

JOURNAL OF BUSINESS AND BEHAVIORAL SCIENCES

Volume 33 Number 1

ISSN 1946-8113

SPRING 2021

IN THIS ISSUE

The Covid Pandemic and Market Returns

.....Cudd, Eduardo, Smith and Corso

Flash Trading: Ethical Considerations and Investor Protection

.....D'Souza and Fairchild

The Potential of Telehealth in the Emergency Room

.....Estrella, Schmidt and Dame

A Review of Health Information Management and Technology Careers: A Content-Analysis
of Job Advertisements

.....Haried, Han and Annino

Creative Emergency Medical Services Revenue Streams and Reimbursement Reform

.....Sell, Flores and Schmidt

Academic Cheating and Demographic Differences: An Examination of Finnish Business
Students

.....Ludlum, Steelman, Hongell and Tigerstedt

An Analysis of Nurse Burnout in the Emergency Department

.....Sexton, Levine and Flores

A Two-Step Approach in Project Portfolio Selection

.....Farahbod and Varzandeh

Utilizing Mediation to Resolve Campus Conflict: The Sky is not the Limit

.....Brown, Bienstock and Swid

**A REFEREED PUBLICATION OF THE AMERICAN SOCIETY
OF BUSINESS AND BEHAVIORAL SCIENCES**

JOURNAL OF BUSINESS AND BEHAVIORAL SCIENCES

P.O. Box 502147, San Diego, CA 92150-2147: Tel 909-648-2120

Email: mondal@asbbs.org <http://www.asbbs.org>

ISSN: 1946-8113

Editor-in-Chief

Wali I. Mondal
National University

Editorial Board

Stacy Boyer-Davis
Northern Michigan University

Gerald Calvasina
University of Southern Utah

Pani Chakrapani
University of Redlands

Shamsul Chowdhury
Roosevelt University

Steve Dunphy
Indiana University Northeast

Lisa Flynn
SUNY, Oneonta

Sheldon Smith
Utah Valley University

John Bennett
Saint Leo University

Bala Maniam
Sam Houston State University

Saiful Huq
University of New Brunswick

William J. Kehoe
University of Virginia

Douglas McCabe
Georgetown University

Z.S. Andrew Demirdjian
California State University Long Beach

Marybeth McCabe
National University

Thomas Vogel
Canisius College

Linda Whitten
Skyline College

The Journal of Business and Behavioral Sciences is a publication of the American Society of Business and Behavioral Sciences (ASBBS). Papers published in the Journal went through a blind review process prior to acceptance for publication. The editors wish to thank anonymous referees for their contributions.

The national annual meeting of ASBBS is held in Las Vegas in March of each year and the international meeting is held in May/June of each year. Visit www.asbbs.org for information regarding ASBBS.

JOURNAL OF BUSINESS AND BEHAVIORAL SCIENCES

ISSN 1946-8113

Volume 33, Number 1; Spring 2021

TABLE OF CONTENTS

The Covid Pandemic and Market Returns Cudd, Eduardo, Smith and Corso.....	4
Flash Trading: Ethical Considerations and Investor Protection D’Souza and Fairchild.....	21
The Potential of Telehealth in the Emergency Room Estrella, Schmidt and Dame.....	36
A Review of Health Information Management and Technology Careers: A Content-Analysis of Job Advertisements Haried, Han and Annino.....	48
Creative Emergency Medical Services Revenue Streams and Reimbursement Reform Sell, Flores and Schmidt.....	63.
Academic Cheating and Demographic Differences: An Examination of Finnish Business Students Ludlum, Steelman, Hongell and Tigerstedt.....	77
An Analysis of Nurse Burnout in the Emergency Department Sexton, Levine and Flores.....	94
A Two-Step Approach in Project Portfolio Selection Farahbod and Varzandeh.....	109
Utilizing Mediation to Resolve Campus Conflict: The Sky is not the Limit Brown, Bienstock and Swid.....	118

THE COVID PANDEMIC AND MARKET RETURNS

Mike Cudd
Marcelo Eduardo
Chris Smith
Taylor Corso
Mississippi College

ABSTRACT

Studies of the impact of the COVID-19 virus on the stock market to date are primarily limited to the first quarter of 2020, or apply event methodology to broad market indices, rather than individual stocks. The current study applies event methodology to a random sample of individual stocks using a standard three-factor model (Fama and French, 1996) to generate expected returns and a time span encompassing roughly the first two quarters of 2020. Findings indicate that stocks experience negative cumulative abnormal returns throughout the middle of the two-quarter period. However, a correction during the last week of observation (ending July 6, 2020), produces positive cumulative abnormal returns for the year to date. The positive returns are essentially concentrated in stocks representing the technology, consumer cyclical, and healthcare sectors of the economy.

Key Words: COVID, Market Efficiency, Event Studies, Capital Markets

INTRODUCTION

The COVID-19 pandemic has taken a massive toll on the American economy, and initially, the U.S. stock market. However, while the U.S. economy has failed to recover, the U.S. equity markets, after an initial crash, appear to have recouped losses experienced in the earlier part of the year. Initial conjecture for this bifurcation between the economy and stocks may be based on the expectations of a successful vaccine in the near future, propping up the stock market despite the bleak condition of the economy.

A more specific question addresses which stocks are most greatly impacted, which is the focus of the current paper. Other studies explore this question in terms of the effects within the U.S. equity market (e.g., Shehzad et al, 2020), while others examine the impact for multiple countries (e.g., Eleftheriou and Patsoulis, 2020; and Pavlyshenko, 2020), but all produce mixed findings. The current paper employs event methodology to observe the impact of the pandemic on U.S. equity returns, and more specifically, on stocks representing the various economic sectors.

LITERATURE REVIEW

Despite the apparent disconnect between the economy and stocks, a brief review of the impact of the pandemic by economic sector is relevant, since there must be an ultimate irrefutable link between economic activity and stock market performance in the long run. In broad strokes, a survey of small businesses finds that almost half (43%) are temporarily closed with employee reductions of 40% (Bartik et al, 2020). With less than a week's expenses in cash on hand, they are financially fragile and plan to seek CARES Act funding. U.S. COVID-19 infection and fatality rates are found to increase the financial volatility of companies, and are stronger globally than in the U.S., although the effect on EPS is insignificant (Albulescu, 2020). Some industries are assisted by being permitted to open early (e.g., food, pharma, fuel, media, and banking), while mom and pop retailers are exempt from lockdown in most countries. E-commerce companies experience a significant rise in online sales, while media and entertainment have a mixed impact, and hospitals are negatively impacted due to lockdown measures. Lodging and localized mobility companies are negatively impacted, resulting in the bankruptcy of Hertz (Seetharamah, 2020).

Return findings of the pandemic effect by economic sector on a global scale are mixed. Strict quarantine measures in China are submitted to protect the public and have a positive impact on the environment (Wang, 2020), and international companies with trade tied to China underperform, with the correlation between Chinese and G7 countries observed to be higher for financial firms (Ramelli and Wagner, 2020). Fruit and vegetable industries in Canada are negatively impacted by COVID-19 due to the closure of restaurants and schools (Richards and Rickard, 2020). Canada, however, with its massive natural endowments, forecasts a near-normal year for grain and oilseed production and prices (Brewin, 2020).

One study breaks down the impact of the pandemic on stock returns into panic, media, and other factors. The panic factor is observed to negatively impact the returns of all but the consumer services, health, pharma, and telecom sectors, but have no significant impact on the returns of other economic sectors (Haroon and Rizvi, 2020). Another study finds the media coverage factor only negatively impacts stock returns on the non-airlines transportation sector (Altig, et al, 2020). Agency effects at the government level are also examined, using a two-day window to address whether legislators trade ahead of the market in anticipation of the pandemic. The behavior is observed to be particularly acute in medical and pharma products producing positive market returns, and in restaurants, lodging, services, and utilities producing negative market returns (Goodell and Huynh, 2020). However, all of these studies are limited to indices of industry portfolios, rather than individual stocks.

Energy markets also experience a negative effect from the COVID-19 pandemic, especially international crude oil (Dutta, et al, 2020). A multi-factor model examining the returns of 90 U.S. oil and gas producers observes a diverse reaction

of the firms to the pandemic, with the pandemic explaining a little over a fourth of the level of return and return variability, and the major effects being attributed to firm-specific characteristics not captured in the study (Iyke, 2020).

Structural differences in markets are also observed. During the pandemic, a massive (580%) rise in the CBOE VIS index is observed from January to April, with market-wide deterioration of liquidity (Baig et al, 2020). The COVID-19 pandemic is found to have a negative impact on the SP500 index, but to have an insignificant impact on the NASDAQ (Shehzad, et al, 2020). The global impacts of COVID-19 on stock markets is both direct and indirect, with negative spill-over effects on short-term returns, but the study does not control for systematic market effects (He, et al, 2020). Evidence of negative direct and spillover effects is observed on forty-five major stock indices during the initial period of lockdown (Eleftheriou and Patsoulis, 2020). Using Arch/Garch methodology, the pandemic is observed to produce structural breaks in the volatility of six major stock indexes, with results varying across countries (Gunay, 2020). Also, government announcements of testing/quarantining and income support have a positive effect on market returns, but conversely there is also a negative effect due to the impacts of social distancing on economic activity (Ashraf, 2020).

Effects of the pandemic on stock returns also vary across countries. A logistic curve model based on Bayesian regression finds prediction of COVID-19 spread works better for the countries of China, Italy, Spain, and Germany, than for the countries of the U.S., Iran, and France (Pavlyshenko, 2020). An evaluation of 6000 companies across 56 global economies for the 1st quarter of 2020 notes that stock price declines are milder for companies with stronger pre-2020 finances, less exposure to COVID-19 through global supply chains and customer relations, more corporate social responsibility activities, and less entrenched management. However, the effects of the pandemic vary widely across countries and within the same industry and country (Ding, et al, 2020). U.S. and European stocks markets appear to be more negatively affected than Asian stock markets (Shehzad, et al, 2020). Using event methodology, the pandemic is observed to produce a negative impact on all stock markets, with Asian countries reacting more quickly and some recovering in later stages of the pandemic. The number of COVID-19 cases has a significantly negative effect on stock markets, with those in Asia suffering a greater decrease in abnormal returns, and the effects are enhanced by investor fear sentiment (Liu, et al, 2020). The pandemic is found to have a negative impact on Chinese stock markets (Al-Awadhi, et al, 2020), and the Egyptian Exchange appears to be more sensitive to cumulative indicators than to daily deaths (Abdelrhim, 2020).

In addition, the pandemic affects the value of precious metal returns. Using the market model, the Swiss franc and gold produce positive abnormal returns during the pandemic, but those returns are more driven by variables other than the general stock market (AlAli, 2020). Within the first 100 days of the pandemic, 30% of wealth is eroded globally, with even negative returns are generated for gold. Using

GARCH methodology, no impact is observed on stock returns, although a negative impact is found between deaths and market returns in France and Italy, and a positive impact on market volatility (Ali, et al, 2020).

The current study focuses on the cumulative abnormal market returns for a random sample of stocks listed on U.S. exchanges, and further examined by economic sector.

SAMPLE

Abnormal returns following the onset of the COVID-19 pandemic are examined based on weekly returns for a sample comprised of one hundred randomly selected stocks. Sample inclusion requires that each stock be traded on the NYSE or the NASDAQ for the four years preceding the onset of the pandemic (2016-2019), and for the first twenty-two weeks of 2020, which is considered the pandemic period in the current study. The first case of the Covid-19 virus in Wuhan China is reported by the World Health Organization on December 31, 2019. Therefore, for purposes of this study, the onset of the pandemic is defined as the first week of 2020. The sample excludes financial stocks since financial companies may hold portfolios of stocks and may disguise the effects of diversification or result in double-counting. The sample is also restricted to companies with a minimal market capitalization of \$2 billion (i.e., mid-cap stocks and above) and average weekly trading of at least 100,000 shares to ensure active investor participation. Ticker symbols of the companies included in the sample are presented in Exhibit 1, as well as the breakdown of the number of companies by industry sector. Descriptive characteristics of the sample are presented in Table 2, with no significant difference in simple returns observed between the pre-pandemic and pandemic periods.

METHODOLOGY

The dependent variable in the study's regressions is the cumulative average abnormal weekly returns on the sample portfolio for the first twenty-two weeks of the pandemic period of 2020. Parameter values for the Fama-French Three-Factor Model (Fama and French, 1996) are derived for each sample company based on weekly returns for the four years preceding the onset of the pandemic. Expected returns for the pandemic period are then generated for each sample company based on the Fama-French parameters, and with observed returns, used to determine cumulative abnormal returns for each company for the pandemic period. Returns are obtained from weekly closing prices, adjusted for splits and dividends. The weekly expected returns are generated using the three-factor model prescribed by Fama and French (1996) as follows:

$$E(r_{i,t}) - R_{f,t} = \beta_i [E(R_{M,t}) - R_{f,t}] + s_i E(SMB_t) + h_i E(HML_t) - \varepsilon_{f,t} \quad (1)$$

where $E(r_{i,t})$ is the expected weekly return on company i for week t ,

β_i , s_i , h_i and m_i are the coefficients of the return model for company i for the estimation period ending just prior to the start of the 209-week (4-year) period of observation,

$R_{f,t}$ is the Treasury Bill rate for week t ,

$R_{M,t}$ is the return on the market portfolio M for week t ,

SMB_t is the difference between the return on a portfolio of small stocks and the return on a portfolio of big stocks for week t ,

HML_t is the difference between the return on a portfolio of high book-to-market stocks and the return on a portfolio of low book-to-market stocks for week t ,

$\varepsilon_{f,t}$ is the error term.

The abnormal return is calculated for each company i for each week of the estimation period week t as:

$$AR_{it} = R_{it} - \bar{R}_{it} \quad (2)$$

Where AR_{it} is the abnormal (residual) return for company i for week t ,

\bar{R}_{it} is the predicted return for company i for week t ,

R_{it} is the observed return for company i for week t , and

s_i is the sample standard deviation of weekly residual returns for company i over the estimation period.

An example of the above process for one stock, AMX Corporation, is displayed in Table 3.

The cumulative abnormal return CAR_i for each stock i is calculated for each observation period T by taking the sum of the abnormal returns for the period t through T :

$$CAR_{iT} = \sum_{t=1}^T AR_{it} \quad (3)$$

The cumulative average abnormal return $CAAR_i$ for observation period t thru T is then determined by summing the abnormal returns for the sample for period i divided by the sample size as follows:

$$CAAR_{tT} = \sum_{i=1}^{100} CAR_{iT} / 100 \quad (4)$$

The standard deviation of the CAAR for the t-test for d degrees of freedom is found by:

$$\hat{\sigma}_{CAAR_{1,T}} = \sqrt{\frac{1}{N(N-d)} \sum_{i=1}^N (CAR_i(1,T) - CAAR(1,T))^2} \quad (5)$$

and the t -value for each cumulative holding period $1,T$ is determined by:

$$T_{Cross} = \frac{CAAR(1,T)}{\hat{\sigma}_{CAAR_{1,T}}} \quad (6)$$

RESULTS AND ANALYSIS

Cumulative abnormal returns of different weekly holding periods 1,1 through 1,22 for the full sample are presented in Table 4. An initial bump in positive cumulative abnormal returns carried through the 2nd and 3rd week of January is likely drive by non-COVID 19 factors at this early point in the pandemic timeline before the effect of the pandemic takes hold. The initial positive cumulative abnormal returns are quickly erased and turn negative for the subsequent weeks eight through week nineteen of the sample period as evidence of the magnitude of the pandemic becomes more evident. The initial positive bump and subsequent decline in abnormal share returns on U.S. stocks through early April are also reported in other studies (e.g., He et al, 2020; AlAli, 2020; and Gunay, 2020).

An interesting increase at the end of the sample period of observation in early June turns the cumulative abnormal returns for the sample to the positive territory for the year. The increase is fueled by multiple reports that state economies are opening up, and Jerome Powell's announcement that the Fed will aggressively support growth in the economy (June 2, 2020, *New York Times*).

