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This issue is dedicated to the memories of Irish Coastguard Search and Rescue crew on board 'Rescue 116'. Captain Dara Fitzpatrick, Captain Mark Duffy, Winch Operator Paul Ormsby and Winchman Ciarán Smith.

Photo courtesy Kieran Minihane, National Ambulance Service.

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June 2017

Identifying the barriers to female leadership in Paramedicine.

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Identifying the barriers to female leadership in Paramedicine

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The main message is clear: women are not making it to the top in any profession, anywhere in the world, and the field of prehospital and academic medicine is not immune. Whether in the public or private sphere, from the highest levels of government decision-making to common households, women continue to be denied equal opportunity with men (1,2).

In the past, paramedicine has typically been a male dominated role. As it stands now, women represent only 25% of paramedics across Canada, and the number of women that hold leadership positions is less than 5% (3). The goal of our current research project regarding female leadership in paramedicine aims to uncover the reasons behind this stagnation, and the barriers that females seeking leadership face. Current literature in female leadership in the medical community focuses mainly on leadership representation in academic positions at medical schools. This body of work has identified several recurring patterns that seek to explain barriers women face in the professional, medical and academic worlds.

One study conducted by Kvaerner and colleagues on female medical leadership found that the medical career structure itself has been slow to adapt to the changing profile of medicine and that there exists deficiencies in career advice and counseling from patrons and colleagues. They suggest that these deficiencies may contribute to a “glass ceiling” effect on women’s upward mobility (4). They discovered that the gradient of existing sex ratio in a corporation is a strong predictor for career opportunities for women. If women are in the minority, they are exposed to exaggerated attention and lack of integration (reactions that do not appear in groups with less variable sex ratios). Furthermore, they found the probability of women achieving senior positions seems to increase with the proportion of women in the specialty (4). Organizations must take it upon themselves to be self-aware of the deficiencies within their societies that are contributing to the lack of upward mobility for female employees.

Mayer found similar results almost ten years later when they investigated the academic advancement of women in medicine, searching for the answer to whether or not socialized gender differences have a role in mentoring. Through their investigations they recognized that demands of clinical practice, family obligations, and lack of mentoring have all been identified as factors influencing the lack of advancement of women to upper levels of management (5). Mentorship in academic medicine was reported to increase personal and career development, as well as research productivity, including publications and grant awards. Previous research has proven that formal and informal

traditional mentoring models have been shown to increase advancement of mentees, however, it is more difficult to establish informal mentors in the minority groups (i.e. women in this case). Traditional mentoring styles often emphasize separation over integration, independence over relationships, and competitive task over collaboration. Interestingly, Mayer found that women are more inclined to engage in “leveling” or equalizing behaviour, even with their obvious subordinates (suggesting that the traditional model of mentoring does not appeal to the types of relationships women are more likely to engage in) (5). Mayer also found that academic promotion is less likely for female faculty than for their male colleagues of similar duration of appointment (5). Gender-matched mentoring can establish mentoring pairs that maximize the opportunity for psychosocial support with insight into work-life balance, work relationships, and work politics (5).

A recent study on the inadequate progress for women in academic medicine sought to explore the opinions of individuals who have leadership roles to address the current “climate” that professional women face. The team conducted qualitative interviews in 24 US medical schools to explore the gender climate for women in academic medicine. Of the respondents, several patterns emerged demonstrating little recognition of women’s accomplishments and a persistence of unintentional gender bias. Women were more frequently found in the clinical tracks versus the tenured research tracks with higher perceived prestige and there existed a lack of transparency around salary issues (6).

Furthermore, a study conducted by an internal medicine resident with her colleagues recreated an experiment that was previously conducted with business students. Researchers were asked to read a case, half of the group reading the original story about a female subject, the others reading a story that was changed to a male subject. Both the male and female were perceived to be equally capable, but the female was perceived as political, calculated, and unlikeable. The male was perceived to be more hireable and the superior colleague (7). This analysis demonstrates how success and likeability remain positively correlated for men, and negatively correlated for women (8). Repeatedly it is shown that women face distinct social penalties for doing the very things that lead to success (8). Cooper states, “high-achieving women experience social backlash because their very success – and specifically the behaviours that created that success – violates our expectations about how women are supposed to behave” (8).

It is imperative that professional women seeking leadership opportunities are presented with mentorship/

sponsorship prospects and are exposed to a coaching relationship. It is crucial that young women are exposed to self-promotion techniques to combat the trend that women systematically underestimate their own abilities (9). Many employers have taken steps to reduce gender gaps by adopting policies against discrimination and sexual harassment and introducing family friendly benefits and incentives for longer parental leave. Hiring committees must have defined criteria in advance of evaluating candidates to avoid unconsciously redefining what they are seeking to match the attributes of male candidates.

Opinions in the medical community are still tainted by unconscious bias at best, and active discrimination at worst (10). It is time that the culture of gender bias in the field of paramedicine changes, and it is imperative that all levels of employees recognize that culture does not make people, people make culture. As the ratio of men to women in the field of paramedicine continues to balance, it is apparent that there is no longer a “supply” issue affecting female opportunities for leadership positions. It is time to move beyond the point of continuing to describe the problem and begin to develop and institute concrete solutions.

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Editor’s note: Paige Mason is a paramedic and researcher in Ontario, Canada. She is the principal investigator of a mixed-methods study entitled “Female Leadership In Paramedicine (FLIP)” which is currently underway.

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DEDICATION

Rescue 116

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**Of what is courage made?
Does it know it exists?**

**To rise from a bed three hours before dawn
Awakened by a phone-call like a shatter of
glass,**

**Pull on a hi-vis, lifejacket and oilskins,
Face into the scream of night.**

**Or the storm-tossed sunrise,
The rage of red breakers
Boiling the Atlantic like a cauldron of sleet.**

**The chopper hovers bravely,
As into blinds of salt
The mission of mercy lofts out.**

**Alleluias of wind and the clouds roiling up,
Over churning grey seas, tiny islands of rock
Like inkblots splashed by a careless
cartographer,**

**And the panicked blip of maydays
Trills across the radar,
As an ancient reassurance
Is drummed by the blades.**

**We will not leave you.
You are not alone.
Help is on its way.
Hold hope.**

**'Hero' is a word thrown around like the spray,
For those who score a goal, win a point,
Stand to fight.**

**But those who give their all,
In the canyons of night,
To save others,
Are the starlit heroes.**

**To save other people's sons,
Those they've never met,
Other children's fathers,
Neighbours' lost daughters.**

**Reminder, we are one,
Bonded by closenesses,
Unspoken but real,
Always bravely flowing,
As the running of underground waters.**

**That every time a mission of mercy is flown,
Our broken souls are mended.
Rescued. Brought home.**

**Of what is courage made?
Does it know it exists?
Selfless in the mists
Of others' misfortunes,
On it pulses like a heartbeat,
Modest and quiet,
Solid as the tick of a clock.**

**Love, hold them close,
Those who didn't come home,
Who gave all they owned,
For the sake of another.
Who expected no medal,
No proclamations.
No fuss.
And who gave without asking.
The best of us.**

Joseph O'Connor



Watch Joseph read this poem live...



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Influence of Family on Saudi Arabian Emergency Medical Services Students.

