A Comparison of the "Clinical Environment" for the Paramedic Intern and the Practicing Paramedic

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Introduction

One of the purposes of the paramedic internship is to prepare paramedic students to practice prehospital medicine "in the field". No studies have been done to compare the field experience of the paramedic internship with that of actual EMS practice. This study compared the frequencies of patient primary impressions, patient age ranges, and performance of selected ALS procedures to determine whether the paramedic internship provides a comparable experience to that of actual EMS practice.

Methods

Institutional Review Board approval was received through Inver Hills Community College in Inver Grove Heights, MN. Data for "practicing paramedics" were collected from a large national ambulance organization. Data included all patient contacts in 2006 and 2007 from 47 operations in 19 states. Data were collected from electronic data that are abstracted and entered by the paramedic who provided care immediately following the patient encounter or at the end of shift.

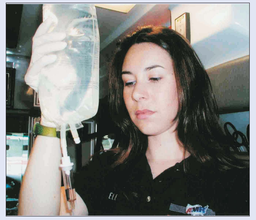
Data for "paramedic interns" were collected from FISDAP, a nationwide EMS student tracking database. Data included all patient contacts in 2006 and 2007 from 3,796 students in 150 paramedic programs from 42 states. Data were collected from electronic data that are abstracted and entered by the paramedic intern at the completion of each shift and validated by their preceptor.

The datasets were reviewed to identify fields that had comparable definitions. Several common fields were identified in the following categories: skills, patient demographics, and primary impressions (the paramedic's/intern's overall assessment of the patient's presentation including chief complaint). Fields that were chosen for comparison included:

Skills
- Medication administration (excluding oxygen)
- Endotracheal intubation
- Intravenous access
- Ventilation (BVM)

Patient demographic
- Pediatric (<18)
- Adult
- Geriatric (>65)

Primary impression
- OB
- Trauma
- Psychiatric/behavioral
- Respiratory
- Pediatric respiratory
- Syncope
- Altered Mental Status
- Abdominal complaint



The percentage of total patient contacts was calculated for each of the comparison fields within both datasets. These percentages were compared between the two datasets, and the standard deviation was calculated for each field. The correlation coefficient was calculated across all fields.

Results

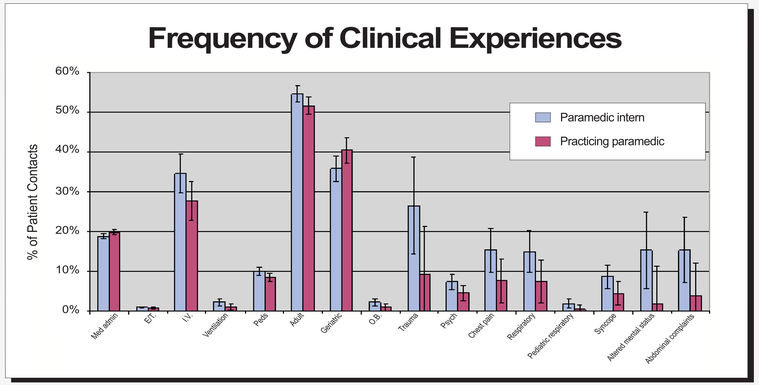
Data were collected from a total of 1,132,987 patient encounters (813,683 "practicing paramedic" and 319,304 "paramedic intern"). Across all skills, demographics, and complaints the two datasets had a correlation coefficient of 0.928. The results are displayed in the table below:

Frequency of Clinical Experiences

Correlation coefficient 0.928

	Patient encounters	Med admin	ET	I.V.	Ventilation	Peds	Adult	Geriatric	O.B.	Trauma	Psych	Chest pain	Respiratory	Pediatric respiratory	Syncope	Altered mental status	Abdominal complaints
Practicing paramedic	813,683	19.72%	0.65%	27.54%	0.97%	8.25%	51.48%	40.27%	0.73%	9.18%	4.43%	7.45%	7.32%	0.25%	4.39%	1.64%	3.75%
Paramedic intern	319,304	18.72%	0.87%	34.43%	2.18%	9.85%	54.47%	35.68%	2.11%	26.40%	7.15%	15.22%	14.86%	1.84%	8.59%	15.24%	15.24%
Standard deviation (SD)		*0.71%*	*0.15%*	*4.87%*	*0.86%*	*1.13%*	*2.12%*	*3.25%*	*0.98%*	*12.18%*	*1.92%*	*5.50%*	*5.34%*	*1.13%*	*2.98%*	*9.62%*	*8.12%*
SD rank		*15*	*16*	*6*	*14*	*11*	*9*	*7*	*13*	*1*	*10*	*4*	*5*	*12*	*8*	*2*	*3*

Variability between the two datasets as measured by the standard deviation was lowest for endotracheal intubation (0.15) and highest for trauma patients (12.18). Overall the highest variability was within patient presentations and primary impressions, and lowest within skills performance. The graph below displays the percentage of total patient contacts; the error bars represent +/- 1 standard deviation for each field.



Discussion

Within this large national sample the "clinical environments" of paramedic interns and practicing paramedics appear very similar. There appears to be very little variability in the frequency of the skills that were compared. The greatest differences between the two environments appear to be the relative frequency of specific patient presentations; the exact cause of this difference is unknown, but may be influenced by variability in emergent, urgent, and non-emergent call volumes in the two datasets. More study is required.

However, these data reaffirm the infrequency of performing several ALS skills and experiences for both interns and practicing paramedics, especially endotracheal intubation, ventilation, OB, and pediatrics respiratory. Paramedic educators should seek clinical opportunities to increase training in these areas in the hospital setting to supplement students' field internship. Individuals responsible for ongoing education of practicing paramedics should also investigate strategies to augment these infrequent field experiences.

Acknowledgements

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