Stocks within the sample representing economic sectors what produce significant cumulative abnormal returns during the period of observation are displayed in subsequent tables. Stocks representing the technology sector are presented in Table 5. The positive cumulative abnormal return for technology stocks are the first five weeks of the observation period are consistent with those of other studies through this point in time (e.g., Al-Awadhi, et al, 2020), as well as those that find NASDAQ stocks are unaffected while the SP500 falls precipitously (e.g., Shehzad et al, 2020). However, the current study extends the observation period much further into 2020, noting a positive cumulative abnormal return for technology stocks during the last five weeks of observation (ending June 2, 2020).

Findings for the consumer cyclical sector stocks and healthcare sector stocks are virtually identical and displayed in Table 6 and Table 7, respectively. Both sectors show no significant cumulative abnormal returns until the final week of observation (ending June 2, 2020), when returns for both sectors turn positive. The drivers are an increased optimism in reports reflecting the expected creation of a successful vaccine, and reports of a flattened COVID-19 curve that could relieve the healthcare system from continuing to be overwhelmed. No cumulative abnormal returns are observed for the sample stocks representing the basic materials, communication services, consumer defensive, energy, industrials, real estate, and utility sectors.

CONCLUSION

Despite the devastation to the economy and uncertain outlook, U.S. stocks generate positive cumulative abnormal returns for the first twenty-two weeks of 2020 (ending June 1, 2020). The results appear to be concentrated in stocks from the technology, consumer cyclical, and healthcare sectors.

Stock market performance, however, is forward-looking and dependent on the economic outlook. The outlook by sector is dependent on the ability of each industry to telecommute (Gossling et al, 2020), the ability to focus on opportunities for digitization (e.g., Seetharamah, 2020; Shankar, 2020), and exposure to demand and supply side constraints (RioChanona, et al, 2020). The pandemic crisis also differs from the 2008 Credit Crisis in that everyone is impacted (Goodman and Magder, 2020).

REFERENCES

- Ali, M., Alam, N., and S Rizvi, 2020. Coronavirus (COVID-19) – an epidemic or pandemic for financial markets. *Journal of Behavioral and Experimental Finance* 27 (April).
- Al-Awadhi, A., Alsaifi, K., Al-Awadhi, A., and S. Alhammadi, 2020. Death and contagious infectious diseases: impact of the COVID-19 virus on stock market returns, *Journal of Behavioral and Experimental Finance* 27 (April).
- Ashraf, B., 2020. Economic impact of government interventions during the COVID-19 pandemic: international evidence from financial markets, *Journal of Behavioral and Experimental Finance* 27 (April).
- Abdelrhim, M., 2020. The effect of COVID-19 spread on Egyptian stock market sectors, *SSRN Electronic Journal*, <https://www.researchgate.net/publication/343123983> (July).
- Altig, D., Baker, S., Barrero, J., Bloom, N., Bunn, P., Chen, S., Davis, S., Leather, J., Meyer, B., Mihaylov, E., Mizen, P., Parker, N., Renault, T., Smietanka, P., and G. Thwaites, 2020. Economic uncertainty before and during the COVID-19 pandemic, *NBER Working Paper 27418* (June).
- AlAli, M., 2020. Safe haven assets: are they still safe during COVID-19 pandemic period? *European Journal of Economic and Financial Research*, 4, <http://www.oapub.org/soc>
- Albulescu, C., 2020. COVID-19 and the United States financial markets' volatility, *Finance Research Letters* www.elsevier.com/locate/frl
- Bartik, A., Bertrand, Z., Glaeser, E., Luca, M., and C. Stanton, 2020. How are small businesses adjusting to COVID-19? Early evidence from a survey, *NBER Working Paper 26989* (April).
- Baig, A., Butt, H., Haroon, O., and S. Rizvi, 2020. Deaths, panic, lockdowns and US equity markets: the case of the COVID-19 pandemic, *Finance Research Letters* www.elsevier.com/locate/frl
- Brewin, D., 2020. The impact of COVID-19 on the grains and oilseeds sector, *Canadian Journal of Agricultural Economics*, <https://doi.org/10.1111/cjag.12239> (April).
- Ding, W., Levine, R., Lin, C., and X. Wensi, 2020. Corporate immunity to the COVID-19 pandemic, *NBER Working Paper 27055* (April).

Cudd, Eduardo, Smith and Corso

- Dutta, A., Bouri, E. Uddin, G., and M. Yahya, 2020. Impact of COVID-19 on global energy markets, *IAEE Energy Forum / COVID-19 Issue*.
- Eleftheriou, K., and P. Patsoulis, 2020. COVID-19 lockdown intensity and stock market returns: a spatial econometrics approach, Munich Personal RePEc Archive, <https://mpa.ub.uni-muenchen.de/100662> (May).
- Gunay, S., 2020. A new form of financial contagion: COVID-19 and stock market responses, American University of the Middle East working paper (April).
- Fama, E., and K. French (1996), Multifactor explanations of asset pricing anomalies, *Journal of Finance* 51, 55-84.
- Goodell, J., and T. Huynh, 2020. Did Congress trade ahead? Considering the reaction of US industries to COVID-19, *Finance Research Letters* www.elsevier.com/locate/frl (May).
- Gossling, S., Scott, D., and M. Hall, 2020. Pandemics, tourism and global change: a rapid assessment of COVID-19, *Journal of Sustainable Tourism* <https://doi.org/10.1080/09669582.2020.1758708> (April).
- Goodman, L., and D. Magder, 2020. Avoiding a COVID-19 disaster for renters and the housing market, *Urban Institute: The Renter Direct Payment Program* (April).
- Haroon, O., and S. Rizvi, 2020. COVID-19: media coverage and financial markets behavior – a sectoral inquiry, *Journal of Behavioral and Experimental Finance* 27, www.elsevier.com/locate/jbef
- He, Q., Liu, J., Wang, S., and J. Yu, 2020. The impact of COVID-19 on stock markets, *Economics and Political Studies* <https://www.tandfonline.com/loi/rep20>
- Iyke, B., 2020. COVID-19: the reaction of US oil and gas producers to the pandemic, *Energy Research Letters*, 1 (2).
- Liu, H., Manzoor, A., Wang, C., Zhang, L., and Z. Manzoor, 2020. The COVID-19 outbreak and affected countries stock markets response, *International Journal of Environmental Research and Public Health* (April).
- Liang, T., 2020. The economic impact of the Coronavirus 2019 (Covid-2019): implications for the mining industry, *The Extractive Industries and Society* 7 (April), 580-582.

- Mazur, M., Dang, M., and M. Vega, 2020. COVID-19 and the march 2020 stock market crash. Evidence from S&P1500, *Finance Research Letters* www.elsevier.com/locate/frl
- New York Times*, June 1, 2020, Michigan lifts stay-at-home order
- Pavlyshenko, B., 2020. Regression approach for modeling COVID-19 spread and its impact on stock market, <https://www.cnn.com/business/us-economic-recovery-coronavirus> arXiv preprint (April 6)
- Ramelli, S., and A. Wagner, 2020. Feverish stock price reactions to COVID-19, *Review of Corporate Finance Studies* (forthcoming) (March).
- Rio-Chanona, R., Mealy, P., Pichler, A., Lafond, F., and D. Farmer, 2020. Supply and demand stocks in the COVID19 pandemic: an industry and occupation perspective, arXiv (April).
- Richards, T., and B. Rickard, 2020. COVID-19 impact on fruit and vegetable markets, *Canadian Journal of Agriculture* 68 (April).
- Shehzad, K., Xiaoxing, L., and H. Kazouz, 2020. COVID-19 disasters are perilous than global financial crisis: a rumor or fact? *Finance Research Letters* www.elsevier.com/locate/frl
- Seetharamah, P., 2020. Business models shifts: impact of Covid-19, *International Journal of Information Management* 54, <https://doi.org/10.1016/j.ijinfomgt.2020.102173> (October).
- Shankar, K., 2020. The impact of COVID-19 on IT services industry – expected transformations, *British Journal of Management* 3, (July) 450-452.
- Wang, Q., 2020. A preliminary assessment of the impact of COVID-19 on environment – a case study of China, *Science of the Total Environment* 728, <https://doi.org/10.1016/j.scitotenv.2020.138915> (August).

Exhibit 1
Sample Companies (Ticker Symbols)
N=100

AEE	CMD	DIS	ETH	IMO	LPSN	NP	PM	SNBR	TSN
AKAM	CNXN	DISH	EXC	JBT	LTRX	NSP	PSA	SNPS	TWTR
AKZOY	COCP	DKS	EXR	K	LVMUY	NVMI	PVH	SPLK	TYL
AMX	COKE	DLR	FFIV	KEX	MNRO	NVS	QLYS	SSP	UNP
ASGN	CSCO	EA	GEF	LAD	MNTX	PANW	RBCN	SWK	UTI
ATNI	CSOD	EHC	GEL	LAKE	MRCY	PCG	RCL	TECK	VEEV
CBRE	CTAS	ENCL	HNRG	LDL	NBIX	PCH	RL	TER	VMW
CE	CTS	EQIX	HOLX	LJPC	NBR	PCRFY	SB	TEX	VTVT
CHMA	DD	EROS	HQY	LNN	NI	PHM	SGU	TLK	XONE
CMCSA	DECK	ESI	IMMU	LPSN	NL	PKG	SKM	TRU	YNDX

Economic Sector	Number of Companies
Total	100
Basic Materials	6
Communication Services	12
Consumer Cyclical	14
Consumer Defensive	5
Energy	6
Healthcare	12
Industrials	16
Real Estate	6
Technology	20
Utilities	3

Table 2
Sample Characteristics

Mean / Sample Standard Deviation N=100		
Fama-French 3-Factor Variables t-value	Pre-Pandemic ^a	Pandemic ^b
Mkt-RF -10.5189*	0.0221 (0.2620)	-2.8632 (2.7424)
SMB -0.6049	0.0004 (0.0074)	-0.0002 (0.0063)
HML -0.1197	0.0048 (0.0079)	0.0050 (0.0151)
RF -20.3205*	0.0096 (0.0039)	-0.0036 (0.0045)
<hr/>		
Sample Portfolio t-value	Pre-Pandemic ^a	Pandemic ^b
Mean Return 0.0666	0.0036 (0.0208)	0.0047 (0.0800)

*P<.01

^aPre-pandemic period (209 weeks): 2016 week 1 (ending 1/4/2016), through 2019 week 209 (ending 12/30/2019).

^bPandemic period (22 weeks): 2020 week 1 (ending 1/6/2020), through 2020 week 22 (ending 6/1/2020).

Table 3

Sample of Three-Factor Model Regression for an Individual Company: AMX Corporation

Coefficient / (Standard Error)	R_i	$R_M - R_f$	SMB	HML	S.E.	F Value	R^2
AMX Corpo							
Pre- Pandemic Period ^a	0.0018 (0.038)	-0.0570 (0.147)	0.0005 (0.0019)	-0.0049 (0.0023)	0.0355	8.883**	0.1483
Predicted for Full 22- Week Pandemic Period ^b	0.0095 (0.358)	-0.0486 (6.1106)	-0.0882 (2.1155)	-1.3418 (3.9924)	0.2170	3.393**	0.0140

**p<.05

*p<.10

^aPre-pandemic period (209 weeks): 2016 week 1 (ending 1/4/2016), through 2019 week 209 (ending 12/30/2019).

^bPandemic period (22 weeks): 2020 week 1 (ending 1/6/2020), through 2020 week 22 (ending 6/1/2020).

Table 4
Cumulative Average Abnormal Returns: All Sample Companies (n=100)

Observation Period (Weeks)	CAAR	σ_{CAAR}	t-Value	
1,1	0.0044	0.0069	0.6484	
1,2	0.0380	0.0107	3.5670	**
1,3	0.0282	0.0131	2.1429	*
1,4	-0.0124	0.0153	-0.8094	
1,5	0.0080	0.0162	0.4922	
1,6	0.0188	0.0189	0.9907	
1,7	0.0101	0.0206	0.4894	
1,8	-0.0833	0.0307	-2.7136	*
1,9	-0.1199	0.0334	-3.5910	**
1,10	-0.2651	0.0373	-7.0988	**
1,11	-0.4167	0.0429	-9.7203	**
1,12	-0.3051	0.0467	-6.5354	**
1,13	-0.3505	0.0471	-7.4377	**
1,14	-0.1579	0.0428	-3.6880	**
1,15	-0.1581	0.0442	-3.5772	**
1,16	-0.1520	0.0463	-3.2821	**
1,17	-0.1187	0.0425	-2.7952	*
1,18	-0.0647	0.0423	-1.5290	
1,19	-0.0965	0.0452	-2.1340	*
1,20	-0.0164	0.0435	-0.3770	
1,21	0.0205	0.0395	0.5199	
1,22	0.1172	0.0312	3.7510	**

**p<.05

*p<.10

^aPre-pandemic period (209 weeks): 2016 week 1 (ending 1/4/2016), through 2019 week 209 (ending 12/30/2019).

^bPandemic period (22 weeks): 2020 week 1 (ending 1/6/2020), through 2020 week 22 (ending 6/1/2020).

Table 5
Cumulative Average Abnormal Returns: Technology (N=20)

Observation Period (Weeks)	CAAR	σ_{CAAR}	t-Value	
1,1	0.0217	0.0098	2.2166	*
1,2	0.0177	0.0184	0.9588	
1,3	-0.0471	0.0621	-0.7583	
1,4	-0.0308	0.0349	-0.8825	
1,5	0.0779	0.0200	3.9051	**
1,6	-0.0496	0.0677	-0.7324	
1,7	-0.1305	0.1073	-1.2164	
1,8	-0.2160	0.0880	-2.4552	*
1,9	0.2154	0.1762	1.2220	
1,10	0.1238	0.1794	0.6901	
1,11	0.3932	0.3967	0.9910	
1,12	1.1528	0.7386	1.5608	
1,13	0.7103	0.4991	1.4230	
1,14	0.9574	0.5566	1.7201	
1,15	0.4611	0.2724	1.6926	
1,16	0.3710	0.2070	1.7920	
1,17	0.4292	0.2275	1.8866	
1,18	0.5145	0.2333	2.2051	*
1,19	0.3733	0.1475	2.5302	*
1,20	0.5515	0.2030	2.7167	*
1,21	0.4428	0.1173	3.7765	**
1,22	0.3074	0.0578	5.3216	**

**p<.05

*p<.10

^aPre-pandemic period (209 weeks): 2016 week 1 (ending 1/4/2016), through 2019 week 209 (ending 12/30/2019).

^bPandemic period (22 weeks): 2020 week 1 (ending 1/6/2020), through 2020 week 22 (ending 6/1/2020).

Table 6

Cumulative Average Abnormal Returns: Consumer Cyclical (N=14)

Observation Period (Weeks)	CAAR	σ_{CAAR}	t-Value	
1,1	-0.0119	0.0077	-1.5429	
1,2	-0.0215	0.0372	-0.5785	
1,3	-0.1377	0.1230	-1.1198	
1,4	-0.1000	0.0794	-1.2584	
1,5	0.0318	0.0442	0.7188	
1,6	-0.1404	0.1227	-1.1447	
1,7	-0.2446	0.1951	-1.2536	
1,8	-0.2626	0.1714	-1.5326	
1,9	0.3733	0.3405	1.0963	
1,10	0.2254	0.3452	0.6532	
1,11	0.6327	0.7303	0.8663	
1,12	1.6614	1.3315	1.2477	
1,13	0.9234	0.9003	1.0256	
1,14	1.4241	1.0109	1.4088	
1,15	0.6182	0.5036	1.2275	
1,16	0.4841	0.3860	1.2539	
1,17	0.5954	0.4196	1.4190	
1,18	0.5790	0.4230	1.3689	
1,19	0.2846	0.2562	1.1106	
1,20	0.5757	0.3535	1.6286	
1,21	0.3798	0.2023	1.8770	
1,22	0.3534	0.0890	3.9728	**

**p<.05

*p<.10

^aPre-pandemic period (209 weeks): 2016 week 1 (ending 1/4/2016), through 2019 week 209 (ending 12/30/2019).