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RESEARCH**Influence of Family on Saudi Arabian Emergency Medical Services Students.**

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Abstract**Objectives**

To identify influences on learning for Saudi male students studying Emergency Medical Services at a college in Riyadh, Saudi Arabia. Previous research on influences on student learning in the Kingdom of Saudi Arabia focused on the historical development of education in Saudi Arabia, English language development, and intrinsic motivations of students. Excluded is a focus on students studying Emergency Medical Services.

Methods

Exploratory sequential mixed-method was applied.

Results

Family support was an exceptionally strong predictor of student confidence in both skills and post-graduate EMS employment. Concepts involving application, memorization, motivation, and English language did not present as statically significant. The discovery of the strong influences that a family can have on Saudi EMS student's confidence is noteworthy, as this was not previously discovered in the literature.

Conclusions

This discovery holds practical implications for EMS education and training programs as emphasizes the importance of developing practical ways to include a student's family as a source of support in ensuring student success and confidence.

Keywords: *learning barriers; learning influences; emergency medical services; paramedic; Saudi Arabia.*

Introduction

Emergency Medical Services (EMS) bachelor degree programs are emerging in the Kingdom of Saudi Arabia. Graduates of these programs are trained to serve as paramedics and be part of emergency response systems. The training required to achieve these goals is rigorous as hundreds of hours of lecture, practical, and clinical sessions are combined into a program. A literature search on learning barriers while studying Emergency Medical Services (EMS) at a public University in Riyadh, Kingdom of Saudi Arabia was conducted. This search resulted in very limited results. Thus the focus was expanded to learning barriers faced by Saudi Arabian college students. Three strongly supported common learning influences that crossed multi-disciplines were identified as English language, motivation, and the quality within academic institutes starting with the general development of the Saudi education system.

Education in Saudi Arabia developed from two lineages.(1) The first lineage of traditional learning relied on oral communication and was religiously oriented with a curriculum focused on memorizing the Qur'an and the Hadith.(1) The second lineage developed into two types. For many years kuttab instruction was limited to religion, Arabic language, and basic arithmetic. Many modern elementary schools, or madrassa, have developed broader curriculum that retained elements of kuttab instruction, which resulted in the continuation of a preacher-like image of the teacher.(1)

Following considerable international and local pressure, the Ministry of Education implemented the English curriculum at the elementary level beginning in 2003.(1,2)

Attitudes towards English language education have shifted due to the growing economic, industrial and commercial base in Saudi.(3) The English language classroom in Saudi has been described as complying with the ceremonial order, or the primary role of the teacher and text and the student in the secondary role.(1) Others have described English being taught only for its cultural and intellectual awareness.(2) Observations have been reported on students' difficulty in using the English language for the purpose of studying, reading and examinations, which have resulted in considerable difficulty with academic performance.(4)

A comparative study on motivations for learning the English language of Saudi undergraduates studying medicine, English, and information technology discovered higher levels of extrinsic motivations than intrinsic.(5) The medical students had significantly higher extrinsic motivation than the other populations, which was attributed to practice of only admitting students with the highest grade point average into Saudi medical schools.(5) These findings supported discussions on how English remained as an academic exercise with much greater external pressures to learn than internal.(1-3)

Saudi students hold certain beliefs about learning English that have resulted in poor student attitudes and low levels of motivation, which affects their classroom performance.(3) English is not viewed as immediately relevant to student needs and resulted in students only devoting enough focus to acquire the minimal competency needed to pass a course and not the other aspects of learning

the language.(3) The lack of intrinsic motivation compounded with the extrinsic influence of the education systems hinders developing any personal interest.(3) Additionally, it has been reported how there are no real purpose or opportunity to use English outside of the classroom.(3)

A review of published literature on the influences on student learning in Saudi Arabia discovered a growing body of research primarily on Saudi students studying English. The review yielded detailed discussions on motivation, barriers to learning English in Saudi Arabia, and generalized findings related to medical students. A gap in identifying the learning barriers faced by EMS students was discovered. This required further research to explore if other influences on student learning found in the literature are the same for bachelor degree seeking Saudi paramedic students.

Methods

This study addressed influences on learning for students studying EMS at a government college in Riyadh, Kingdom of Saudi Arabia. This study was approved by the ethics board at Prince Sultan bin Abdulaziz College for EMS of King Saud University in Riyadh, Saudi Arabia. The purpose of this exploratory sequential mixed-methods design was to develop and test an instrument to assess learning influences.(6) All participants volunteered to be part of this study. The first phase of the study was a qualitative exploration of learning influences experienced by students studying EMS in Saudi at a public University, for which audio data was collected and analyzed from three focus groups of students. The reason for the qualitative phase was to identify connections between the literature on learning influences on Saudi Arabian students studying English or medicine to EMS students. The quantitative phase followed for the purpose of exploring shared student-learning influences discovered in both the literature review and qualitative findings. The quantitative survey was conducted from March 17, 2015 through April 1, 2015 in Riyadh, Saudi Arabia. A total of 141 out of 143 students participated fully in the quantitative study. The survey was administered using Qualtrics™, and first written in English then translated to Arabic and agreed upon by three native speakers. Participants were able to read all questions in both English and Arabic.

Study Population

Study participants, all male undergraduate students in Riyadh, Saudi Arabia, learned EMS from a curriculum comprised of lectures, hands-on skill development sessions, and rotations in both in-hospital departments related to emergency medical care and out-of-hospital emergency services. Lectures and hands-on skill sessions are primarily conducted in the English language. The curriculum is based on international standards, reviewed by local and international EMS experts, and responsive to national need.

Study Design

In order to explore the influences suggested by the literature, we operationalized several concepts. The purpose of this article was to explore which factors led to students' perceptions of their confidence to serve as EMS practitioners. Thus, factors exploring perceptions of confidence in this preparation, asking about their relative level of confidence in their skills on ambulances, at hospitals, and in obtaining post-training employment in EMS were analyzed as our dependent variables.

Many potential influences may drive perceptions of confidence. Additional factors explored were, among others,

demographics, education, and socio-economic. Operationalized concepts that, after robustness checks, emerged as potentially strong influences that also were statistically sound were presented. These influences include K-12 educational approaches, language skills, the ease of students to participate in the EMS program, the personal motivations of students in pursuing EMS, and finally, the support of family while pursuing EMS studies.

To capture K-12 education and its' impact on students, several facets of primary and secondary education were explored. Two concepts emerged as potentially important to the ability of students to perform the skills necessary in EMS: a tendency to teach through memorization or a tendency to teach skills through application at the high school level. In the quantitative survey, data was captured on the concept of skills training of application and memorization, asking about the perceptions of their high school teaching methods, specifically regarding their focus on teaching through application or through memorization. Note that, despite their seeming conceptual symmetry, response data from these two variables were not correlated.

Language skills of participants with a series of questions about the use of English in high school and with family and friends was explored. Another concept important to our analysis is the relative ease with which a student can attend to their studies in the EMS program. Given that the program involved some online training, one factor that emerged was internet access. As such, questions about student perceptions of the quality and speed of their home internet services were asked. Additionally, participants were also asked how easily students understand the lectures presented within the program.

The concept of personal desire was also an important potential influence. Participants were asked a series of questions, but centered on the desire of participants to serve most directly in EMS within an ambulance service. To capture personal motivations, participants were asked how motivated they were to serve in EMS with an ambulance service.

