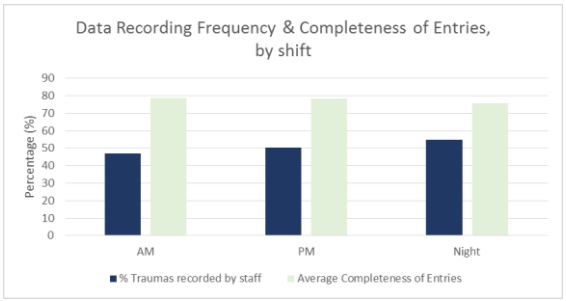


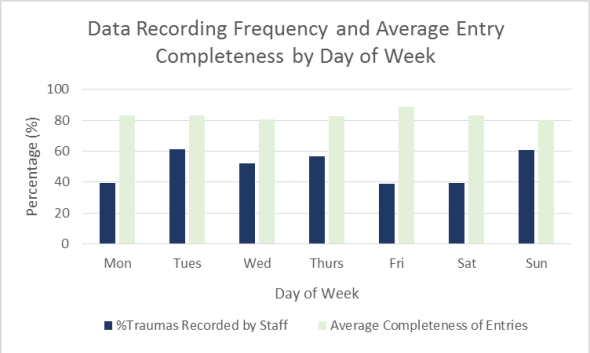




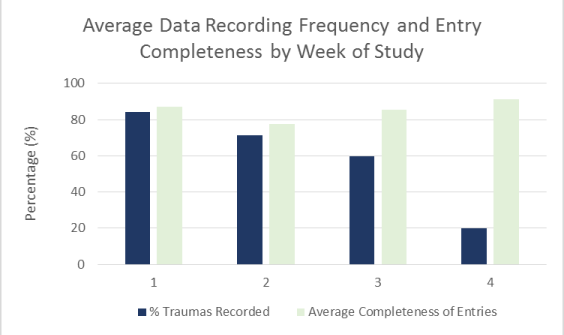
Cap (d-f):

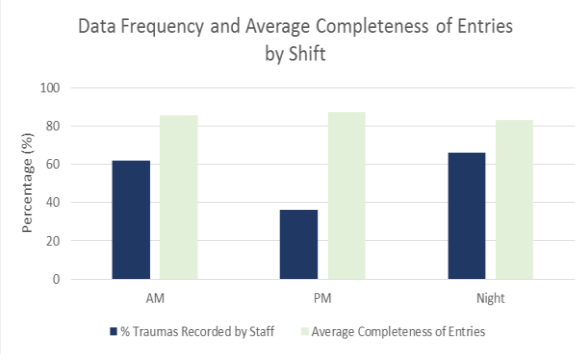


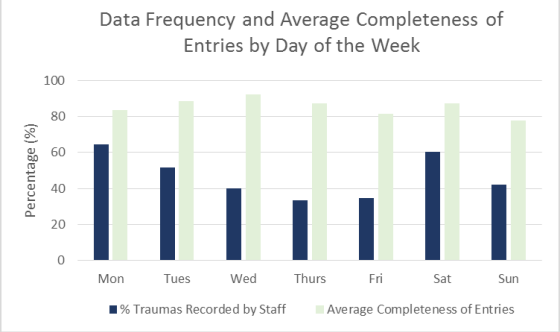




Gonaives (g-i):







Port-au-Prince (j-l):