^bPandemic period (22 weeks): 2020 week 1 (ending 1/6/2020), through 2020 week 22 (ending 6/1/2020).

Table 7
Cumulative Average Abnormal Returns: Healthcare (N=12)

Observation Period (Weeks)	CAAR	σ_{CAAR}	t-Value	
1,1	0.0590	0.0486	1.2123	
1,2	-0.0143	0.1532	-0.0934	
1,3	-0.3467	0.4712	-0.7358	
1,4	-0.1818	0.2868	-0.6338	
1,5	0.1835	0.0834	2.1997	
1,6	-0.2968	0.4544	-0.6532	
1,7	-0.5709	0.7245	-0.7881	
1,8	-0.3416	0.5627	-0.6070	
1,9	1.5951	1.3210	1.2075	
1,10	1.4094	1.2860	1.0959	
1,11	2.9309	2.8587	1.0253	
1,12	5.5802	5.1871	1.0758	
1,13	3.7608	3.5212	1.0681	
1,14	4.4483	3.8867	1.1445	
1,15	2.3480	1.9253	1.2196	
1,16	1.8748	1.3801	1.3584	
1,17	2.0503	1.4992	1.3676	
1,18	2.0988	1.5017	1.3976	
1,19	1.4101	0.8394	1.6800	
1,20	1.8774	1.1840	1.5857	
1,21	1.2501	0.6142	2.0353	
1,22	0.7330	0.1948	3.7623	**

**p<.05

*p<.10

^aPre-pandemic period (209 weeks): 2016 week 1 (ending 1/4/2016), through 2019 week 209 (ending 12/30/2019).

^bPandemic period (22 weeks): 2020 week 1 (ending 1/6/2020), through 2020 week 22 (ending 6/1/2020).

FLASH TRADING: ETHICAL CONSIDERATIONS AND INVESTOR PROTECTION

Frank D'Souza

Lisa Fairchild

Loyola University Maryland

ABSTRACT

Technology has revolutionized the way in which stocks are traded. It has not only reduced the need for human decision making in the order execution process for financial securities, but it has also dramatically increased the speed at which transactions occur. One of the results of the technological advances within financial markets is the increase in high frequency trading (HFT) strategies carried out by algorithms originating in large financial institutions. One of the most controversial and often mentioned of these HFT strategies is flash trading, wherein market participants who can afford to subscribe to direct data feeds from exchanges are given a glimpse of the price and supply and demand information for a particular stock in advance of the information being released to the broader market. This practice, known as flash trading, is controversial because the market participants who can afford to pay for this informational advantage are able to profit at the expense of those participants who do not have the same information advantage. We analyze the ethical implications of flash trading and conclude that the practice has unethical outcomes driven by various factors that create profit incentives for exchanges as well as for those market participants that pay for informational advantages. We also conclude that the self-regulatory efforts of exchanges are likely insufficient due to exchanges' profit motives.

Key Words: flash trading, high frequency trading, financial ethics, financial market regulation

1. INTRODUCTION

Over the past 15 years, computer algorithms have replaced much of the human decision making historically associated with the securities trading process. According to Washington (2012), trades originated by computer algorithms represent approximately 70 to 84 percent of all stock market orders. Technological advances have not only significantly reduced the role of humans in the securities transactions process, but they have also increased the speed at which securities trades occur, often within milliseconds.

In addition to speed, the technological advances within financial markets have increased the ability for many financial firms to engage in high frequency trading, often referenced as “HFT.” According to Chen (2021), HFT is “is a method of trading that uses powerful computer programs to transact a large number of orders in fractions of a second” and utilizes a number of different trading strategies, with flash trading being one of the most prevalent and controversial forms of HFT. Despite the questionable ethics surrounding the flash trading strategy, the ethical considerations and need to regulate flash trading have not been fully considered within the academic literature.

We contribute to the knowledge of HFT practices by analyzing the ethical implications resulting from flash trading. Ethical implications arise from this strategy because participants engaging in flash trading have a short-lived informational advantage over the remainder of the market participants. According to Ganti (2020), “Flash trading uses highly sophisticated high-speed computer technology to allow market makers to view orders from other market participants, fractions of a second before the information is available to others in the marketplace.” As such, the informational advantage of flash traders allows them to evaluate the supply and demand for a particular security as well as identify possible changes in the market for the security before other traders in the broad market receive the information. Because flash traders can and do profit from this advance information, the practice is controversial and raises ethical questions. As a result, the SEC has received numerous calls for regulation or banning of flash trading, but no specific regulatory action has been taken to date regarding this type of HFT trading practice. Even though the SEC’s rule promulgated in May 2020 is aimed at “improving data quality and data access for all market participants,” according the SEC Chairman Jay Clayton, the ability to engage in flash trading may be slightly diminished but not eliminated following implementation of this rule (Shubber 2020). The SEC’s decision not to regulate flash trading directly leaves the regulation of this trading practice up to the individual exchanges to self-regulate. Thus, the ability to engage in flash trading still exists along with its ethical implications.

This paper is organized as follows. In the next section, we provide a survey of existing literature while section three contains an overview of flash trading and compares it to the illegal trading practice of frontrunning. In section four, the ethical and regulatory issues of flash trading are discussed. Section five contains our recommendation of how to best protect investors from the potential abuses stemming from flash trading. The paper’s conclusion is provided in section six.

LITERATURE SURVEY

The impact of HFT on financial markets has been the subject of numerous research studies. For example, Alampieski and Lepone (2012), Angel, Harris and Spatt (2011), Benos and Sagade (2013), Brogaard, Hagstromer, Norden and Riordan (2013), Gerig (2012), Malinova, Park and Riordan (2013), Tong (2013), and Zhang and Riordan (2011) provide evidence of beneficial effects of HFT on the markets. These scholars argue that improved technology has been beneficial to financial markets because increased transaction speed has improved efficiency and liquidity in addition to reducing trading costs. However, the increased trading speed resulting from technological advancements has also received much negative attention since the publication of Michael Lewis' book, *Flash Boys*, in 2014 because speed provides the foundation for high frequency trading (HFT) practices that can introduce unfairness into the financial markets. Allegedly, these actions harm small investors, often described as those living on "Main Street, America." According to McNamara (2016), "certain HFT practices such as co-location, flash orders, and enriched data feeds create a two-tiered marketplace, while other practices such as momentum ignition, spoofing, and layering are merely high-tech versions of traditional market manipulation." Moreover, a recent study by the U.K.'s Financial Conduct Authority underscores the harmful effects of HFT strategies with its finding that these practices cost investors almost \$5 billion a year across all global stock exchanges (Langton 2020).

Even though regulators are aware of the possibility of harmful effects of HFT, little has been done to date to regulate or ban the practices. Most often, regulators, such as the U.S. Securities and Exchange Commission (SEC), cite that data are inconclusive regarding the harmful effects of HFT practices, and therefore, there is a reluctance to impose regulations. In addition, Madonna (2013) argues that the large volume of HFT orders makes "fraud difficult to detect, and the person behind it even more so." Thus, regulators find it difficult to pursue fraudulent activities because the overwhelming number of HFT orders at any given time in the market makes identifying the source of an individual fraudulent order virtually intractable.

Despite financial market regulators around the world not deeming HFT practices illegal, many scholars have analyzed some of the trading strategies and declared them unethical. For example, McNamara (2016) concludes that "some HFT activity is morally objectionable, while other common HFT activities are morally neutral or even beneficial." In another example, Madonna (2013) uses duty based and utilitarian frameworks to analyze the ethics of liquidity provision, trading the tape, quote stuffing, and layering and spoofing. She finds that there are negative societal consequences from each of the HFT strategies she examines and concludes they are unethical. Similar to McNamara (2016) she also highlights that

HFT practices are often very complex and need to be analyzed individually to determine if the practices are unethical. That is, the general question of whether HFT is unethical is difficult to answer because of the large number of different HFT strategies. Thus, the vast number of HFT strategies adds to the complexity of an analysis of the ethical implications.

2. AN OVERVIEW OF FLASH TRADING

2.1 The Mechanics of Flash Trading

Flash trading is one of the most concerning and often mentioned strategies within discussions of high frequency trading. According to McNamara (2016), favorable conditions for orders involving flash trading are created when “an exchange cannot immediately fill” an order and then the order “is submitted to certain market participants before it is transferred to the SIP pursuant to NMS Rule 602.” NMS is the commonly used acronym to for “National Market System.” Before the order is sent to the Securities Information Processor (SIP), the exchange can “flash,” or temporarily show, the price and order information to data feed subscribers in advance of making the order’s information available to all market participants on the consolidated tape that reflects price information across all exchanges. According to Eric Hunsader, the founder of NANEX LLC, consulting firm specializing in customized financial market data streaming services for market participants, flash traders have an informational advantage of up to 500 milliseconds over non-high frequency traders due to Regulation NMS Rule 602 that permits flash orders. Hunsader also states that the informational advantage allows flash traders to “know how both sides of the trade will come out before they ever press the button” (McKenna 2015).

To illustrate how flash trading works, suppose a mutual fund submits an order to buy 7,000 shares of ABC company. The current market price per share is \$40.50. For 30 milliseconds after submission (before the order is viewed by the market), it is previewed by high-frequency traders paying for premium data feed services in order to receive an early view of orders, a practice known as “flashing” an order. With the knowledge of the incoming order for ABC company that was “flashed” in advance, the high-frequency traders flood the market with orders to buy ABC company. They buy all the shares available at \$40.50 and relist the shares for sale at \$40.51. Thirty milliseconds after the mutual fund company’s order was placed, the exchange releases the order to the broader market. Given that there are no longer any shares available to purchase at \$40.50, the market order is now filled at the high-frequency traders ask price of \$40.51, the best price in the market at the time. The high-frequency trades earn a \$0.01 profit per share, or \$70 for this transaction.

Even though a total profit of \$70 is not a lot of money to earn on a single trade, the flash trading process plays out millions of times each day for each institution engaging in the practice and allows institutional investors with informational and technological advantages to earn significant profits from this strategy. The profit earned by flash traders comes at the expense of the mutual fund in the above example. The mutual fund, and its investors, are harmed by flash traders' ability to drive up the price of ABC stock and have to pay a higher price to purchase the shares, even if it is only \$0.01 per share on this single transaction. Because flash traders are able to profit from information before it is released to the broader markets, critics of flash trading argue that the strategy is the same as "frontrunning," which is illegal according to SEC Rule 17(i).

2.2 Flash Trading vs. Frontrunning

According to NASDAQ, frontrunning is defined as "entering into an equity trade, options or futures contracts with advance knowledge of a block transaction that will influence the price of the underlying security to capitalize on the trade." The SEC expressly forbids frontrunning by stating, "Traders are not allowed to act on nonpublic information to trade ahead of customers lacking that knowledge." By not allowing traders to jump ahead of customers and trade based on nonpublic information, the SEC's forbidding of frontrunning ensures that traders are not able to profit at the expense of their customers.

When the practice of frontrunning is compared to flash trading, the two practices look almost identical, and some investor advocacy groups and market policy makers argue that flash trading is frontrunning facilitated by technology. In fact, flash trading is often called "electronic frontrunning" according to Boonen (2017). When flash trades occur, a computer algorithm makes trade execution decisions based on order information that is available for up to 500 milliseconds prior to the information being made publicly available. So, both frontrunning and flash trading involve the execution of trades based on the receipt of information prior to the information being disseminated to the public. Even though both types of trading have the potential for the traders to profit at the expense of customers, flash trading is not considered the same as frontrunning because a computer algorithm makes the decision when a flash trade is executed instead of a broker submitting an order for a client. That is, a broker has a duty not to trade based on information about client orders seen in advance. In contrast, a computer program does not have this duty. Other than the algorithm making the trading decision based on advance information instead of a human, flash trading is the same as frontrunning.

3. THE ETHICAL AND REGULATORY ISSUES OF FLASH TRADING

4.1 The Ethical Issues Arising from Flash Trading

Most of the ethical issues arising from flash trading are due to the creation of a conflict of interest. In particular, the profit motive of exchanges is a primary basis for the existence of flash trading, and often the profit motive of exchanges is at the expense of investors' best interests.

Flash orders result when an exchange cannot fill orders immediately based on market conditions. To encourage the execution of the unfillable orders, an exchange's ability to "flash" these orders in advance of them being transferred to the SIP in accordance with NMS Rule 602 ensures that there is a good chance that a HFT will see the unfillable orders and execute them. By retaining the orders on the exchange, the exchange benefits from the transaction fees earned through from orders instead of routing them through the SIP for execution on another exchange. Thus, there is a profit incentive for exchanges to support flash trading. However, the profit of the exchange is made at the expense of the broader market participants who do not have the informational advantage the HFTs enjoy when the orders are being flashed and market conditions are briefly revealed.

One of the big drivers of flash trading is the "maker/taker" payment system. Within the "maker/taker" system, the "makers" are considered market makers that provide liquidity. These "maker" firms earn a rebate on typical fees charged by exchanges because they are providing liquidity. Most often, HFT firms are "makers." In contrast, "takers" are on the other side of the transaction and are taking liquidity out of the market. Typically, "takers" are large institutional investors or hedge funds. "Takers" are charged higher transaction fees by the exchange because of their effects on market liquidity. Because the transaction fees paid by "takers" are greater than the rebates given to "makers," exchanges profit the difference between the "taker" fees and the rebates it pays to "makers." The profit motive of exchanges within the "maker/taker" system incentivizes the exchanges to retain as many orders as possible, and the exchanges' ability to flash orders before the rest of the market sees them enhances the ability to retain orders, even those that are unfillable at current market conditions.

Ultimately, exchanges are very competitive organizations and compete with each other for order flow. According to McNamera (2016), "In order to get HFT firms to post quotes in its market or to fill orders there, an exchange may use flash orders to entice such firms to be present in the first place." The result is that the HFT firms that are willing to post quotes or fill orders on the exchange through flash trades become privileged customers of the exchange at the expense of the customers that the exchange views as not as important. The privileged customers are likely given greater liquidity rebates and other perks relative to the unimportant

customers. Hence, privileged customers are rewarded by exchanges because they are able to afford the informational and technological advantages necessary to engage in flash trading.

Another ethical consideration that stems from flash trading and the competition among exchanges is the impact on the broker-client relationship. Exchanges often pay brokers for their orders in order to increase order flow. The orders received are then often flashed to the exchange's best clients. By accepting payment for directing an order to a particular exchange, brokers may not be acting in the best interests of their clients. Instead, brokers may be acting in their self-interest because the amount of payment from an exchange may influence where brokers send client orders. As a result, they may not fulfill their fiduciary duty to clients by directing orders to exchanges that are not necessarily the best price venues for clients' orders.

Exchanges' practice of flashing unfillable orders to participants who have paid for access to this informational advantage creates a two-tiered market. This is the most often cited criticism of flash trading, and according to McNamara (2016), it is a valid concern because "certain inside players have access to fundamentally better information than everyone else." Information is the foundation for making investment decisions and the information asymmetry created by flash trading not only allows participants with informational advantages to profit at the expense of those who do not have the same informational advantages, but it also has the potential to distort prices. In particular, the rebates offered to "makers" of liquidity interferes with the natural price discovery process and therefore potentially makes security prices inaccurate after they are shown on the SIP. If prices are distorted due to interference with the natural price discovery process, then market prices cannot be trusted and the notion of market efficiency is called into question.