Finally, to capture the concept of cultural tendencies within Saudi Arabian society to rely heavily on family for life decisions, participants were asked about student perceptions of family support.

Ethical approval for this study was provided by the Research Committee of the Prince Sultan Bin Abdulaziz College for EMS, Kind Saud University (RC-09/14).

Results

Participants responded to varying levels of family support they enjoy for their EMS studies. The descriptive statistics for the model variables are presented in Table 1.

To explore the strength of the relationships among our suite of influences and their possible effect on student confidence regarding their skills and post-studies employment prospects, an ordered logistic regression model was used. Three models are presented: one for each dependent variable: Confidence in Employment in EMS, Confidence in Skills: Working on an Ambulance, and Confidence in Skills: Working in a Hospital. From these three models, the effect of significant variables on these dependent variables across the range of the Likert scale response options, then present the marginal effect of Family Support on the three outcomes were examined and presented in Table 2.

Table 1. Descriptive Statistics

Dependent Variables	N	Mean	St. Dev.
Confidence in Employment in EMS	140	4.1	.88
Confidence in Skills: Working on an Ambulance	140	4.2	.77
Confidence in Skills: Working in a Hospital	140	3.6	1.1
High School: Memorization Focused	141	3.9	.91
High School: Application Focused	141	3.6	1.1
English Use at High School	141	2.6	.95
Student Home Internet Quality	140	3.9	.98
Student Motivated to Work in EMS on Ambulance	140	3.9	1.2
Student Understands EMS Lectures	140	3.7	.79
Family Support for EMS Studies	140	4.1	.94

Table 2. Ordered Logistic Regression Models

Ordered Logistic Models	Confidence in Obtaining Employment in EMS	Confidence in Skills: Working on an Ambulance	Confidence in Skills: Working on an Ambulance
High School: Application	-.063 (.179)	-.220 (.185)	.075 (.171)
High School: Memorization	.147 (.184)	.138 (.206)	-.200 (.188)
High School Skills: English Use	.182 (.186)	.006 (.188)	.291 (.179)
Internet Quality at Home	.374 * (.171)	.341 * (.176)	.399 * (.169)
Motivation: Ambulance Para	.087 (.145)	.215 (.150)	.094 (.139)
Family Supports EMS Studies	.627 * (.192)	.249 (.189)	.275 (.181)
Understands EMS Lectures	.673 * (.231)	.707 * (.241)	.184 (.210)
Log Likelihood	-149.8	-136.5	-182.4
N	140	140	140
AIC	321.8	295.0	386.7

* *p* value $\leq .05$, 2 sided standard errors in parentheses

These models present coefficients rather than odds ratios, allowing for a more conventional interpretation. The results suggested that three of the central influences are related to increases in the confidence of participants in obtaining post-studies employment in EMS as well as their confidence in the skills they need in both ambulance and hospital settings.

These influences are the quality of the participant's home internet, their ability to understand EMS lectures in the school, and the support of family in their studies. The AIC scores, which give a sense of the relative fit of the model when compared to the other models, suggested that the suite of variables included in Model 2 provided the best leverage on perceptions of ambulance skills while Model 3 provided the worst leverage on student perceptions of their skills in a hospital setting. Interestingly, the concepts involving application, memorization, motivation, and English use did not present statistically significant results.

At the same time, given the nature of the Likert scale, a more detailed exploration of these results was needed. Table 3 examines the differentiated response options for each of the significant variables and their impact on the confidence variables.

These results suggest that while Family Support

remains consistently significant across the range of responses (from strongly disagree to strongly agree) the results from the other two variables of Student Understands Lectures and Internet Home Quality created a somewhat misleading picture. While those who believe that the quality of their home internet quality was poor seemed to have poor confidence in their skills within a hospital setting, the other response options for this variable are not significant. The range of the response data in this nuanced examination may have washed out what was a significant variable in the main model. As such, focus was placed on Family Support for the remainder of the analysis.

Table 4 displays the marginal effect of Family Support on our three dependent variables.

Figure 1, a marginal effects plot with 95% confidence intervals around the coefficient estimates, displays the marginal effect of the levels of Family Support on those participants who felt highly confident in their hospital skills. Here, we see that family support appears to have a consistent positive influence on confidence. Any family support at all appears to increase confidence.

Figure 2, another marginal effects plot, examines the effect of increasing levels of family support on the

Table 3. Significant Variables in Each Model at Various Response Levels.

Coefficients at Response Levels	Confidence in Obtaining Post-Studies Employment in EMS = Strongly Agree	Confidence in Skills: Working on an Ambulance = Strongly Agree	Confidence in Skills: Working in a Hospital = Strongly Agree
Family Support: Disagree	3.701 * (1.565)	-	-
Family Support: Neutral	3.717 * (1.366)	-	-
Family Support: Agree	3.295 * (1.306)	-	-
Family Support: Strongly Agree	4.513 * (1.319)	-	-
Understands Lectures: Neutral	-	-.194 (.949)	-
Understands Lectures: Agree	-	.616 (.966)	-
Understands Lectures: Strongly Agree	-	1.668 (1.087)	-
Internet Home Quality: Disagree	-	-	-2.566 * (1.184)
Internet Home Quality: Neutral	-	-	-1.491 (1.081)
Internet Home Quality: Agree	-	-	-.948 (1.005)
Internet Home Quality: Strongly Agree	-	-	-.476 (1.031)

* p value <=.05, 2 sided standard errors in parentheses

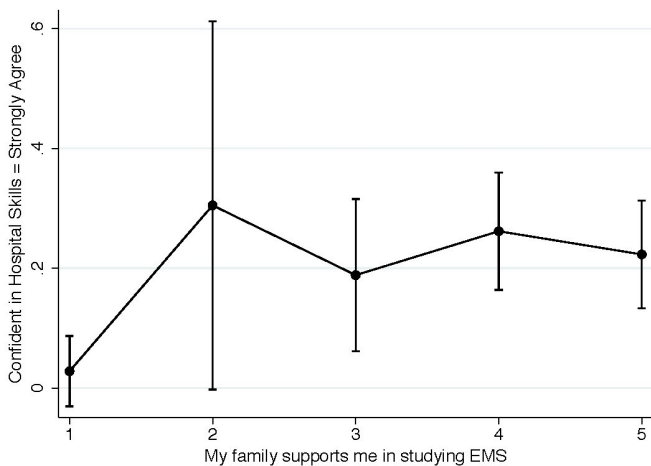


Figure 1. Confidence in hospital skills

perceptions of participants that are highly confident while working in a rescue squad environment. This plot reveals a similar relationship: family support appears to increase EMS student perceptions of confidence in their ambulance skills.

A final marginal effects plot, Figure 3, examines the relationship between various levels of family support on post-graduation employment prospects. This relationship is again

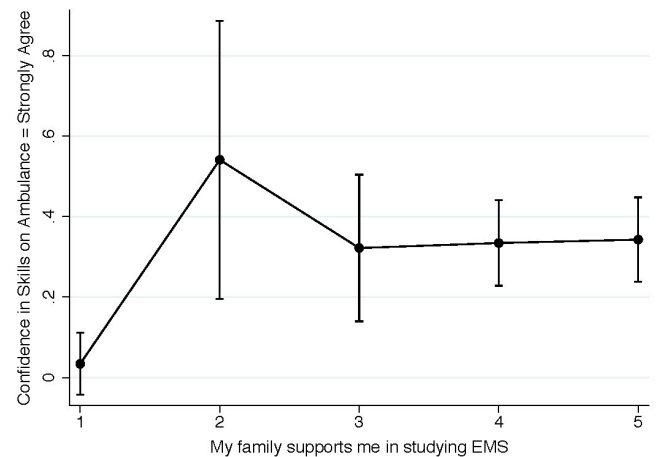


Figure 2. Confidence in ambulance skills

strong and displays a slight upward trend: as student perceptions of the support they receive from their family increased, they also appear to feel more confident about their post-graduation employment prospects in EMS.

Discussion

The students who felt most confident about their skills

Table 4. Marginal Effect of Family Support on Confidence in Employment and Skills.

Marginal Effects: Family Support	Confidence in Obtaining Post-Studies Employment in EMS = Strongly Agree	Confidence in Skills: Working on Ambulance = Strongly Agree	Confidence in Skills: Working in Hospital = Strongly Agree
Strongly Disagree	.021 (.025)	.034 (.039)	.028 (.030)
Disagree	.338 * (.160)	.541 * (.176)	.305 * (.157)
Neutral	.341 * (.098)	.322 * (.093)	.188 * (.065)
Agree	.270 * (.049)	.334 * (.054)	.262 * (.050)
Strongly Agree	.490 * (.061)	.343 * (.053)	.223 * (.046)

* p value <=.05, 2 sided standard errors in parentheses

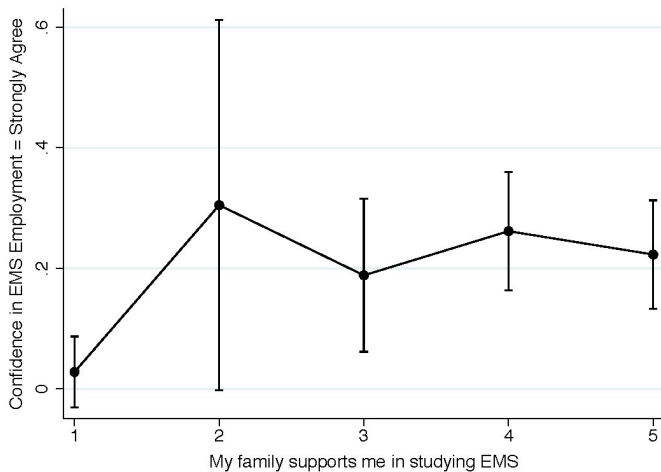


Figure 3. Post-graduation employment prospects

and their post-graduation prospects tended to be those who enjoyed high levels of family support. Figures 1, 2, and 3 support this relationship. This relationship is quite similar in magnitude to the results presented in Figure 1. Those who are highly confident in their skills appear to enjoy strong levels of family support, though in this arena, the relationship increased at roughly the same rate as family support increased. Students who had the most family support expressed the highest confidence in their ability to serve as a paramedic in a hospital or ambulance setting. All the response options presented a statistical significant result except for those students who do not enjoy family support at all.

The results suggested that family support is a strong influence on confidence, whereas concepts involving application, memorization, motivation, and English use were not. These results add to discussions on the role of English use as an academic exercise, and extrinsic influences, such as family support, on learning for Saudi students. However, data and literature on family support being a stronger influence on student learning compared to the other concepts analyzed was not discovered.

The role of family in Saudi Arabia plays a significant role in its culture and is rooted in traditions. The influence of family in EMS student's motivation holds practical

implications for education and training centers on discovering ways to incorporate family support as a way to keep students motivated and successful. Thus, further researching the role of family support and expanding how it influences student learning is recommended not only for EMS but other disciplines and specialties as well. Additional investigations on the influence of family on undergraduate, graduate, and professional students would add clarity on this phenomenon as this study only researched undergraduate EMS students.

Limitations

This study was limited to an all male sample student population studying at an undergraduate EMS college in Riyadh, Saudi Arabia which is part of a government funded public University. An important limitation to note is that these findings are focused on the student's perception of their confidence and not an objective measurement of their skill ability. This study is also limited by the fact that participants completed or nearly completed their elementary education prior to 2003 the Ministry of Education implemented the English curriculum at the elementary level.

Conclusion

This study examined barriers and influences on male Saudi Arabian students studying EMS in Saudi Arabia. Following a literature review and conducting qualitative focus group interviews, a quantitative survey tool was developed and administered. Within the data, the most important finding was that family support appears to be an exceptional strong predictor of student confidence in both skills and post-graduate EMS employment prospects. The measures of concepts involving application, memorization, motivation, and English did not, for this sample, present statistically significant results. Results from this study help to add to existing literature, but also identified the role of family support for Saudi Arabian students, and perhaps those of other nationalities, studying EMS as a concept requiring further investigation and research.

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On-shift simulation in aeromedical operations – making it work.

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EDUCATION**On-shift simulation in aeromedical operations – making it work**

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Correspondence: John Glasheen, LifeFlight Retrieval Medicine. Email: jglash@hotmail.com**Abstract**

Patient care in the prehospital and retrieval medicine (PHARM) environment presents many technical and non-technical challenges. Clinicians are frequently required to perform complex interventions in a time critical and resource limited setting. Intensive training is required prior to operational deployment, and ongoing training is vital to ensure optimal team performance in the delivery of high quality patient care. Regular simulation training with high situational fidelity is valuable in developing and maintaining excellence in PHARM. We describe the methods employed by two Australian aeromedical retrieval services to facilitate daily on shift simulation.

Keywords: *prehospital; aeromedical; transport medicine; simulation; training*

Introduction

Pre-Hospital and Retrieval Medicine (PHARM) clinicians treat patients in the complex and varied pre-hospital environment as well as in non-tertiary health facilities. They provide initial management and stabilisation and continue this care during transport to definitive care. This paper will describe the combined experience of two retrieval services in Australia in obtaining and maintaining optimal team performance in the aeromedical environment.

The patients treated by PHARM clinicians are often severely injured or critically ill, and may not have a definitive diagnosis. Complex higher risk retrievals include patients transported while undergoing treatment with intra-aortic balloon pump counter-pulsation (1) or extracorporeal membrane oxygenation (ECMO).(2) Each mission is unique from an environmental, transport, logistic, clinical and human factors point of view. These factors can present clinicians with a high cognitive and technical workload, with increased stressors that can impair performance.

Teams are frequently required to perform high-risk medical interventions such as rapid sequence intubation (RSI). Although many teams have shown that this can be done safely,(3-7) the training and governance methods used to achieve and maintain this level of performance have been less comprehensively described. Obtaining and maintaining excellence in the more rarely performed skills such as thoracotomy, resuscitative hysterotomy and escharotomy is also challenging.(3)

A minimum level of competency is required by all members of a PHARM team prior to operational deployment. All new crew members undergo a comprehensive outcome based induction programme, including training in the technical and non-technical skills required to function as part

of a retrieval team. During the induction programme emphasis is placed on crew resource management, use of standardised clinical operating procedures and effective communication skills.