4.2 Reg NMS: The Catalyst for Flash Trading

The ability to engage in flash trades is an unintended consequence of Reg NMS, also known as Regulation National Market System, which was promulgated in 2005 by the Securities and Exchange Commission. Reg NMS was prompted by the Securities and Exchange Commission's (SEC) concerns about the increased fragmentation of the U.S. securities market resulting from the number of new trading venues that had emerged as a result of demutualizations of stock exchanges (Bloomenthal 2020). Demutualization represented a change in the corporate ownership structure of exchanges. Prior to demutualization, exchanges were non-profit businesses and were owned by the members of the exchanges. When the exchanges were demutualized, they became for profit corporations owned by shareholders who are not necessarily members of the exchange. Following the demutualizations, the SEC was particularly concerned that transactions were not always being routed to the market that had the best price. The intent of Reg NMS

was to use technological developments to tie together the growing number of exchanges and trading venues within the U.S. securities markets through the Order Protection Rule (otherwise known as the “trade through rule”). The Order Protection Rule prevents trades from being routed to an exchange with an inferior price relative to another exchange and was envisioned as a means of increasing competition for individual orders among the numerous exchanges. Investors would therefore benefit from reduced trading costs due to the competition among the exchanges.

According to Angel, Harris and Spatt (2010), investors benefitted from improved stock market quality following the implementation of Reg NMS as evidenced by lower commissions to trade, lower bid-ask price spreads, faster trade execution speeds, improved liquidity and more intense competition among exchanges. Although Reg NMS’s elimination of the regulatory impediments for electronic trading was intended to increase competition among existing exchanges and reduce fragmentation, dozens of new trading venues and platforms emerged following implementation of the regulation. For example, prior to Reg NMS, there were 9 stock exchanges in the U.S., including both national and regional exchanges. Following the implementation of Reg NMS, the number of exchanges and trading venues dramatically increased. Currently, there are 27 exchanges approved by the SEC for operation in the U.S. as well as 62 other venues classified as alternative trading systems (ATSS) or electronic communication networks (ECNs) for trading stocks in the U.S. Reg NMS therefore had the unintended consequences of increasing market complexity by increasing the number of exchanges and trading venues in the U.S. (Blume 2007).

Reg NMS also set off a technological “arms race” among the trading operations of financial institutions because the transaction speeds and early access to order information in advance of the public became the basis of profitable trading. Since the implementation of Reg NMS, one of the most profitable services for exchanges has been selling enriched data feeds to clients willing and able to pay for the premium service. Clients subscribing to the premium data feed services are also often provided a view of orders “flashed” by exchanges for as much as 500 milliseconds in advance of the order information being made publicly available to other traders in the market. Although 500 milliseconds does not seem like a lot of time, it is enough time for computer algorithms of financial services firms to execute profitable trades in ahead of the rest of the market. Thus, in the aftermath of implementation of Reg NMS, flash trading emerged as a very profitable and very popular high frequency trading strategy due to an increasing number of financial institutions purchasing enriched data feeds directly from exchanges and hiring highly skilled computer programmers to develop computer algorithms for trading.

4.3 Flash Trading from the SEC's Viewpoint

As high-frequency trading increased in usage within the financial markets following the implementation of Reg NMS, criticisms of flash trading were expressed by market participants. In particular, concerns were voiced that flash trading allowed institutional traders to profit at the expense of individual investors who could not afford the technological and informational advantages of the institutional investors.

As an initial step toward eliminating the alleged abuses of flash traders, the SEC proposed eliminating the flash order exception from Rule 602 of Reg NMS in September 2009. This proposal was designed to eliminate the opportunity for computer algorithms to engage in flash trading because exchanges would have been prohibited from flashing securities orders and prices to subscribers of enriched data feeds before providing the same order and price information to the general public. As is the normal practice for proposed SEC rules, a 60-day period was available for market participants to provide comments to the SEC about the proposed rule. The comments received were mixed in terms of support for the elimination of the flash order exception and the SEC took no regulatory action on the matter in 2009. However, the “Flash Crash” in May 2010 prompted calls for reform of the flash order rule and the SEC reopened the proposed 2009 flash order rule for commentary in July 2010. Again, the comments received were mixed, and to date, the SEC has not implemented any regulation regarding the flash order rule or flash trading. Although there has not been formal regulation by the SEC, there has been a self-regulatory response from exchanges and trading venues in response to the concerns surrounding flash trading. Several exchanges and trading venues such as the NASDAQ and BATS announced in August 2009 that they were stopping the practice of “flashing” information to data feed subscribers in advance of providing the same information to all market participants.

Although in May 2020, the SEC promulgated new rules that level the playing field between HFTs and the rest of the market with respect the way data are provided, these new rules do not ban flash trading. According to Shubber (2020), “The proposed changes would require stock exchanges to make new types of share data generally available, including information on the depth of demand to buy or sell particular stocks.” The new rules are also intended to ensure that data are released to the markets to all participants at roughly the same time from a consolidated SEC-approved data provider. Moreover, the new rules require exchanges to provide the same data to all participants. That is, participants who are unable to pay for the proprietary data feeds would have access to the same data as those participants who have been subscribing to proprietary data feeds and receiving an informational advantage. Even though these new rules help level the playing field in terms of making consistent information available to all participants

for free, the possibility of flash trading still exists. Exchanges will still compete for orders and flashed price information is one of the primary ways that exchanges attract customers. The profit incentive associated with order execution and the need to attract customers still exists.

4.4 Is Self-Regulation Sufficient?

Given the SEC's reluctance to ban flash trading, exchanges' self-regulation of the practice has become the default regulatory mechanism. However, the exchanges' practice of selling the enriched data feeds to institutional investors and use of flashed prices to attract orders creates a conflict of interest that likely makes self-regulation an insufficient mechanism for ensuring market integrity. The conflict of interest arises because exchanges play both agent and principal roles. As agents, exchanges facilitate the trading of securities for both institutional and retail investors and should be fulfilling this role in a manner that instills confidence in the integrity of the markets. Exchanges are intended to serve the public interest. However, in their role as principals, the exchanges have an incentive to earn a profit due to the demutualizations that transformed exchanges into for-profit corporations between 1994 and 2006. Selling enriched data feeds to financial institutions and other traders who can afford to pay for the premium subscriptions is one of the most lucrative ways for exchanges to earn a profit. If an exchange voluntarily decides to stop providing data that enables flash trading, then the financial institutions and traders will drop their subscriptions and seek the data for flash trades at another exchange that will provide the data. Due to the competition among exchanges for market share, combined with the profit incentives, the likelihood seems low over the long term that exchanges will stop providing data that facilitates flash trades.

Similar to the exchanges, the financial institutions and traders that purchase the data to conduct flash trades also face a conflict of interest. In particular, many financial institutions have established high frequency trading departments staffed with computer programmers to write trading algorithms. Although the financial institutions may be facilitating trades for their customers, they are also often trading for their own accounts to make a profit. Again, the conflict of interest arises due to the dual roles of principal and agent. As an agent, the financial institutions have a fiduciary duty to their customers and should be acting with the utmost integrity when facilitating trades for them. However, as principals, trading to earn a profit for their own accounts, they have an incentive to act in their own self-interest even if that means conducting transactions that exploit their customers or other market participants.

The best evidence to suggest that self-regulation by exchanges will be ineffective is the NYSE's attempt to self-regulate specialists in the early 2000s. Prior to the automation of markets, the NYSE extensively employed specialists to facilitate trades in each stock listed on the exchange as well as to maintain fair and orderly markets.

Although the vast majority of NYSE trades are now conducted electronically, there are important parallels between the incentives of the specialists and market participants engaging in flash trading. For example, according to Ellis, Fairchild and Fletcher (2010), similar to subscribers receiving flash trade information, specialists have "free access to information on current and pending transactions" and this information advantage allows them to make inferences about the direction of stock prices. By observing the pattern of limit orders, specialists can make inferences about the direction of a particular stock price so that a profitable trading strategy can be executed for their own account. Trading for their own account and the profit incentive is very similar to motives of the financial institutions that subscribe to enriched data feeds and make trades based on the flash trade information received. Most importantly, despite oversight by the NYSE and the Financial Industry Regulatory Authority (FINRA), a series of well-documented trading abuses by specialists, including front running, freezing the book and penny jumping, occurred in the early 2000s. According to Ellis, Fairchild and Fletcher (2010), self-regulation of specialists was ineffective because "the specialist plays a role in monitoring exchange transactions and thus, plays a role in monitoring himself." Given that specialists were the precursors of algorithmic trading, including flash trading, and self-regulation was ineffective in preventing abuses by specialists, self-regulation will likely be ineffective in preventing abuses by flash traders. Although the SEC monitored the self-regulation efforts pertaining to specialists, it admitted that it was less likely to uncover and adequately enforce regulations designed to ensure a fair and orderly market with a self-regulatory system in place. Today's markets are faster and more complex than at the time of the specialists' abuses in the early 2000s, and if anything, today's technology combined with self-regulation by exchanges and financial institutions may make it easier for traders to engage opportunistic trading that harms significant numbers of market participants who do not have the technological and information advantages possessed by flash traders. In other words, technology and the complexity of today's markets may make it much easier for exchanges and financial institutions to hide unethical behavior within a model of self-regulation.

The self-interest of the exchanges and financial institutions' pursuit of profit makes it difficult, if not impossible to effectively enforce any self-imposed bans on flash trading. For this reason, the United Kingdom and Hong Kong have moved away from allowing self-regulation of securities markets and

self-regulation has never been the predominant model of securities market regulation throughout Europe. According to Boonen (2017), as recently as 2017, European Union regulators began investigating whether electronic front running (a.k.a. flash trading) and structural insider trading violate the EU Market Abuse Regulation. Based on the investigation to date, European Union regulators are considering regulatory reform that would eliminate ability of traders to execute profitable trades as a result of an informational advantage relative to other market participants.

4. PROTECTING INVESTORS FROM THE POTENTIAL ABUSES OF FLASH TRADING

Many market participants as well as financial economists argue that the U.S. stock markets have evolved into an unfair “two-tiered” exchange system in which some participants profit through flash trading at the expense of other participants who do not have access to the same technological and informational advantages. Because markets should serve the public interest, the ability of some participants to profit consistently from technological and informational advantages erodes public confidence in the fairness of securities markets.

Although many trading venues have promised not to engage in flashing order information in advance to making the same information available to the broader markets, we argue that the only way to ensure that flash trading is not harmful to investors is to ban it from a legal standpoint. Even if all exchanges promised to stop flashing orders to subscribers who pay for premium data feed services, there is no guarantee that exchanges would continue this ban in the long run. There are currently 27 exchanges in the U.S., and if one of the exchanges decided to make flash orders available, there would likely be pressure for the other 26 exchanges to also allow orders to be flashed because of the competition for profit among the exchanges. In all likelihood, the profit incentive for exchanges outweighs their desire to behave in a moral manner based on the previous efforts to self-regulate the specialists on the NYSE. Thus, we argue that self-regulation is insufficient and the banning of flash trading by the SEC is necessary to ensure the integrity of the U.S. financial markets.

5. CONCLUSION

Financial markets are important for businesses to be able to raise capital for operations, expansion, job creation and innovation. The functioning of financial markets, however, depends upon public confidence. The SEC recognizes that allegations of market abuses facilitated by flash trading erodes public

confidence in financial markets because of the perception of an uneven playing field.

Although the SEC has considered promulgating rules that would address the concerns arising from flash trading, no action has been taken to date by the regulatory agency. According to the SEC, one of the primary reasons for the agency not taking any regulatory action is that the existing evidence provided by researchers investigating the impact of flash trading on markets is inconclusive. That is, some researchers find that flash trading is beneficial to financial markets while others find that is harmful. Some researchers question the legality of the trading practices of flash traders while others point out that the trading practices do not seem to be clearly illegal. Even if flash trading does not technically meet the legal definition of frontrunning, at the very least, flash trading is unethical, creates a two-tiered market, and erodes public confidence related to the fairness of markets.

We argue that the SEC must follow the lead of the financial market regulators in other countries and eliminate the self-regulatory practices of exchanges and financial institutions regarding flash trading. Self-regulation was not effective prior to the automation of markets and it is likely to be even less effective with today's sophisticated technologies that facilitate trading. Similar to the regulatory authorities in other countries, the SEC must promulgate rules against flash trading in order to protect the interests of market participants who are at technological and informational disadvantages relative to participants engaging in flash trading. By delaying the promulgation of rules with regard to flash trading, the SEC risks allowing participants with the means to acquire technological and informational advantages an opportunity to introduce even more complexity into the market, making the process of regulating unfair trading strategies more difficult at a later date. Also, by delaying regulation of flash trading, there is an opportunity for additional trading venues to emerge, potentially exacerbating the issue of market complexity.

REFERENCES

- Alampieski, Kiril and Andrew Lepone, 2012, High frequency trading in UK equity markets: evidence surrounding the US market open, working paper.
- Angel, James J., Lawrence E. Harris, and Chester Spatt, Equity trading in the 21st century, *Quarterly Journal of Finance*, vol. 1, 2011, pp. 1-53.
- Benos, Evangelos and Satchit Sagade, 2013, High-frequency trading behaviour and its impact on market quality: evidence from the UK equity market,

D'Souza and Fairchild

working paper.

Bloomenthal, Andrew. "Demutualization." *Investopedia*, Investopedia, 29 Jan. 2020, www.investopedia.com/terms/d/demutualization.asp.

Blume, Marshall E., Competition and Fragmentation in the Equity Markets: The Effects of Regulation NMS, Working Paper, The Wharton School, University of Pennsylvania, The Rodney L. White Center for Financial Research, 2007.

Boonen, Heleen. "High Frequency Trading, Electronic Frontrunning and Structural Insider Trading Under the EU Market Abuse Regulation: Need for Reform?" *Nyuylb*, NYU Journal of Law & Business, 27 Nov. 2017, www.nyuylb.org/single-post/2017/11/27/High-Frequency-Trading-Electronic-Frontrunning-and-Structural-Insider-Trading-Under-the-EU-Market-Abuse-Regulation-Need-for-Reform.

Brogaard, Jonathan, Bjorn Hagstromer, Lars Norden and Ryan Riordan, Trading fast and slow: colocation and market quality, 2013, working paper.

Chen, James. "High-Frequency Trading (HFT) Definition." *Investopedia*, Investopedia, 22 Jan. 2021, www.investopedia.com/terms/h/high-frequency-trading.asp.

Ellis, Nan, Lisa Fairchild and Harold Fletcher, 2010, The NYSE Response to Specialist Misconduct: An Example of the Failure of Self-Regulation, *Berkley Business Law Journal*, vol. 7, 102-149.

"Fast Answers: National Securities Exchanges." *SEC Emblem*, 12 Apr. 2017, www.sec.gov/fast-answers/divisionsmarketregmrexchangesshtml.html.

"Front Running Definition." *Nasdaq*, 2020, www.nasdaq.com/glossary/f/front-running.

Ganti, Akhilesh. "Flash Trading Definition." *Investopedia*, Investopedia, 29 Jan. 2020, www.investopedia.com/terms/f/flash-trading.asp.

Gerig, Austin, 2012, High-frequency trading synchronizes prices in financial markets, working paper.

Kirilenko, Andrei, Albert S. Kyle, Mehrdad Samadi and Tugkan Tuzun, 2011, The flash crash: the impact of high frequency trading on an electronic market, working paper.