Following the intensive induction program, it is necessary to maintain a program of education and governance. This aims to further develop and maintain key areas of knowledge, skills and attitude for the individual, the team and the organisation. Ongoing deliberate practice may make the difference between performing an intervention to an acceptable standard compared to a very high standard.

Competence in the core clinical skills of RSI and surgical airway is periodically revalidated by mandatory formal skills testing. This robust system, allied with regular case review and comparison with key performance indicators provides clinical governance for complex, but frequently performed advanced airway management procedures.

Complementary to this specific competency revalidation is a system of daily on-shift simulation training. This is intended to both consolidate frequently performed skills and to develop competence in critical, but less frequently performed tasks.

Simulation training in prehospital and retrieval medicine

Scenario-based training is a widely used tool in prehospital education.(4) Good simulation involves the creation of training opportunities in real-life environments designed for optimal educational benefit.(5) Simulation improves clinical skills, teamwork, communication,(6) and decision-making, which may ultimately improve patient safety (7,8) as well as enhance emergency care skills.(9) Regular training opportunities may enable prehospital practitioners to perform better at trauma scenes.(10)

The importance of the non-technical skills (NoTECS) of leadership and communication in resuscitation is well recognised.(11,12) NoTECS learned in simulation can be directly transferred to clinical settings.(13) This may be particularly relevant to PHARM, where the team frequently manages critically unwell patients in a time-pressured context in conjunction with other practitioners that they have never previously met. The retrieval team itself may consist of individuals who have never or have rarely been rostered together in the past. In this context, simulation may improve the clinician's ability to identify and manage the complex human factors surrounding an otherwise technically simple clinical problem.

Simulation also allows the individual clinician to discover in advance, how they might themselves react to a rare but challenging emotional stress such as the severely injured child, the violently psychotic patient or to direct challenges to their decisions and leadership in time-dependent clinical scenarios.

Medical simulation can be defined by the style of patient, the location of the simulation and the style of the learning session. Patients presented to the teams can be simulated by actors, low technology manikins or computerised manikins with additional features. Scenarios can take place in the actual clinical environment, described as in-situ simulation, or in a dedicated simulation centre. Educational sessions may present information prior to the rehearsal of the skills, during the simulation in a pause and discuss format, or following the scenario in a traditional debriefing and feedback model. The aim of simulation based education is to develop knowledge, skills and attitude, and translate these into improved team performance.

On-Shift Simulation

In situ simulation is defined as simulation which occurs in the actual clinical environment, which for PHARM is in any location where patients require treatment. In-situ simulation with high situational realism may be optimal for effective aeromedical training. In-situ simulation has been shown to discover latent safety threats, identify knowledge gaps, and reinforce teamwork behaviour.(14) However, taking simulation to the roadside, cliff face or remote environment for training has increased risks and challenges for daily simulation based education.

Spurr et al have proposed a ten-point framework for effective in-situ simulation training in emergency and critical care.(15) This includes maximising the realism, and ensuring that the training is multi-professional. Strong leadership and training in how to run simulation is vital, both to make it happen and to ensure effective debrief. These principles of in-situ simulation can be applied to on-shift simulation for the PHARM team.

Situational, physical, psychological and physiological fidelity should be considered when planning simulation training. The session should be structured with preparation, a

pre-brief, the scenario, debrief and then reflection. Learning outcomes will include clinical skills, logistics and human factors, all of which should be discussed with the team during the debrief.

Situational fidelity can be achieved by performing the scenarios in the actual aircraft or land ambulances, while wearing operational uniform, harness and other personal protective equipment. Base facilities can be used to simulate domestic settings, and with appropriate safety-conscious planning the environment around the base can be used to recreate other operational scenes. Remaining within base surroundings ensures that the team retains a rapid deployment capability in the event of a real mission tasking.

The use of a full set of training medical packs identical to operational kit maximises the familiarity of the teams with their equipment and checklists. Further realism can be added by the use of mobile real-time monitoring with real alarms such as the iSimulate system (*ALSi Patient Condition system; iSimulate, Sydney, Australia*) in conjunction with simulated patients or manikins. This provides realistic patient monitoring without the added complexity or cost associated with high-fidelity manikins, and allows the clinicians to remain immersed in the scenario. Other relevant media such as ECGs, ultrasound images, blood gas results should be readily available. The use of ultrasound can be incorporated into the scenario using inexpensive ultrasound simulators. (16)

Confederates may be used to play the part of other professionals or family members. The use of an actor as the patient allows for better simulation of communication skills, and provides a realistic patient weight for the packaging and loading elements of training.

Involvement of the entire team, including the flight crew develops crew resource management skills, and educates the flight crew on the complexities of emergency patient care. This fosters the development of a high performance team, not just individual competence. Human factors training can be incorporated in the learning outcomes by creating specific challenges or interactions for the team to work through during the session.

Commonly encountered patient presentations may be simulated to develop excellence in day-to-day clinical operations through deliberate practice. Simulation of familiar tasks is useful to gain experience of how simulation 'runs'. System improvements may also be identified in an environment free of clinical risk. Simulation of rare but complex procedures such as decompressive craniotomy, field amputation, escharotomy and resuscitative hysterotomy allows clinicians to retain the required psychomotor skills and maintain metacompetence – the ability to make correct clinical decisions about when to perform these interventions. (8)

The technical skills required for these procedures such as use of the Gigli saw and Hudson Brace can be practiced on either dead mammalian tissue or simulated tissue attached to

the simulated casualty. Inexpensive 'home made' task trainers such as the airway salad (17) or escharotomy man (18) can add complexity, and provide added clinical challenges to maximise the benefit obtained from regular simulation.

Challenges of making daily simulation happen

Simulation training must not affect the normal operations of the base, and should take place during the natural 'downtime' between missions. The daily routine should also be flexible enough to take advantage of time off-line for maintenance or due to weather. Availability of teams, trainers, equipment, cost and team enthusiasm have been recognised by our services as barriers to scenario based training.

Some PHARM bases have multiple crews on duty for each shift, while others have a single crew at any given time. Simulation at change of shift allows for the involvement of multiple teams, however operational requirements and crew fatigue management requirements present limitations. Multi-crewed bases can use one crew to direct a simulation for another crew. In ideal circumstances a supernumerary clinician may have responsibility for running simulation training on a given shift. Single crew bases require more creativity to sustain effective simulation training.

A collection of detailed pre-scripted scenarios (supplementary file) allows a single crew to maintain the scenario trajectory. Alternatively, the script may allow non-clinical personnel (e.g. flight crew or administration staff) to direct the scenario. Pre-programming the iSimulate with the vital signs and expected action may provide additional benefit. Other local EMS or rescue personnel may be invited to participate, and this has added benefits of improving communication and interoperability.

Availability of equipment can provide some teams with challenges. A readily available supply of out of date equipment could be the starting point for creating an education cache. Expensive and reusable gear (such as stretchers) may need to be used from the operational stock, being mindful to ensure they are returned to the vehicle in the event of a tasking or the end of the session.

Capital costs of manikins or monitors can be a perceived as a prohibitive expense for many teams. Using available human resources to provide in-scenario observations and vital signs, the use of low cost smart phone simulation monitor applications, low technology manikins (such as Crash Kelly) or even a child's doll as the patient are methods teams have used to keep costs to a minimum whilst maintaining a training program.

Time is a valuable resource and on-shift simulation can be perceived to utilise time where the team could be performing other duties on base or managing their fatigue. This may require a cultural shift prioritising education and training for improved teamwork and patient care in the

PHARM environment.

Regardless of the number of medical staff or equipment available, simulation should be scheduled, and be part of the base daily routine. Until it becomes ingrained in the culture, strong leadership is required to make this happen.

Debrief

One of the most important elements of any simulation is the debrief.(19) This should be frank but non-confrontational, drawing on the experience of all members of the team. Many debrief tools (such as FFAST) are available to aid this part of the simulation process.(20) Key learning points identified during the simulation should be discussed in an open and structured manner. These should also be disseminated to the staff not present for the simulation and debrief. Simulation sessions may also be live streamed to remote bases, or video recorded for later viewing. Consideration may also be given to publishing the lessons learned for the benefit of the wider Free Open Access Medical Education (FOAMED) community (e.g. by way of the GSA HEMS blog; www.sydneymhems.com).

Conclusion

Simulation training is an effective way to develop and maintain both technical and non-technical skills required for optimal performance in pre hospital and retrieval medicine. While this paper specifically describes simulation training in aeromedical operations the principles can be adapted to the different skill-mix present in any Emergency Medical Services setting. Training as a team may have benefit in a formulating a shared mental model, which helps to maintain the mission trajectory. Daily on-shift simulation presents challenges, but strategies exist to facilitate clinicians in achieving worthwhile educational value from daily training.

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June 2017

Abstracts from the 2017 EMS Gathering

Conference abstracts for oral and poster presentations at the EMS Gathering, Kinsale, Ireland, May 3rd to 5th 2017.



Recommended Citation

Individual abstracts: Surname Initial. Abstract Title. *Irish Journal of Paramedicine*. 2017 Jun; 2(S1)

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Abstracts from the EMS Gathering, Kinsale, Ireland, May 3rd to 5th 2017

The editorial board of the Irish Journal of Paramedicine (IJP) is honoured to present these abstracts accepted for presentation at the 2017 EMS Gathering, 3rd to the 5th of May 2017 in Kinsale, Ireland. As part of our commitment to furthering the profession of paramedicine, and encouraging future development of professional standing, we publish this special supplement containing the selected abstracts.

These abstracts represent academic dedication, intellectual discovery, enthusiasm and for some, a foray into a new territory of research and academia. We are grateful for each and every one of these authors' commitment to the advancement of our profession. We are privileged to publish these brief summaries of some of the novel and exciting research our colleagues are undertaking. Abstracts were received from several countries around the world, including Ireland, Canada, Australia, the USA, Croatia and Germany.

This year, the EMS Gathering received fourteen abstracts for consideration. One abstract was withdrawn by the authors after submission. Nine were deemed appropriate for review consideration. Nine of the submissions (100%) were accepted. Each abstract was independently reviewed by reviewers who were blinded to the identities of the authors. Final determinations for scientific presentation were made by the EMS Gathering Abstract Review Committee. The decisions of the committee were based on the final review scores, with consideration to the time and space available at the meeting for oral and poster presentations.

We present these abstracts as they were received, with minimal copyediting and proofreading. Any questions related to the content of the abstracts should be directed to the authors. Please note that the abstract numbers presented here do not match the presentation numbers at the meeting. Attendees should consult the on-site programme for abstract session content, dates, times and location.

On behalf of the editorial board of the Irish Journal of Paramedicine, the Irish College of Paramedics and the organising committee of the 2017 EMS Gathering, we sincerely thank our colleagues for these valuable contributions, and their continued efforts to expand the knowledge base of paramedicine and prehospital care, ensuring we constantly strive to deliver the best care to our patients, and the best education to our prehospital care professionals.

Abstract Review Committee

Mr. Alan Batt MSc CCP*

Associate Professor Conor Deasy MB BCH BAO PhD

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(* excluded from peer-review)

In choosing abstracts for the meeting, our goals are logic, fairness, and transparency. We do not believe one form of research is inherently better than another. In the interests of transparency and fairness, we are pleased to share our abstract scoring criteria (Figure 1). Remember, scoring is a judgment call. As an author, one is welcome to use the criteria to score one's own abstract, but this won't change how the reviewers score the abstract on review.

All abstracts were reviewed in a blinded manner. Reviewers indicated if they had any potential COI during the review process (knowledge of the submitting authors or the work of specific abstracts etc.). Conflicts were declared by two reviewers (SK and DS). Abstracts were scored on the content of the abstract, educational value, and quality of the written abstract.

Content of the abstract—scientific accuracy and relevance of the abstract, as described in the outlined headings: Introduction/Background, Objectives, Methods, Results and Conclusion/Discussion.

Education value—what interest and appeal would this abstract hold to EMS Gathering audience. Does it represent a contribution to practice, theory, research or knowledge, and how novel or innovative is this contribution? Is the topic relevant to conference?

Quality of the written abstract—is the abstract self-contained, coherent and readable?

Scores from each reviewer were tallied, and the mean score was calculated for each abstract. Abstracts were then ranked according to mean score. Abstracts were selected for oral presentation based on highest mean scores. Other abstracts were ranked in order for poster presentation. A winner was selected within oral abstracts and poster abstracts based on mean review scores.

Quality of abstract content / 25	Introduction
	Objectives
	Methods
	Results
	Conclusion
Educational value / 15	Interest and appeal to EMS Gathering audience
	Contribution to practice, theory, research or knowledge
	Novel or innovative contribution, relevant to conference
Quality of written abstract / 10	Self-contained
	Coherent and readable

Figure 1. abstract scoring criteria

Best scoring oral abstract: Byrne and Bury. Maybe Irish prehospital staff don't make mistakes? Medication errors, their reporting and ambulance service attitudes.

Runner-up: Batt et al. Translating the evidence: implementing STEMI bypass in the Middle East.

Best scoring poster abstract: Nevin and Ryan. Appropriate Referral of Minor Injuries to the Emergency Department in University Hospitals Limerick.

The following standardised abbreviations are used in the abstracts:

ACP	Advanced Care Paramedic
ALS	Advanced Life Support
AP	Advanced Paramedic
BLS	Basic Life Support
COPD	Chronic Obstructive Pulmonary Disease
CPC	Continuing Professional Competency
ECG	Electrocardiogram
ED	Emergency Department
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
MD	Medical Doctor (Physician)
PCI	Percutaneous Coronary Intervention
PCP	Primary Care Paramedic
RN	Registered Nurse
STEMI	ST-elevated Myocardial Infarction

1. Appropriate Referral of Minor Injuries to the Emergency Department in UL Hospitals

Daniel Nevin¹, Damien Ryan¹⁻³

1. Graduate Entry Medical School, University of Limerick, Ireland; 2. Centre for Prehospital Research, Graduate Entry Medical School, University of Limerick, Ireland; 3. University Hospitals Limerick, Ireland.