- Langton, James. "HFT Costs Global Markets US\$5 Billion Annually, FCA Research Finds." *Investment Executive*, 28 Jan. 2020, www.investmentexecutive.com/news/from-the-regulators/hft-costs-global-markets-us5-billion-annually-fca-research-finds/.
- Lewis, Michael, *Flash Boys*, New York, NY, W.W. Norton & Company, 2014.
- McKenna, Francine, "Here's the Advantage High Frequency Trading Firms have over Everyone Else," *MarketWatch*, August 13, 2015 available at <http://www.marketwatch.com/story/heres-the-advantage-high-frequency-trading-firms-have-over-everyone-else-2015-08-13>
- McNamara, Steven R. "The Law and Ethics of High-Frequency Trading." *Minnesota Journal of Law, Science and Technology*, vol. 17, no. 1, 2016, pp. 70–152., doi:10.2139/ssrn.2565707.
- Madonna, Laure. "The Ethics of High Frequency Trading." *Moral Cents*, vol. 2, no. 1, 2013, pp. 17–26.
- Malinova, Katya, Andreas Park and Ryan Riordan, 2013, Do retail traders suffer from high frequency traders?, working paper.
- Patterson, Scott, *Dark Pools: The Rise of Machine Traders and the Rigging of the U.S. Stock Market*, New York, NY, Crown Publishing, 2013.
- "SEC Regulation NMS." *U.S. Securities and Exchange Commission*, 9 June 2005, www.sec.gov/rules/final/34-51808.pdf.
- Shubber, Kadhim. "US Market Data Shake-up Aims to Narrow High-Frequency Advantage." *Financial Times*, Financial Times, 15 Feb. 2020, www.ft.com/content/3b0ff0ce-4f83-11ea-95a0-43d18ec715f5.
- Tong, Lin, 2013, A blessing or a curse? The impact of high frequency trading on institutional investors, working paper.
- Washington, George. "84% Of All Stock Trades Are By High-Frequency Computers ... Only 16% Are Done By Human Traders." *ZeroHedge*, 12 Apr. 2012, www.zerohedge.com/contributed/2012-17-26/84-all-stock-trades-are-high-frequency-computers-%E2%80%A6-only-16-are-done-human-tra.
- Zhang, Sarah and Ryan Riordan, 2011, Technology and market quality: the case of high frequency trading, ECIS 2011 Proceedings, Paper.

THE POTENTIAL OF TELEHEALTH IN THE EMERGENCY ROOM

Spencer G. Estrella

Ryan N. Schmidt

Mark Dame

Texas Tech University Health Sciences Center

ABSTRACT

Telehealth has become an emerging service over the years in healthcare. Our focus for this study is the use of telehealth in emergency room settings to reduce long wait times for patients. Studies have shown how telehealth can provide positive change in an emergency room by reducing overall costs, readmissions, physician burnout, long wait times, and most importantly improvement in patient satisfaction. As healthcare progresses in advanced telecommunication and information technology, health systems will be able to better serve communities and close the gap of disparities.

Key Words: Telehealth, Emergency Room, Healthcare, Wait Times

INTRODUCTION

Telehealth has been an ever-evolving form of healthcare that started off as a mere concept in the late nineteenth century to a full-blown service that is used in several different areas of healthcare in today's hospitals. To be specific, telehealth is now being used in emergency room settings to combat the never-ending wave of patients who seek immediate care. Telehealth has been an example of how far human progress has taken technology to the next level of advancement to improve the quality of care for patients. Technological advancements are continually being established and it is important for health systems to foster those advancements and spread the knowledge to all areas of need to close the gap of disparities.

The placement of a telehealth initiative in the emergency room will help reduce wait times to improve workflow, cost savings, generate revenue, and in return improve patient satisfaction.

HISTORY OF TELEHEALTH

What is telehealth? According to Health and Human Services, "Telehealth is the use of electronic information and telecommunication technologies to provide care

when you and the doctor aren't in the same place at the same time." (HHS, n.d) The power of telehealth lays in the hands of technology. Telehealth does not require a patient and a physician to be at the same place to work together to find a solution to a health problem; it can be done remotely. Access to care is an issue in regions where physician-to-patient ratios are inadequate or where there are not enough medical specialists available to meet the population's needs. (AHRQ, n.d.) The idea of being able to use a device to remotely diagnose a patient was farfetched. Human technology was not advanced and trying to accomplish that challenge was quite the feat. Telehealth started in the late nineteenth century when a physician brought upon the idea of using a telephone to reduce unnecessary office visits. (Nesbitt, 2012) Once the concept was originally circulated, the concept of telehealth transformed into a concrete service that had little research to prove its use. However, at that time of human progression not many people had access to a telephone which was a problem as we know today as a disparity. Telehealth was beyond its time in the late nineteenth century and had to patiently wait a century and a half to conceptualize its unique power.

Telehealth over the past century has gradually become more useful as technology advanced. In the 1920's the radio was invented but physicians took the idea up a notch and used the radio to treat patients who were sick on ships. The newly founded form of telehealth was named teleradiology. According to Nisbett, "Teleradiology has been used for at least 60 years. In the past, film was passed through a digitizer; now most systems use direct digital capture, which allows images to be read overnight in other countries." (2012) Teleradiology can be useful in rural areas in situations where physicians need a radiologist to diagnose the severity of a head injury to alter treatment plans.

Another form of telehealth that is less used than teleradiology is telepathology. Telepathology in essence is the digitalization of disease slides under a microscope that are placed by surgeons and the alike, to be studied and reviewed by pathologists to verify the disease that is present. Surgeons can upload high-definition pictures of microscopic slides on to a server and have pathologists from miles away observe those slides. This form of telehealth can help save time for patients and help physicians diagnose diseases faster.

One last example of telehealth is the form of telepharmacology. Telepharmacology has been used for quite some time and everyone who visits their primary care physician has borne witness to this technology. Physicians diagnose their patients and enter the drugs needed into their computers that generates prescriptions for their patients at their local pharmacy. Pharmacists receive the order then start putting the medication together for the patient to pick up at a later time. This technology not only saves time for patients, but creates a smoother flow between physicians, pharmacists, and patients. Today, health systems are consistently trying to obtain the best technology out there to treat their patients. Advanced

telecommunication and information technology will help shape a healthcare system to better serve their patients and provide exceptional patient satisfaction.

INPATIENT TELEHEALTH

Telehealth in inpatient areas has become successful and crucial with the fight of the COVID-19 pandemic that began in early 2020. A very respected and prestigious organization, The Cleveland Clinic, had to think fast on their feet on the best way for their neuro patients to continue seeing their physicians while maintaining safety precautions. The Cleveland Clinic sprang into action by buying advanced telemedicine carts with screens for their patients and neuro physicians to connect. The Cleveland Clinic also trained an additional one hundred and thirty neuro providers on the new initiative to make sure if there were any problems, the physicians knew how to maneuver them. According to the clinic:

The technology and training have allowed care teams to virtually round on neurological inpatients without losing face-to-face contact — but while protecting patients and caregivers from risk of virus transmission. Typically, one caregiver — usually a nurse or advanced practice provider caring for the patient — is with the patient during the virtual rounding or evaluation, to help with aspects of a neurological exam, for example. But the presence of the cart allows a host of other caregivers to visit with the patient as well, from the rounding staff physician to trainees, social workers and others. (Cleveland Clinic, 2020)

Telehealth has become an important feature in today's healthcare system, specifically during the COVID-19 pandemic. The technology allows hospital staff and physicians to continue seeing their neuro patients with minimal risk of contracting the deadly virus.

The benefits of the telehealth initiative for The Cleveland Clinic will reach far beyond just the COVID-19 pandemic era. The telehealth service will give more convenient access to physicians who might be on the other side of the clinic, in another care location, or simply at home. A physician can easily drop in with a patient and answer any questions the patient might have. This means less travel time for physicians and less stress that contributes to physician burn out. Another benefit and the silver lining of telehealth during the COVID-19 pandemic is that it will further hospitals to adopt and refine their technology to push forward in improving the quality of care for patients within hospital settings.

OUTPATIENT TELEHEALTH

Telehealth in outpatient settings has begun to skyrocket over recent years and has become the new trend to help cut costs in many ambulatory centers across the nation. Banner Health for example has deployed a tele-ICU model in their ambulatory clinics to target patients with multiple chronic conditions. The reason Banner Health deployed a telehealth initiative for their chronic patients is because

five percent of their health plan accounted for fifty percent of their healthcare spending. (AHA, 2017) By targeting these patients helped Banner Health to improve margins and reduce healthcare spending drastically. Banner Health started a pilot program to test the new concept and enrolled over 1,200 members within their network who were financially at risk of not being able to pay for services. Banner Health then hired a complete telehealth team that consisted of physicians, behavioral therapists, social workers, nurses, and pharmacists. The patients were well equipped with monitoring tools and tablets to help with the process. The telehealth initiative concentrated on relationships and really connecting with the patient to help them feel at ease. "The goal for the pilot was to improve the quality of life for participants, while reducing costs by looking for adverse trends and intervening before those trends became adverse outcomes," (AHA, 2017) said Banner Health. By searching for trends and being proactive led to a successful tele-ICU initiative for Banner Health.

The impact of the tele-ICU initiative resulted in a 34.5% reduction in costs that were primarily driven by a reduction of hospitalizations. Banner Health also reported a 50% drop in hospital days alongside reducing the 30-day readmission rate by 75%. (AHA, 2017) The telehealth pilot program was a success in their ambulatory clinics and helped widen the margins for Banner Health while improving the quality of care for their chronic patients.

PHYSICAL PERCEPTIONS OF TELEHEALTH

How do physicians and patients feel about telehealth? Telehealth has become an emerging feature in health systems across the United States and there is still little-known research regarding how people feel about the new concept. The technology is there for telehealth to become successful, but why are providers skeptical of its use? According to the American Board of Family Medicine:

A systematic review of articles published through February 2013 investigating the perceptions of primary care clinicians, administrators, and clinical staff regarding the acceptability and feasibility of remote monitoring technology in routine adult primary care found only 15 studies meeting inclusion criteria. These studies revealed many negatives: barriers to implementation; the clinical relevance of the data collected; fewer patient visits and the potential for overtreatment; insufficient time to monitor and discuss the data collected with the patient; electronic health record incompatibilities; and uncertain legal liability regarding response protocols. (JAFBM, 2017).

Barriers to implementation can be caused for several reasons. Telehealth systems can be expensive for full implementation and there might not be enough support from c-suite executives. Another possibility is that there might not be a market for telehealth depending on the area the physician office or medical center are located

in. Urban areas have plenty of healthcare access so why implement a telehealth program to connect a patient with a physician if a local clinic is down the road? All of these can be barriers for implementation.

Clinical relevance of data can also be a grey area of discussion. What kind of data can be extracted from telehealth visits that can positively impact the clinical world? Other than convenience of visits, there is not much clinical data that can be drawn from a telehealth visit to help improve the clinical side of things. Telehealth is geared more for primary care and nonemergent patients who for the most part are healthy.

Potential overtreatment can be a problem. Since telehealth is geared for nonemergent patients, there can be an influx of patients who request a telehealth visit who are primarily healthy. This not only wastes time but can also be repetitive for physicians who are needed in more urgent cases. Nurse practitioners should be used for telehealth visits that are nonemergent to free up physicians and improve workflow.

Lastly, electronic health record incompatibilities can also be a headache. Physicians need a record of a patient in order to understand their health background. If a telehealth system cannot provide information about a patient's past medical history, nor if the telehealth system can update an electronic health record, there is no way for physicians now and in the future to diagnose a patient correctly. Data is important and crucial for physicians to take the best course of action to help patients.

PATIENT PERCEPTIONS OF TELEHEALTH

Overall, physicians are still a bit skeptical about this new trend in healthcare but how do patients feel about it? According to Zia Agha of San Diego Veterans Affairs Medical Center, "Patients have a positive perception of Telehealth due to the use of latest technology, hence promoting confidence that they are receiving highest quality care... they also found that patients reported enjoying video consultations and were inspired by the use of technology." (2009) Patients feel like they are being taken care of because of the transition to technological care. Not only do patients feel confident of the care, but the new trend is also more convenient for patients who do not have the transportation to attend an in person visit with their primary care physician. A simple telehealth visit can save time for patients who do not have the time to wait in line for hours to see their physician. Also, patients will have a more patient centered experience with physicians listening to their concerns. According to Zia Agha, "A "patient-centered" style of communication is characterized by physician behaviors such as asking open-ended questions, partnership building, shared decision making, information sharing, counseling, and using statements of concern, agreement, and approval." (Agha, 2009) A patient centered experience will give patients a sense of a true one on one

relationship with their physician and feel comfortable the next time around they visit electronically again. According to the AHA, “Consumers are ready for this change, and health care organizations are starting to catch up to those expectations.” (AHA, 2017) Although physicians are not totally onboard with telehealth yet, patients are ready for this next step in healthcare.

PROBLEM STATEMENT

Long wait times in the emergency room can be troublesome for health systems who want to improve inpatient satisfaction. According to Polly Davenport of Saint Vincent Health, “For many hospitals across the United States, the emergency department (ED) is now the “front door”; therefore, understanding the impact of ED experience on the inpatient experience is critical for leaders managing these complex settings today.” (Davenport et al., 2017) Reducing wait times is the number one goal for many emergency departments across the United States. Long wait times correlate to negative results in terms of inpatient satisfaction and the rise of costs in the emergency room which are already heavily affected by EMTALA (Emergency Medical Treatment and Active Labor Act). EMTALA was enacted by congress in 1986 and was intended to force every hospital in the United States to treat every uninsured patient who walked into any emergency room to be triaged and stabilized if the patient had an emergent condition. This has impacted many health systems across the nation, especially non-profit hospitals who are safety-net hospitals who rely on the federal government for reimbursement to cover those sunk costs. An additional problem on top of EMTALA for nonprofit hospitals is that the federal government is planning to phase out DSH (Disproportionate Share Hospital) payments for public hospitals starting the year of 2020 and completely wiping out DSH by 2025. DSH payments help public hospitals tremendously and without that extra support on top of extreme costs from uninsured patients alongside long emergency room wait times, will have a devastating effect on public hospitals patient satisfaction. These complex problems are just some of the major issues’ hospital and emergency room administrators continuously deal with on a daily basis.

EFFECTS OF LONG PATIENT WAIT TIMES

Long wait times and overcrowding of the emergency room have caused more patients to leave against medical advice in California. According to the Office of Statewide Health Planning and Development, “About 352,000 California ER visits in 2017 ended when patients left after seeing a doctor but before their medical care was complete. That’s up by 57%, or 128,000 incidents, from 2012, according to data from the Office of Statewide Health Planning and Development.” (KHN, 2019) These sad but true statistics are the result of overcrowding and long wait times in the emergency room in California. Another statistic from the Office of Statewide Health Planning and Development, “In 2017, the median ER wait time

for patients before admission as inpatients to California hospitals was 336 minutes — or more than 5½ hours. That is up 15 minutes from 2012, according to CMS.” (KHN, 2019) Wait times of 5 ½ hours are detrimental to a patient’s overall experience in any health system in the United States. Finding a solution to this problem will benefit all emergency rooms and improve patient satisfaction.

POTENTIAL SOLUTIONS

Telehealth in the emergency room can be the solution to long wait times and overcrowding in every hospital in the United States. The number one problem behind the scenes is that there are not enough physicians, nurses, social workers, pharmacists, phlebotomists, etc... in the emergency room to handle an influx of patients who come into a busy emergency room. Consequently, communication is the second most important factor in improving wait times in the emergency room. David Barnes and Rita Chang from UC Davis Health states, “The ED is the one place in the healthcare system where virtually all specialties convene.” (AHRQ, 2020) Communication is the key in improving workflow between different professions and making sure that all professions are in sync. Telehealth can be the difference and solution to these problems to relieve hospital staff and physicians of the constant bombardment of patients. The simplified process of using telehealth would start with patients being triaged and being placed in a nonemergent area if those certain patients are deemed not critical. Those patients would then see a nurse practitioner or a physician assistant over a virtual call and would be examined virtually. The attending emergency room physician would then decide the best course of action for their patient and the virtual visit would essentially end. This initiative would free emergency room physicians of nonemergent patients and would allow them to focus on the more severe cases, thus speeding up emergency room wait times and improving patient satisfaction.