Introduction: Patients utilising the Emergency Medical Services (EMS) in Limerick are currently brought to University Hospital Limerick (UHL) for diagnosis and

management of their condition. Whilst many patients require services that can only be offered at a tertiary hospital, some could be managed at a Local Injuries Unit (LIU). To determine the appropriateness of patient EMS referral with minor injury to UHL, we examined the number of patients admitted to UHL ED via EMS over a one-month period to quantify if they fulfil the criteria for LIU attendance. **Methods:** In this retrospective, single-centre study, a list of all patients presenting to UHL ED over the course of 1 month (March 2015) was obtained from UHL's IT department. Patient data was examined, and relevant details including patient demographics, presenting complaint and diagnosis were analysed to determine if patients fulfilled HSE LIU attendance criteria.

Results: Analysis of all attendances to ED UHL revealed that 16.03% (n=795) of all referrals during March 2015 were through EMS. Following HSE LIU attendance guidelines, it was determined from patient medical records that 3.1% (n=25) fulfilled these stipulations but were nonetheless admitted to UHL ED. Distribution analysis of these cases revealed that Limb Problems accounted for the majority (36%), whilst Falls (24%), Head Injuries (24%) and Wounds (16%) accounted for the remainder. Importantly, the vast majority of EMS referrals would not have been suited for admission to LIU's based on current HSE criteria (96.9%, n=770)

Conclusion: Although some quarters have expressed opinions that EMS transport to LIU's would represent best health care practice, this study highlights that the vast majority of EMS referrals would not have been suited for attendance at LIUs. It is believed that these findings support the view that current practices regarding LIU attendance streams are fit for purpose, challenging the view for policy change.

2. The positive role of undergraduate prizes in the further development of the specialty of Emergency Medicine

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Introduction: Inspiring medical students to become interested in Emergency Medicine and potentially pursuing it as a career is vital to the development of the specialty. Undergraduate prizes may influence perception of a specialty, attract a certain type of student to becoming interested in a specialty, and reward those who have already shown interest. The Jim Doran prize in Emergency Medicine is awarded each year to a fourth year medical student in University College Cork (UCC) by the Emergency Department. The prize is adjudicated by the CUH Emergency Department (ED) and funded by the ED educational fund. Participating students submit a proposal indicating their interest and are invited to speak on an allocated prehospital topic. The prize provides flights and a stipend towards expenses allowing the

successful student to spend two months with London's Air Ambulance team based at the Royal London Hospital in Whitechapel, London on their summer elective.

Background: Dr. Jim Doran was born in Cork in 1925 and graduated in medicine from UCC; he developed an abiding interest in, and a lifelong commitment to prehospital Emergency Medicine. His work is continued today by his son, Dr Hugh Doran and East Cork Rapid Response. While in London students spend time with the prehospital team and some time within the emergency department of the Royal London Hospital and so get a full flavor of emergency medicine as a career.

Results: In testimonials presented in the poster the students speak of the effect of the application process on their interest in Emergency Medicine and Pre-hospital care. They describe forming lifelong friends and mentors through the application process and subsequent elective. They highlight the educational value of reflective practice and how London HEMS promoted this through education and governance meetings they were able to attend.

3. Translating the evidence: implementing STEMI bypass in the Middle East.

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Background: Acute coronary syndrome (ACS) is one of the leading causes of morbidity and mortality worldwide (World Health Organization 2014) and almost half of the mortality associated with ACS in the Middle East occurs in the pre-hospital setting. Previous studies have indicated that Middle Eastern populations utilise EMS less in ACS, have higher rates of co-morbidity, and are younger.

Objectives: The aim was to evaluate the translation of the evidence supporting STEMI bypass and prehospital cardiac care to the outcomes of patients with acute coronary syndrome (ACS) in the Emirate of Ras al-Khaimah, United Arab Emirates.

Methods: A prospective cohort study was conducted, which included all patients who had a 12-lead ECG performed by crews. Subsequent analysis of those who were identified as suffering a ST-segment Elevation Myocardial Infarction (STEMI) and who underwent PCI was performed.

Results: A total of 152 patients had a 12-lead ECG performed during the pilot study period (24th February 2016 to 31st August 2016) with 118 included for analysis. Mean

patient age was 52 years. There were 87 male (74%) and 31 female (26%) patients. Twenty-nine patients suffered a STEMI and data was available for 16 who underwent PCI. The median door-to-balloon time was 73 minutes (range 48-124), and 81% of patients had a door-to-balloon time <90 minutes. Discharge data was available for six patients: all were discharged home with no impediments to rehabilitation.

Conclusion: This pilot study has demonstrated agreement with the existing literature on the prehospital management of STEMI. The establishment of an organised system of cardiac care is feasible in a novel population and a novel clinical setting. It has demonstrated a door-to-balloon time of <90 minutes in over 80% of patients, and a faster mean D2B time than self-presentations (mean 77 mins v 113 mins), with no associated mortality or major adverse cardiac events.

4. Stress and Coping: Exploring the nature of resilience in UK Paramedic Practice.

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Background: Ambulance staff consistently have the highest levels of absenteeism in the National Health Service (NHS). Latest statistics show that 30% of sickness absence in the NHS is due to stress. Ambulance staff report the highest levels of stress within the NHS, some trusts as high as 40%. Evidence suggests that United Kingdom (UK) ambulance staff have higher levels of Post-Traumatic Stress Disorder (15-22%), depression, anxiety, sleep disturbance substance misuse and suicide than the general population. However, little is known about the daily stressors that UK ambulance staff face and how they try to cope with this stress.

Objective: This research presents the progress of a doctoral study exploring the nature of resilience in UK Paramedics. It defines the problem, presents a review of the literature and highlights the need for research in this area. This presentation will then discuss the design of research to rigorously explore the research question.

Methods: A literature review was carried out to identify what is currently known about resilience in Paramedic Practice. Following this a longitudinal mixed-methods research project was designed to both objectively measure resilience in Paramedics, and to subjectively gain an understanding of resilience from the Paramedic's viewpoint.

Conclusions: There is a limited amount of evidence suggesting that the role of a Paramedic is stressful, and that within the ambulance service there are high levels of poor mental health and poor coping. However, research has not explored the nature of stress in the ambulance service, nor the ways in which Paramedics try to cope. This research is designed to explore these aspects further.

5. Maybe National Ambulance Service Pre-hospital staff don't make mistakes? Medication errors, their reporting and ambulance service attitudes

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Background: In 2016, the National Ambulance Service, responded to over 309,000 calls, of which 128,000 were life threatening Echo and Delta calls and operated with approximately 1700 whole time equivalent staff members, providing over 3.5 million staff hours.¹ In the last 13 years, the service has reported only 22 medication errors to the national body with responsibility for risk management and insurance cover. Although some reporting is obviously occurring and structured systems are in place to facilitate and act on such reports, the levels of medication error being reported appear strikingly below what might be expected. Little data is available to explain this apparent discrepancy; one factor may be the awareness and attitudes of staff to medication error and these reporting systems.

Objective: To identify, investigate and document the attitudes to medication error reporting within the national ambulance service.

Methods: Four moderator led focus groups were held in March of 2016. A convenience sample of 18 frontline Paramedics and Advanced Paramedics from Cork city and county were recruited by invitation to discuss medication errors and the medication error reporting process. The sessions were digitally recorded, anonymised and the data was analysed using a process of thematic analysis.

Results: Practitioners demonstrated an understanding of the importance of reporting medication errors. These included patient care and safety, improvement in standards, professional requirements, practitioner integrity and treating the patient as a relative. Fear of consequences and ridicule, procedural ambiguity, lack of feedback and a perceived lack of both consistency and confidentiality were cited as barriers to reporting. Documentation was seen as confusing and complicated. Informal reporting was common place. During the recorded sessions four practitioners gave first-hand accounts of making medication errors, a further two recounted witnessing medication errors and encouraging the practitioner involved to report. There was a perception that the health service norm is to deny any wrongdoing.

Conclusion: Anecdotally errors would appear to be more common than national reports suggest. The findings on reporting are in line with international evidence. Thematic Saturation was not achieved and further study is needed.

6. The impact of the Particulate Matter (PM10 and PM2.5) concentration on admissions to the Emergency Department (ED) of Krakow University Hospital due to cardiorespiratory disorders.

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Background: Air pollution is a serious, growing problem in Poland. European standards for PM10 and PM2.5

concentration in Kraków agglomeration in the winter period are exceeded during most days. Inhaling polluted air in adults is associated with the incidence of cardiovascular and respiratory disorders and can be a direct cause of an increase in patients' admissions to the ED. The study is the first one referring to this problem carried out in the area.

Objective: To determine the effect of particulate matters PM10 and PM2.5 concentration in the inhaled air on the ED of Kraków University Hospital admissions due to acute cardio-respiratory disorders.

Material and Methods: The retrospective study was conducted. The electronic records of patients admitted between 1st November 2013 and 28th February 2014 has been searched for International Statistical Classification of Disease and Related Health Problems codes for following disorders: acute coronary syndrome, ischemic stroke, pneumonia, COPD exacerbation, paroxysmal atrial fibrillation, heart failure exacerbation and arterial hypertension. For the statistical analysis the Mann–Whitney U test was used for samples of patients admitted during periods when average 7-days PM concentration doubled accepted European standard or remained in the range of the double norm. To determine the strength of relation Pearson correlation has been used (7-days average PM concentration, average patient's number from the last exposure day and 2 following days).

Results: The Mann–Whitney U test showed statistically significant ($p < 0.05$) differences in the number of patients admitted due to the air pollution. Pearson correlation proved statistically significant positive correlation between the PM concentration and the number of patients admitted to the hospital (PM10: $p < 0.05$, $r: 0.453$; PM2.5: $p < 0.05$, $r: 0.422$)

Conclusions: Increased PM concentration in the air causes a significant increase in the number of patients admitted to the Emergency Department due to cardiorespiratory disorders. It requires both: the implementation of system solutions to improve air quality and the ED preparedness for increased admissions of profile patients.

7. Building research capacity in paramedicine: the McNally Group

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Background: The need for research in the field of paramedicine has been recognised internationally. Previous studies have identified the provision of research education,

the establishment of a research culture, and the formation of research partnerships as essential to improving research capacity within paramedicine. Published literature has also highlighted the importance of social interaction and collegiality among graduate students and faculty to provide a strong foundation for subsequent research and scholarly productivity.

Aims: The McNally group was founded with the vision to address this gap – its aim is to provide a professional academic community for paramedics undertaking graduate studies and research activities.

Methods: The McNally group was formed in 2014 and adopted a flat organisational structure. An established faculty member provides academic guidance and support to the group, and attends all meetings. Membership is voluntary and is open to paramedics with an interest in research and who are pursuing graduate studies. Members self-organize and coordinate the groups meetings, which are held every two weeks. At each meeting time is dedicated to capacity building strategies and identified issues or subjects led by group members. Activities have included journal clubs, member-led topics and projects with opportunities for feedback and scholarly discussions, emerging ideas, critical appraisal skills, works-in-progress, discussions of research methodologies and traditions.

Discussion: The McNally group was formed to address an identified weakness in paramedic led research in Ontario, Canada – the provision of a group to allow for scholarly activities and discussions aimed at building capacity and contributions in Paramedicine research. This community and network has provided its members with an academic centre that while not directly related to coursework, allows for the development of broader academic skills, citizenship and contributions. Previous literature has argued for the need and positive aspects of community in academic and graduate education / work. The establishment of similarly modelled groups elsewhere is suggested to improve research and scholarly capacity in paramedicine.

8. On the path to professionalism: the Irish College of Paramedics.

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Background: The world of prehospital practice in Ireland has developed significantly over the past number of years. Whilst improvements are evident among the practitioner group in education, skillset and professional standards, the public know little to nothing of the role and function of the Irish prehospital care practitioner. The need for a national and all-inclusive professional body to represent all registered pre-hospital practitioners in Ireland was identified through research into continuous professional competency

requirements.

Methods: The Irish College of Paramedics was proposed and formed as a result in 2012. It is not a college, not a university, but ‘collegial’ defined as: ‘Co-operative interaction among colleagues’ or a group of professionals working for our profession. ICoP represents the profession, and includes all levels of registered pre-hospital practitioner. As well as registered practitioners (EMTs, Paramedics and Advanced Paramedics) its membership includes all those with a ‘pre-hospital’ interest, and is not restricted to registrants only. It is an all-encompassing body representing practitioners and responders from professional, voluntary and private organisations.

Results: The Irish College of Paramedics is now considered the voice of prehospital care practitioners in Ireland. It represents its members to the Pre-Hospital Emergency Care Council Medical Advisory Group and Education and Standards Committee; the University of Limerick; and University College Cork. The Irish Journal of Paramedicine has been launched, which is the official academic, peer-reviewed journal of ICoP. An affiliation agreement has been signed with the Paramedic Association of Canada, and one is forthcoming with the Turkish Paramedic Association.

Discussion: The future growth of the Irish College of Paramedics is unknown, but is essential to the maturation of the paramedic profession within Ireland. Using Greenwood’s model of a profession, the establishment of a professional culture, and the development of a unique body of knowledge are two specific areas of professional practice which the Irish College of Paramedics seeks to strengthen within Ireland. Strengthening links with international organisations is aimed at constructing a unified international standard of practice, making labour mobility easier. This will also in turn provide additional education and practice opportunities for Irish prehospital care practitioners worldwide.

9. First-Year Outcomes Of Funded Community Paramedicine Demonstration Projects

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Background: Older adults account for the highest usage of emergency and ambulance services in Canada. However, only a small proportion of these older adults account for the majority of health care usage. This subset of individuals are often characterized by polymorbidity, functional impairments, and social frailty and can be better managed by improved connection to primary, home and community support services.

Methods: Each of the community paramedic programs

were requested to submit standardized data on a quarterly basis around patient characteristics such as age, presence of multi-morbidity and ambulatory sensitive conditions, and their existing connections to primary and home and community care services; numbers and types of paramedic assessments conducted and referrals made; and outcomes data related to future 911 calls and ED visits six months after enrolment into a program. Data analyses were performed using descriptive statistics.

Results: Within the first 12-months of implementation, there was a total of 19077 patients enrolled, with 1865 paramedics and 335 individual health and social care providers becoming involved. There were also a total of 381 partnerships established with community and health organizations across all 30 projects at this time.

Conclusion: Community Paramedicine Models have the potential to improve patient and system outcomes by effectively connecting mostly older and vulnerable individuals with primary, home and community support services. While an overall 13.8% reduction in future emergency calls was achieved further analysis needs to occur to determine what types of programs may be more effective at achieving improved patient and system outcomes. A more rigorous evaluation will be implemented to determine the impact of these programs on system costs.

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