FEDERAL AND STATE POLICIES REGARDING TELEHEALTH

Much of the policy changes regarding telehealth has been at the state level. States have the freedom to structure telehealth and have the power to implement policies into law or place telehealth into programs with guidelines. For example, Texas has established an enhanced Medicaid reimbursement for home telemonitoring services and created a Medicaid fee schedule for home monitoring provided by a federally qualified health center. (ASTHO, 2019) Another example is Hawaii, they created an advisory council led by the state’s department of health that focused on the expansion of telehealth. This bill would also fund a coordinator, designated by the director of health, to coordinate public and private sector policies and programs for expanding telehealth. (ASTHO, 2019) Laws and regulations regarding telehealth vary by state. Since the telehealth initiative is relatively new, there is still much to be researched regarding HIPAA, reimbursement, compliance etc... However, at the federal level there has not been much change. The federal

government is advocating the use of telehealth in rural areas to bridge the gap of healthcare access. The government has placed the responsibility of reimbursement of telehealth into the state's hands for Medicaid patients and on the flip side CMS reimburses telehealth visits for Medicare patients.

IMPLEMENTED SOLUTIONS REGARDING LONG PATIENT WAIT TIMES

Telehealth is the answer to reduce long wait times and overcrowding in emergency rooms. The process would be as follows: An ED triage registered nurse would be the first point of contact that patients would interact with. The nurse would then triage the patients and determine if they are eligible for the telehealth express area of the emergency room. The telehealth area would only target the patients who were triaged at a level four or five. Levels four and five are nonemergent levels and they typically consist of minor health problems such as the common cold, congestion, allergies, diarrhea, rash, etc.... Those would be the best patients to send to the telehealth express area so they can get in and out of the emergency department fast as they can to reduce overcrowding in the emergency room. The nurse would then hand off the patient to a nurse practitioner or physician assistant to be further evaluated so the nurse can go back to triaging patients. The NP or PA would then complete the medical screening eligibility of the patient while maintaining EMTALA regulations. After confirmation, the NP or PA would offer the patient a virtual consultation with the attending emergency physician. With the patient's consent, the PA or NP would escort the patient to a telehealth patient room to begin the process. The patient would sit in a chair in front of a monitor to allow themselves to be consulted by the physician. The physician would open the patient's electronic medical record and review past visits if any. Once the physician understands the patient's past medical history and listens to the patient's current health issue, the physician will decide the best course of action regarding care. The physician can write a prescription electronically or refer the patient to a specialist if necessary. The telehealth visit would be no more than fifteen minutes with a brief five-minute break before the next visit. The goal of the physician is to connect with the patient on a one on one level and make the patient feel comfortable enough to want to use the service again if needed. After the consultation is over, the patient is discharged with preprinted directions and can freely leave with no strings attached since the registrars have documented the visit and patient information in the initial pre-screening stage. According to a health system in New York who completed a similar telehealth program stated, "The length of stay for ED Express Care patients has decreased from 2.5 hours in our traditional ED pathway to approximately 34 minutes; patient satisfaction has improved as well." (JEM, 2018) The telehealth initiative can be done and can be successful if implemented well from start to finish.

COSTS OF TELEHEALTH

The costs of implementing a complete telehealth service can be quite expensive depending on the type of equipment medical centers strive for and what they already own. The following data was pulled from a RAND study of medical centers who have implemented a telehealth service line in their organization. Equipment costs can vary anywhere from \$50,000 to \$200,000 depending on how much equipment will be needed and the type they pursue. The equipment will consist of computers, printers, furniture, monitors, software, etc... (RAND, 2020) Also, staff costs to set up an entire space with the equipment can range from \$0 to \$31,000. Staff costs accounts for the physical labor of staff setting up a functional telehealth area. Finally, a medical center will have to pay for a space unless it already has a designated space of their own. Health systems who already have an emergency department can scratch this cost off the list. If not, a space can be leased out for an average of \$4,000 a month. (RAND, 2020) Using the highest numbers from these cost groups can equal to a first-years startup cost of \$235,000 alone. It can be cheaper for medical centers who do not need as much equipment and labor to set up a fully functional telehealth service.

Next will be the discussion of operating costs. Operating costs are the day-to-day costs it takes to run a business. This can be expensive because operating costs will make up of salaries of telehealth staff, vendors, other staff, clinicians, and licensing fees for the telehealth program. The goal for the telehealth program should be to have as many visits as possible while minimizing manpower. According to the RAND study, telehealth staff can cost anywhere from \$73,000 to \$335,000; vendors can cost \$0 to \$852,000; clinicians can cost \$0 to \$384,000; licensing fees can cost \$0 to \$30,000. (RAND,2020) Taking the highest operating costs of each cost group can equal up to \$1,601,000.

Operating costs are the most expensive costs incurred by any organization, specifically salaries. This is where organizations like to implement cost savings initiatives to help cut costs anywhere possible. Adding the first year's startup costs of \$235,000 and the operating costs of the first year of \$1,601,000 would total to a massive \$1,836,000 for the total service line to be put into place. However, even though the initial start-up might be expensive, there is evidence that over time telehealth programs yield cost savings overall in different areas that positively impact an entire organization. For example, the VHA has been implementing telehealth since the 1990's and since then have seen reductions in different areas because of telehealth. "The VHA achieved significant reductions in hospitalizations: over 40 percent for mental health patients; 25 to 30 percent for patients with heart failure and hypertension; and around 20 percent for patients with diabetes and COPD." (AHA, 2016) Using telehealth allows health systems to achieve cost savings and to help widen margins. Another VHA example, "VHA estimates average annual savings of \$6,500 for each patient that participated in the telehealth program in 2012. This equates to nearly \$1 billion in system-wide

savings associated with the use of telehealth in 2012.” (AHA, 2016) Telehealth not only saves money for health systems, but for patients as well.

REVENUE POTENTIAL REGARDING TELEHEALTH

Telehealth in the emergency room can be profitable and strengthen revenue if the right policies and procedures are put into place. According to Lucy Zielinski of HMFA, “The relative speed of telehealth visits also improves patient throughput, which in turn creates more billing opportunities.” (HMFA, 2020) The faster physicians and staff triage patients, confirm eligibility, consult, and discharge a patient can lead to more billing opportunities. This not only generates more revenue but also improves workflow of the emergency department and reduces wait times. COVID-19 has caused telehealth programs to become very popular in emergency departments. Zielinski states, “Moreover, as of March 1, the provider can bill Medicare a telephone (or telehealth) visit and be paid at the same rate as in-person visit.” (HMFA, 2020) Emergency departments can bill CMS a telehealth visit at the same rate as an in-person visit. The opportunity gives emergency departments an incentive to conduct as many telehealth visits as possible.

FUTURE OF TELEHEALTH

The future of telehealth is bright for the United States. The adoption of telehealth has been relatively slow prior to COVID-19 but is now in full swing across the nation and the world. However, we must not leave the most vulnerable patients behind. According to Daniel Horn of Massachusetts General Hospital, “Unless health-care systems commit to deploying video technology that is explicitly designed to provide care for our most vulnerable patients, telehealth will further entrench health disparities.” (Washington Post, 2020) Patients who do not have smart phones, tablets, or computers will struggle keeping up with the latest technological advancements in medicine. Transportation is another disparity. Even if telehealth is present in emergency departments and clinics, how can those who cannot afford a vehicle or gas make their way to one of those areas? How can health systems and political governments help the most vulnerable to have access to telehealth like everyone else? These are now the tasks faced by health systems and local governments to overcome.

CONCLUSION

Telehealth in the emergency room will likely prove to be successful. Over time health systems can expect their emergency rooms to be less crowded with less wait times and have improvement in patient satisfaction. Telehealth has come a long way since the idea of a simple telephone call to check up on a patient. Healthcare has broken through glass ceilings over the past century regarding telehealth. Advancements in telepharmacology, teleradiology, telepathology, telecardiology

etc... have born witness to healthcare technological advancement throughout the years. Telehealth will now break glass ceilings in the emergency room and help countless patients have immediate access to healthcare. If healthcare professionals work together alongside the federal government on closing the gap of disparities, healthcare in the United States will improve to help every American citizen live healthier and longer lives.

REFERENCES

- Agha, Z. (2009, September). An Evaluation of Patient-Physician Communication Style During Telemedicine Consultations. Retrieved from: <https://www.jmir.org/2009/3/e36/pdf>
- American Hospital Association. (2017, July). Telehealth: Delivering the Right Care, at the Right Place, at the Right Time. Retrieved from: <https://www.aha.org/system/files/content/17/telehealth-case-examples.pdf>
- American Hospital Association. (2016). Telehealth: Helping Hospitals Deliver Cost-Effective Care. Retrieved from: <https://www.aha.org/system/files/content/16/16telehealthissuebrief.pdf>
- Association of State and Territorial Health Officials. (2019, March). State and Federal Telehealth Policy Activity. ASTHO. Retrieved from: <https://www.astho.org/StatePublicHealth/State-and-Federal-Telehealth-Policy-Activity/03-14-19/>
- Barnes, D. and Chang, R. (2020, March). Some Patients Can't Wait: Improving Timeliness of Emergency Department Care. Agency for Healthcare Research and Quality. Retrieved from: <https://psnet.ahrq.gov/web-mm/some-patients-cant-wait-improving-timeliness-emergency-department-care>
- Davenport, P. J., O'Connor, S. J., Szychowski, J. M., Landry, A. Y., & Hernandez, S. R. (2017). The relationship between emergency department wait times and inpatient satisfaction. *Health Marketing Quarterly*, 34(2), 97–112. Retrieved from: <https://doi.org/10.1080/07359683.2017.1307066>
- Emergency Nurses Association, McHugh, C., Krinsky, R., & Sharma, R. (2017, April). INNOVATIONS IN EMERGENCY NURSING: TRANSFORMING EMERGENCY CARE THROUGH A NOVEL NURSE-DRIVEN ED TELEHEALTH EXPRESS CARE SERVICE. Elsevier. <https://doi.org/10.1016/j.jen.2018.03.001>
- Horn, D. (2020, July). Telemedicine is booming during the pandemic. But it's leaving people behind. *The Washington Post*. Retrieved from: <https://www.washingtonpost.com/outlook/2020/07/09/telemedicine-is-booming-during-pandemic-its-leaving-people-behind/>
- Moore, M., Coffman, M., Jetty, A., Klink, K., Petterson, S., & Bazemore, A. (2017, May). Family Physicians Report Considerable Interest in, but

- Limited Use of, Telehealth Services. JABFM. Retrieved from:
<https://doi.org/10.3122/jabfm.2017.03.160201>
- Nesbitt, T. S. (2012, November 20). The Evolution of Telehealth: Where Have We Been and Where Are We Going? Retrieved October 29, 2020, from:
<https://www.ncbi.nlm.nih.gov/books/NBK207141/>
- Reese, P. (2019, May). As ER Wait Times Grow, More Patients Leave Against Medical Advice. KHN. Retrieved from: <https://khn.org/news/as-er-wait-times-grow-more-patients-leave-against-medical-advice/>
- Telehealth. (n.d.). Agency for Healthcare Research and Quality. Retrieved from:
<https://digital.ahrq.gov/key-topics/telehealth>
- Telehealth. (n.d.). Health Human Services. Retrieved from:
<https://telehealth.hhs.gov/>
- The Cleveland Clinic. (2020, April 10). A COVID-19 Crash Course in Inpatient Telemedicine — and Implications for Future Care. Retrieved from:
<https://consultqd.clevelandclinic.org/a-covid-19-crash-course-in-inpatient-telemedicine-and-implications-for-future-care/>
- Zielinski, L. (2020, May). How to plan for and profitably operate telehealth services. HMFA. Retrieved from: <https://www.hfma.org/topics/financial-sustainability/article/how-to-plan-for-and-profitably-operate-telehealth-services--.html>
- Zocchi, M., Uscher-Pines, L., Ober, A., Kapinos, K. (2020). Costs of Maintaining a High-Volume Telemedicine Program in Community Health Centers. RAND. Retrieved from:
https://www.rand.org/pubs/research_reports/RRA100-3.html

A REVIEW OF HEALTH INFORMATION MANAGEMENT AND TECHNOLOGY CAREERS: A CONTENT-ANALYSIS OF JOB ADVERTISEMENTS

Peter Haried

Ye Han

David Annino

University of Wisconsin – La Crosse

ABSTRACT

The explosive demand for healthcare information management and technology (HIMT), is inspiring many healthcare organizations to enhance their recruiting efforts. To better understand HIMT skillsets in-demand, this study reports on a review of HIMT job advertisements. The results show the multi-faceted nature of HIMT careers. The findings confirm that many HIMT job advertisements emphasize the need for data analytics, problem solving skills and that soft skills remain highly valued. Additionally, our findings highlight and support a variety of vendor specific credentials and demonstrate less demand for some historically popular HIMT related credentials such as the Registered Health Information Administrator (RHIA) certification. Overall, interesting results emerge in the range of HIMT skills in demand that can guide educators in curriculum development and provide healthcare organizations and professionals a framework for examining the current and future HIMT skills needed for successful healthcare delivery.

Keywords: curriculum, content-analysis, healthcare careers, technology

INTRODUCTION

It perhaps goes without saying, that one of the most pressing problems faced by nations today is the health and well-being of populations. Healthcare leaders have continually been in search of ways to improve healthcare delivery and healthcare economics. Advancements in health information management and technology (HIMT) are radically transforming the healthcare industry and is often viewed as an essential piece to improve efficiency and effectiveness (Stokke, 2016; Zettel-Watson and Tsukerman, 2016). Over the last decade, technology developments, investments and regulations have dramatically transformed the health information field (Potančok and Voříšek, 2016; McClellan, Casalino and Shortell, 2013). In record time and at an unprecedented pace, the electronic health record (EHR), as one example, radically changed the skills and knowledge needed by healthcare

professionals. As the technology environments of today's healthcare organizations continue to evolve and rely more and more on technology, there will be an increased need for technology professionals with the skills to deliver the healthcare "Triple Aim" (Lee, Moy and Kruck, 2014). The Triple Aim includes the simultaneous pursuit of improving the experience of care, improving the health of populations, and reducing per capita healthcare costs (Berwick, Nolan and Whitting, 2008). Many healthcare studies have demonstrated the need for increased technology usage to improve healthcare delivery (Frye, 2010; Ghosh and Scott, 2011; Groves, Kayyali and Knott, 2013). Professionals who have the skills to organize, manage, and integrate these information needs will be in demand. As populations continue to age and healthcare coverage expands, it is expected that more and more HIMT professionals will be needed to support operations. All of these developments result in strong demand for HIMT professionals with these unique skill sets as healthcare providers look to technology to support and help solve today's healthcare challenges. As a result, healthcare demands are growing *fast and HIMT skilled professionals are in short supply* (Lee et al., 2014). Thus, to help ensure that the demand for HIMT professionals is supplied with qualified candidates, there is a need to review HIMT job descriptions and synthesize the skills in-demand by healthcare organizations and share these findings with industry, job seekers and educators to address any potential gaps.

While the demand for HIMT professionals is strong, the supply of experienced HIMT talent fails to meet the industry's growing demand. The demand for health information technology professionals is forecasted to grow by 20% between 2016 and 2026 far outpacing the average for all occupations in the United States (AHIMA, 2019). Additionally, postings for HIMT jobs have increased 10 times faster than healthcare jobs overall since 2007 (Ashrafi, Kuilboer and Joshi, 2014). National and regional initiatives driving the adoption of EHR systems will create more IT jobs and require healthcare employees, nurses, and physicians to become more IT-savvy (Joia and Magia, 2017). Consequently, healthcare organizations face a severe need for skilled professionals who can apply and implement information systems to manage healthcare information needs. The healthcare sector is in fierce competition with other industries over skilled information technology (IT) professionals, so much so that hospitals and health systems are facing a health IT labor crunch. In a survey of healthcare IT executives, roughly one-third of executives reported placing projects on hold because of IT professional positions that could not be filled.¹³ There is an increased concern that the supply of HIMT workers will not be able to meet the demand, thus challenging recruitment and retention efforts (Lee et al., 2014). Often, recruiters are forced to look outside the healthcare industry for IT talent. Given the complexities in healthcare, HIMT professionals are preferred for the positions due to their understanding of the complex rules and requirements needed for managing medical information. Thus, as healthcare's dependency on technology intensifies, the demand for professionals with HIMT skills and knowledge will continue to exceed the supply of IT professionals (Kappelman, Jones and Johnson, 2016). The challenge for healthcare organizations being unable to find qualified professionals

is an increasingly serious and limiting issue for healthcare organizations looking to harness technology's power to improve healthcare delivery.

The growing demand and necessity of HIMT in the healthcare industry is also having an impact on higher education curriculum development. Academia would benefit by having a clear understanding of the skills in demand by HIMT related recruiters (Ashrafi et al., 2014; Tremine, Atchison and Behrenbruch, 2010). There is definite need for academic organizations to identify and partner with healthcare organizations to ensure students graduate with the skills needed by industry. As demand for HIMT related professionals grows, Universities are aiming to meet this demand by developing a variety undergraduate programs and graduate programs in HIMT and health informatics offerings.¹⁶ Thus, this paper is aimed at reviewing the skill sets healthcare organizations are recruiting for and help identify the content areas that universities should include to produce HIMT graduates with the skill sets needed.

Earlier information systems or technology related studies have investigated key job skills in demand by employers (Aasheim, Shropshire and Li, 2012; Gallagher, Kaiser and Simon, 2010; Hawk, Kaiser and Goles, Bullen, Simon, Beath, Gallagher, and Frampton 2010; Kappelman, Jones and Johnson, 2016). However, these studies were not specific to the HIMT field. These studies make a significant contribution and advance the knowledge of the skills in demand for general information systems or technology related positions. However, healthcare is a highly specialized field that may require unique skills sets to support the information and technology needs of healthcare organizations (Price Waterhouse Coopers, 2019). As technology advances, the role of the HIMT professional expands. Thus, the need for HIMT professionals is a growing and constant resource requirement for healthcare organizations in the current digital age (Sheikh, Sood and Bates, 2015).

Studies that have focused strictly on the healthcare domain have not developed a comprehensive model or evaluation of HIMT skills in-demand by healthcare organizations. Given this gap in the literature, it is critical that the specific HIMT skills in demand are evaluated to drive training and HIMT curriculum development across all educational levels. Accordingly, this paper is centered on the following research questions:

- (1) What are the HIMT skills needed and in demand by healthcare organizations?
- (2) How do HIMT job listings correspond with the American Health Information Management Association (AHIMA) HIMT classifications?
- (3) How do the job listings match current health information curriculum designs?

As a result, this research article presents a review of 170 HIMT job advertisements posted on leading HIMT career websites. The paper aims to present an improved understanding of the HIMT career skills that are highly valued by the healthcare industry. In addition, the results will aid universities in developing curriculum to

meet the needs of healthcare organizations. The remainder of this article is organized as follows. The next section covers the literature review and overview of the HIMT field. The methodology and results are then discussed. The paper concludes with research implications and directions for further research.

METHODOLOGY

The primary purpose of this study is to review various HIMT skills employers are looking for. In order to review HIMT job advertisements, an extensive content-analysis was conducted. Content-analysis is a research approach that focuses on the presence of certain words or concepts within texts or sets of texts. The aim of content-analysis is to “attain a condensed and broad description of the phenomenon and the outcome of the analysis is concepts or categories describing the phenomenon, with the objective to build up a model, conceptual system, conceptual map, or a set of categories” (Elo and Kyngas, 2008). Historically, content-analysis has served as a valuable tool in determining where we have been and where we are headed as researchers (Gardiner, Aasheim and Rutner, 2008; Palvia, Kakhki and Ghoshal, 2015). Thus, a content-analysis approach provides the opportunity for both academia and HIMT recruiters to review what the current job advertisements reveal about industry demands.

Cumbie, Jourdan and Peachey provided a three-step method for performing a content-analysis (Cumbie, Jourdan and Peachey, 2005). This paper has adapted this method and followed a structured approach to perform a content-analysis on HIMT job advertisements. First, in order to limit the review, the focus was on the job listing websites of two leading professional organizations for identifying HIT and HIM professional credentials and competencies: AHIMA (American Health Information Management Association) and HIMSS (Healthcare Information Management Systems Society). AHIMA, plays an important role in HIMT related education and certifications worldwide (AHIMA, 2019). AHIMA accredits associate, baccalaureate and graduate degree programs related to health information. AHIMA also administers certification exams such as the Registered Health Information Technician (RHIT), Registered Health Information Administrator (RHIA), and Certified in Healthcare Privacy and Security (CHPS), among others (AHIMA, 2019). HIMSS is a global, cause-based, not-for-profit organization focused on better health through information and technology (HIMSS, 2019). HIMSS offers industry leading professional development and health information certifications recognized worldwide. HIMSS provides a variety of professional certifications such as the Certified Professional in Healthcare Information & Management Systems (CPHIMS).

The selection of the job listings posted on AHIMA and HIMSS is based on the belief that professionals view both organizations as leaders in the health information area. It should be noted, however, that other job listing services (i.e., indeed.com, monster.com) include HIMT job postings and are well respected career search options. Although not included, other services listing HIMT job postings should not be disregarded. Similar to other content-analysis work, the

researchers are aware that by concentrating data options excludes a large population of available job postings (Gardiner et al., 2008). However, the researchers believe that this pre-selection focusing on the job postings by AHIMA and HIMSS resulted in a comprehensive set of job postings from high-quality sources that presents an ample picture of HIMT skills in-demand.

After the job posting sites were identified, the researchers searched for, collected and reviewed job postings listed between March 1 and March 5, 2019. The job postings were coded by all authors to achieve a common understanding and inter-rater reliability. Each author read the job posting's key sections (description, education, and skill requirements) and recorded the position accordingly. This content analysis procedure conforms to the general approach proposed by Swanson and Ramiller (1993). Each job advertisement was categorized based on the AHIMA classifications of health information areas (Health Information Management (HIM), Health Information Technology (HIT) and Health Informatics (HI)) by each author. In total, 192 job postings were reviewed and collected. After further review 22 job postings were removed because they were classified as non-HIMT related job postings. The removed job postings were found to be strictly searching for non-health IS related candidates, which was outside of the scope of this research article. A total of 170 job postings were, therefore, retained in the final sample. These selected job postings were analyzed, classified and read carefully. In the remaining sections, the article provides a comprehensive analysis of HIMT careers and skills in-demand.

FINDINGS, DISCUSSION & IMPLICATIONS

The analysis resulted in a review of 170 job advertisements posted on the AHIMA and HIMSS job posting boards. The job postings were analyzed on AHIMA health related information categories, education requirements, credentials, experience levels and position description keywords.

While many of the position titles (Table 1) are perhaps not surprising, two findings are noteworthy. First many organizations are in search of analyst related professionals, as the keyword analyst was present in the greatest number of job advertisement titles. The analyst related positions regularly highlighted the need for the analyst to serve as a bridge between business and more technical health related operations and provide problem solving skills. Second, coding positions continue to be in high demand. Further analysis revealed that less than 10% of positions were considered 100% remote positions (Table 1). Interestingly, when diving deeper into the remote job advertisements the findings revealed that six out of the thirteen remote positions involved medical coding.

As shown in Table 1, the analysis of the job advertisements revealed the minimum education requirements and experience levels required. The findings suggest that new entrants lacking experience and or some level of higher education would be challenged to find employment from the job postings reviewed. Overall, a majority (65.88%) of HIMT related positions required a bachelors related degree to be qualified and considered (Table 1). In addition, 70% of all job advertisements

reviewed required greater than 3 years of experience to be considered. Over 41% of the postings required greater than 5 years of experience. These findings demonstrate the value placed on experience in the HIMT career field and exposes challenges to those looking to enter the HIMT job market without direct HIMT experience or higher education. These findings encourage educators to design programs that integrate experiential learning opportunities to prepare new graduates for the experience requirements currently in place by the industry. The findings also imply that the practitioners need flexibility in the experience expectations required. Our findings demonstrate that there is a need to reconsider the role of internships in HIMT related curriculum and experience expectations required by practitioners.

Table 1. Job posting requirements

Position Title	Count	%
Systems/Business Analyst	42	24.71%
Medical Coding	21	12.35%
Health Information Specialist	18	10.59%
Software Development	18	10.59%
Data or Informatics or Analytics	15	8.82%
Chief Information Officer/Executive/Director	14	8.24%
Help Desk	11	6.47%
Program Manager/Supervisor	8	4.71%
Auditing & Billing & Claims	8	4.71%
Security & Compliance	6	3.53%
Project Management	6	3.53%
Network & Infrastructure	2	1.18%
Training	1	0.59%
Position Location	Count	%
Remote 100%	13	7.65
Less than 100% Remote	157	92.35
Minimum Education	Count	%
High School	13	7.65%
Associate	43	25.29%
Bachelors	112	65.88%
Masters	2	1.18%
Doctorate	0	0%
Years of Experience	Count	%
< 3 years	38	22.35%
3 – 5 years	49	28.82%

> 5 years	70	41.18%
No Minimum	13	7.65%

According to the American Health Information Management Association (AHIMA) the field of health information today consists of the following three main areas: Health Information Management (HIM), Health Information Technology (HIT) and Health Informatics (HI). The categorization of the 170 job advertisements according to the AHIMA (Table 2) main areas of health information careers produced the following results. Seventy-nine job advertisements (46.47%) were classified as health information management positions. Seventy-three job advertisements (42.94%) were classified as health information technology positions and 18 (10.59%) job advertisements were classified as a health informatics position. The rationale for these findings is as follows. Both health information management and health information technology have been the dominate career preparation areas promoted by both AHIMA and HIMSS. However, the domains of HIM, HIT and HI could be blurring. Earlier research has suggested that the definitions of the professional domains and practices of HIM, HIT and HI are converging with the integration of information systems and technologies in healthcare settings (Gibson, Dixon and Abrams, 2015). HIM and HIT could be viewed as more mature career titles. Health informatics is an emerging career field, fueled by the growing interests to apply big data or data analytics to solve healthcare related problems (Tan and Wang, 2017). Whereas, health informatics related activities were most likely completed within the HIM and HIT career areas traditionally, HI has recently emerged as its own discipline and career path, which the current findings support (Raghupathi and Sridhar, 2010). HIMT related educational programs are encouraged to develop HI related curriculum to address this growing area of health information careers.

Table 2. AHIMA categorizations

Classification	Count	%
Health Information Management	79	46.47
Health Information Technology	73	42.94
Health Informatics	18	10.59

Another area of investigation was to examine the certifications and or credentials requirements needed to work in the HIMT field. Interestingly, a little over half of the job advertisements reviewed (52.35%) did not require a certification or credential to be hired (Table 3). The review also examined three specific and popular certifications or credentials: RHIT, RHIA and Epic certifications. The evaluation of credentials revealed that the registered health information administrator (RHIA) credential was not a requirement for a majority of the subset of health information careers reviewed. The RHIA credential awarded by AHIMA denotes one's competency in the management of protected health information, including its input, security, transmission, and storage (AHIMA, 2019). To obtain an RHIA credential, individuals must 1) complete a bachelor's program in health

information management or health information technology (HIT) that's accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM), or 2) graduate from an HIM program approved by a foreign association with which AHIMA has a reciprocity agreement. An earlier report found that that 94 percent of employers surveyed preferred hiring employees with the RHIA credential (AHIMA, 2019). However, the results, as shown in Table 3, report very low percentages of job advertisements requiring an RHIT or RHIA. Our findings suggest a disconnect between a preference of recruiters and the requirement of an RHIT or RHIA. Only 2.94% of job advertisements required the RHIT. Only 1.18% of job advertisements required the RHIA. Examining RHIT and RHIA requirements further, the findings revealed that the popular RHIT or RHIA credential was only required in 15.29% of all job advertisements. These results are surprising since AHIMA the accreditation body was a source of many of the job advertisements. Interestingly, Epic certifications were required in 11.76% of all job postings reviewed. These results may suggest a shift where recruiters are in search of vendor focused professional credentials as opposed to traditional broad credentials. Our findings suggest a significant review is needed by academic programs if curriculum should continue to follow the RHIA accreditation model or if curriculum should shift from traditional broad credentials to more vendor focused credentials.

Table 3. Credential required

Credential Required	Count	%
RHIA, RHIT, EPIC, Coding: CCS, CCS-P, PC, CPC-H, CPMA	81	47.65
No Credentials Required	89	52.35
RHIT Credential only Required	Count	%
Required	5	2.94%
Not Required	165	97.06%
RHIA Credential Only Required	Count	%
Required	2	1.18%
Not Required	168	98.82%
RHIA or RHIT Credential	Count	%
Required	26	15.29%
Not Required	144	84.71%
Epic Credential	Count	%
Required	20	11.76%
Not Required	150	88.24%

The certification and credential findings should be of interest to both academic and HIMT professionals. The low percentage of job advertisements requiring an RHIA or RHIT poses the question of: What do health information programs need to do in regard to curriculum to prepare graduates to match what industry is seeking in job candidates? If I am an HIMT professional, should I focus my education on application or vendor specific certifications? Academia has an opportunity to help address the skill set gaps between job applicants and recruiters. Traditionally, many health information associate and undergraduate programs have designed curriculum around the skills and knowledge required to successfully complete the RHIT or RHIA. However, the rapidly changing technological environment, suggests health information programs need to evaluate and design curriculums to better match the current and future needs of industry (Lee et al., 2014). The push by Universities and accrediting agencies in regard to the RHIA or RHIT credential may not align with what recruiters are actually search for in job applicants. These findings are not discouraging the valuable education that lies behind curriculum designed around the credentials. However, the findings are only pointing out that there may be a mis-alignment between what the job listings require and what Universities are teaching. AHIMA is already evaluating the skills and education needs of future HIMT professionals and future changes are expected (Dimick, 2012). The findings suggest and encourage that additional work examine the alignment between healthcare organizations, training programs and credential/certification requirements. Academia may want to review if designing curriculum around credentials and accrediting agencies is producing students with the skills and knowledge demanded by industry. Earlier research suggests that only 11 percent of employers felt traditional models of education met their demands, while of 96 percent of academicians believed their academic programs were producing students with market-ready skills (Busteed, 2014). Calls to increase collaboration and improve university-industry relations is an ongoing challenge (Basilio and Sanchez, 2010; Di and Schweitzer, 2010). Thus, a gap exists, and academia is encouraged to further explore how to address these gaps. The need for students to graduate with the skills to embrace disruptive technologies and effectively integrate new technologies into healthcare, will not go away. However, the requirement of achieving the RHIT or RHIA certification to land a position in health information, requires additional exploration. With healthcare innovation continuing to race forward, educators play a key role in equipping the next generation of HIMT professionals. The findings on certification and credential requirements should encourage academic programs to review curriculum to better match industry needs.

A summary of the keywords mentioned in the job advertisements is shown in Table 4. In reviewing the top ten keywords from Table 4, team or teamwork dominated the job postings. Interestingly, certification related terms made up 4 out of the top 10 keywords, but as reported earlier, less than half of all positions required a certification for employment. This finding can be explained by the fact that even though certifications may not be required, certifications are still valued and respected in the health information community.

Table 4. Keywords mentioned at least once in a job advertisement

Keyword	Count	%
Team or teamwork	120	70.59%
Certification	81	47.65%
Excel	77	45.29%
EPIC	49	28.82%
Visio	48	28.24%
Health Informatics	46	27.06%
Coding	44	25.88%
Security	42	24.71%
RHIT	40	23.53%
RHIA	37	21.76%
Health Information Management	37	21.76%
Compliance	36	21.18%
CCS (Certified Coding Specialist)	36	21.18%
Leadership	34	20.00%
Microsoft Office	32	18.82%
Troubleshooting	28	16.47%
Enterprise	28	16.47%
Network	27	15.88%
SQL	26	15.29%
Operating Systems	26	15.29%
Best practices	24	14.12%
Billing	21	12.35%
Mac	21	12.35%
Word	20	11.76%
Outlook	19	11.18%
HIPAA	18	10.59%
ICD-10	18	10.59%
Budget	17	10.00%
Analytics	16	9.41%
Project Manager	15	8.82%
EHR	14	8.24%
Change management	14	8.24%
Apple	13	7.65%
Reimbursement	12	7.06%
Java	12	7.06%
Cerner	12	7.06%
Software development life cycle	11	6.47%
Agile	11	6.47%
Crystal Reports	10	5.88%
Windows 7, 8, 10	10	5.88%

Keyword	Count	%
Business intelligence	10	5.88%
PowerPoint	9	5.29%
Data analysis	9	5.29%
Communication	9	5.29%
Time management	9	5.29%
Problem-solving	9	5.29%
HTML	8	4.71%
Critical thinking	8	4.71%
Cloud	8	4.71%
Business Requirements	7	4.12%
Data management	6	3.53%
Teamwork	6	3.53%
CCDS	5	2.94%
PACS	5	2.94%
Supply Chain	5	2.94%
Disaster recovery	5	2.94%
SAP	5	2.94%
Google	5	2.94%
Jira	4	2.35%
Medicare	4	2.35%
Meditech	4	2.35%
SCRUM	3	1.76%
Health Information Technology	3	1.76%
Python	2	1.18%
Systems design	2	1.18%
Medical Chart	1	0.59%

Another interesting finding is the mention of the term “health informatics” in job postings. Health informatics was identified in 27.06% of all job postings, but positions classified as Health Informatics from Table 2 was only 10.59%. The findings support the growing need for healthcare informatics skills across healthcare related positions. Thus, the findings suggest that the use of informatics is needed and expected across position titles. The healthcare industry depends on many sources of data to support operations and health informatics facilitates quality care at a reasonable cost by allowing access to the right data by the right people at the right time.⁹ As technology has made the accessibility and use of data more user friendly, positions across many job classifications have embraced the value provided through big data and analytics. The results demonstrate that health informatics skills are needed across position titles. The findings should encourage academia to include additional health informatics coursework across HIT course offerings to prepare all HIMT professionals for health informatic applications.

The findings suggest that academic programs need to work together with hiring agencies to produce graduates with the skills needed within the healthcare industry. The growing interest in healthcare and technology has resulted in universities working to develop programs to satisfy the demand for HIMT professionals (Ashrafi et al., 2014). Our findings suggest and support findings that curriculum will still need to continue covering technical skills and ensure students are staying abreast of technology developments (Mandl and Kohane, 2012). However, our findings suggest the need for academic programs to strengthen and include softer skills to produce well-rounded graduates that match the evolving industry needs. An additional area for continued and additional inclusion, as discussed earlier, appears to be the inclusion of data or informatic curriculum in HIMT related programs. Earlier research has shown that informatics is not a mainstream topic covered in current established HIT curriculum (Zheng, Zhang and Li, 2014). Our findings encourage academic institutions to improve the coverage of health informatics related topics to position graduates to bring the benefits of informatics to healthcare organizations.

LIMITATIONS

As in all research, this paper is not without limitations. Given that the area of HIMT is fast evolving, the audience is encouraged to recognize that this analysis is a “snapshot in time” and reproducing this data collection and analysis may produce a different outcome. Employer needs are expected to continue to evolve and change as technology progress is made. The sample size was limited to the job postings available on the AHIMA and HIMSS job posting boards for United States located careers. Reviewing the entire spectrum of job posting outlets worldwide is virtually impossible and was not deemed the goal of this article. However, the paper did review a strong subset of the top health IT related organization job boards to provide insight into the skills and career opportunities in the HIMT field. It should be noted that the sample of job postings may have been biased towards organizations who are members of AHIMA or HIMSS. However, AHIMA and HIMSS are the leading health information organizations and as a result the sample could arguably be the best sample of the HIMT skills demanded by healthcare organizations. The researchers encourage both HIMT researchers and academia leaders to consider the findings and embark on research to address the HIMT skills needed by healthcare organizations.

CONCLUSION

In this study, the job skills in demand by healthcare organizations to fill a variety of HIMT career opportunities was examined. The findings identified a variety of HIMT skills needed by healthcare organizations. Overall, the analysis has shown that healthcare organizations are actively seeking out technology skilled professionals to advance the delivery of healthcare. Researchers and academia are encouraged to build on the findings and shape curriculum based on the identified skills needed to match the technology skill-set needs of healthcare organizations. HIMT is clearly a career field that is not going to disappear in the foreseeable

future and is garnering increased attention from healthcare organizations and academia. Most importantly, the review clearly points to the need for the development of a variety of HIMT skillsets to improve healthcare delivery.

REFERENCES

- Aasheim, C., Shropshire, J., Li, L. and Kadlec, C. (2012). Knowledge and Skill Requirements for Entry-Level IT Workers: A Longitudinal Study. *Journal of Information Systems Education* (23:2), 193-204.
- AHIMA. (2019). Accessed on February 29, 2019 @ <http://www.ahima.org/about/aboutahima>.
- Ashrafi, N, Kuilboer, J. P., Joshi, C. Ran, I. and Pande, P. (2014). Health Informatics in the Classroom: An Empirical Study to Investigate Higher Education's Response to Healthcare Transformation. *Journal of Information Systems Education* (25:4), 305-315.
- Basilio, O. and Sánchez, M.P. (2010). Internationalisation of Universities: The Case of Spain. *International Journal of Healthcare Technology and Management* (11:5), 391-408.
- Berwick, D. M., Nolan, T. W. and Whitting, J. (2008). The Triple Aim: Care, Health, and Cost. *Health Affairs* (27:3), 759-769.
- Busteed B. (2014). Why the Education Economy is the Next Big Thing for the American Workforce, Accessed on August 1, 2019 @ <https://www.fastcompany.com/3033593/why-the-education-economy-is-the-next-big-thing-for-the-american-workforc?cid=search>.
- Cumbie, B. A., Jourdan, Z. and Peachey, T. (2005). Enterprise Resource Planning Research: Where Are We Now and Where Should We Go From Here? *Journal of Information Technology Theory and Application* (7:2), 21-36.
- Di Tommaso, M. R. and Schweitzer, S. O. (2010). Production and Transfer of Academic Knowledge: Policy Targets and Implications for the Health Industry. *International Journal of Healthcare Technology & Management* (11:4), 227-240.
- Dimick, Chris. (2012). Health Information Management 2025: Current Health IT Revolution Drastically Changes HIM in the Near Future. *Journal of AHIMA* (83:8), 24-31.
- Elo, S. and Kyngas, H. (2008). The Qualitative Content-Analysis Process. *Journal of Advanced Nursing* (62:1), 107-115.
- Frye, G. W. (2010). Using Business Intelligence to Build Optimal Decision Support. *Benefits and Compensation Digest* (47:2), 17-21.

- Gallagher, K. P., Kaiser, K. M., Simon, J. C., Beath, C. M. and Goles, T. (2010). The Requisite Variety of Skills for IT Professionals. *Communications of the ACM* (53:8), 144-148.
- Gardiner, A., Aasheim, C., Rutner, P. and Williams, S. (2008). Skill Requirements in Big Data: A Content-Analysis of Job Advertisements. *Journal of Computer Information Systems* (58:4), 374-384.
- Ghosh, B. and Scott, J. E. (2011). Antecedents and Catalysts for Developing a Healthcare Analytic Capability. *Communications of the Association for Information Systems* (29:1), 395-410.
- Gibson, C. J., Dixon, B. E. and Abrams, K. (2015). Convergent Evolution of Health Information Management and Health Informatics: A Perspective on the Future of Information Professionals in Health Care. *Applied Clinical Informatics* (6:1), 163-184.
- Groves, P., Kayyali, B., Knott, D. and Van Kuiken, S. (2013). The 'Big Data' Revolution in Healthcare. *McKinsey Quarterly*.
- Hawk, S., Kaiser, K. M., Goles, T., Bullen, C. V., Simon, J. C., Beath, C. M., Gallagher, K. P. and Frampton, K. (2012). The Information Technology Workforce: A Comparison of Critical Skills of Clients and Service Providers. *Information Systems Management* (29:2), 2-12.
- HIMSS. (2019). Accessed on May 28, 2019 @ <https://www.himss.org/himss-faqs>.
- Joia, L. A. and Mangia, U. (2017). Career Transition Antecedents in the Information Technology Area. *Information Systems Journal* (27), 31-57.
- Kappelman, L., Jones, M. C., Johnson, V., McLean, E. R. and Boonme, K. (2016). Skills for Success at Different Stages of an IT Professional's Career. *Communications of the ACM* (59:8), 64-70.
- Lee, A., Moy, L., Kruck, S. E. and Rabang, J. (2014). The Doctor is in, But is Academia? Re-tooling IT Education for a New Era in Healthcare. *Journal of Information Systems Education* (25:4), 275-281.
- Mandl, K. D. and Kohane, I. S. (2012). Escaping the EHR Trap - The Future of Health IT. *New England Journal of Medicine* (366:24), 2240-2242.
- McClellan, S. R., Casalino L. P. and Shortell, S. M. (2013). When Does Adoption of Health Information Technology by Physician Practices Lead to use by Physicians Within the Practice? *Journal of the American Medical Informatics Association* (20), 26-32.
- Palvia P., Kakhki, M. D. and Ghoshal T. (2015). Methodological and Topic Trends in Information Systems Research: A Meta-Analysis of IS journals. *Communications of the Association for Information Systems* (37:1), 630-650.

Haried, Han and Annino

- Potančok, M. and Voříšek, J. (2016). Specific Factors Influencing Information System/Information and Communication Technology Sourcing Strategies in Healthcare Facilities. *Health Informatics Journal* (22:3), 536-547.
- Price Waterhouse Coopers (PWC) Health Research Institute. (2019). Your company's new, upskilled health worker of the future is you, Accessed September 27, 2019 @ <https://www.pwc.com/us/en/industries/health-industries/top-health-industry-issues/upskilled-health-worker.html>.
- Raghupathi, W. and Sridhar, N. (2010). The Intellectual Structure of Health and Medical Informatics. *International Journal of Healthcare Information Systems and Informatics* (5:4), 20-34.
- Sheikh, A., Sood, H. S. and Bates, D.W. (2015). Leveraging Health Information Technology to Achieve the “Triple Aim” of Healthcare Reform. *Journal of the American Medical Informatics Association* (22:4), 849-56.
- Stokke, R. (2016). The Personal Emergency Response System as a Technology Innovation in Primary Health Care Services: An Integrative Review. *Journal of Medical Internet Research* (18:7).
- Swanson, E. B. and Ramiller, N. C. (1993). Information Systems Research Thematics: Submissions to a New Journal 1987–1992. *Information Systems Research* (4), 299–330.
- Tan, J. and Wang, F. (2017). Non-Traditional Data Mining Applications in Taiwan National Health Insurance (NHI) Databases: A Hybrid Mining (HM) Case for the Framing of NHI Decisions. *International Journal of Healthcare Information Systems and Informatics* (12:4), 31-51.
- Tremine, A., Atchison, K. and Behrenbruch, C. (2010). The California Technology Economy: Surfing the Waves. *International Journal of Healthcare Technology & Management* (11:4), 241–262.
- Zheng, G., Zhang, C. and Li, L. (2014). Bringing Business Intelligence to Health Information Technology Curriculum. *Journal of Information Systems Education* (24:4), 317-325.
- Zettel-Watson, L. and Tsukerman, D. (2016). Adoption of Online Health Management Tools Among Healthy Older Adults: An Exploratory Study. *Health Informatics Journal* (22:2), 171-183.

CREATIVE EMERGENCY MEDICAL SERVICES REVENUE STREAMS AND REIMBURSEMENT REFORM

Jonathan Sell

Debra Flores

Ryan N. Schmidt

Texas Tech University Health Sciences Center

ABSTRACT

Emergency Medical Service (EMS) agencies in the United States have an outdated billing model which treats them more like taxis with base rates and a per mileage fee than healthcare providers. EMS is also not reimbursed in any way for its cost of readiness, the expenses have having EMS units prepared and available for 911 calls 24 hours a day. EMS services do have some unique revenue opportunities, some of which are not well known or considered throughout the industry. Further, the EMS reimbursement system is in need of major reforms. Revenue sources such as community paramedic programs, point of care labs and ultrasound, and specialty care transport should be considered by every EMS agency to see if they fit within their system. As an industry, EMS must come together to advocate for reforms that are vital to recognizing EMS as a member of the healthcare system, not simply a transportation method for patients.

Key words: Emergency Medical Services, EMS, ambulance, paramedic, revenue, community paramedic, point of care

INTRODUCTION

EMS agencies in the United States have a billing process that is often misunderstood by our healthcare leadership peers as it is very different from, and in many ways far behind, typical facility billing practices and revenue streams. There are a number of unique and alternative revenue streams, as well as potential reimbursement reforms, that may help offset high the cost of readiness of EMS, and better encourage quality of care in the industry. EMS is expected to be ready at any time to handle 911 calls quickly, which requires units be ready for calls, invariably creating a utilization ratio that is below 1, often below 0.5. This cost of readiness has never been addressed in EMS reimbursement, rather EMS is effectively

reimbursed in a similar fashion as a taxi. There is a “base rate” and then a charge for each loaded mile thereafter, but unlike taxis EMS is expected to be ready at all times, not just during the busy hours. The base rate for EMS depends on the level of care provided, as well as the level of care reasonably expected to be needed by that patient based on the dispatch information. This extenuates an underlying challenge of EMS to be seen as part of the healthcare system, as opposed to a stand-alone offshoot that is primarily a means of transport, that also happens to provide some medical care during that transport. EMS has evolved as an industry in our relatively short lifespan from our beginnings when ambulance services were often also mortuary services and the destination decision for the patient between the hospital and the funeral home was simply a determination of the patient’s pulse. Today, EMS is effectively a gateway of access to the healthcare system for unscheduled, acute, healthcare needs. For decades, we have taught society to call 911 for help, and we see now that many patients may use that route not just for emergencies, but also simply for access to healthcare. As such, EMS has become the fundamental gatekeeper for the acute healthcare system. However, EMS is financially incentivized by our reimbursement system to transport all patients to the emergency department which is often overcrowded and is typically the most expensive healthcare resource available. Since reimbursement changes only on the level of care, rather than the quality of care, there is no financial incentive for clinical improvement. Thus, operationally and financially, EMS is incentivized to provide the most basic required medical care, and to focus on operational efficiency and transporting high volumes of patients to the hospital emergency department in order to survive as an organization. Healthcare leaders would generally agree that the three-pronged goal of healthcare is: higher quality of care, improved patient experience, and financial efficiency; these are not simply not supported by the current reimbursement model. As an industry, we need to find better ways to incentivize EMS agencies to improve the quality of our care by more effectively incentivizing clinical excellence and quality of care in addition to operational efficiency.

LITERATURE REVIEW

Modern ambulance services in the United States historically derived from multiple and varied sources, but the 1960s proved to be pivotal to modern EMS as Medicare was established in 1965 creating the primary payor source and regulating body over payment processes for today’s EMS. Also, the National Highway Safety Act of 1966 established the need for Emergency Medical Services as a lifesaving measure for deaths associated with traffic accidents across the country (Kirkwood, 2015). Today, EMS is reimbursed using only a few Current Procedural Terminology (CPT) codes, usually

only two per billable incident: A0425 for ground mileage multiplied by the number of miles transported to the nearest appropriate facility, and a base level code such as A0427 for Advanced Life Support Level 1, Emergency (CMS, 2019). Other payors including Medicaid and private insurance companies utilize the same CPT codes, with different allowable charges. In a few rare occasions, payors have allowable charges for ancillary charges, such as the use of oxygen, but most payors treat this as part of the base level rate, and deny payment for ancillaries. In order to maximize revenue, services must effectively bill the highest amount any of their payors allows, and write off the difference between the billed amount and the payors allowable amount (Dominguez, 2016). Failing to do this effectively leaves payor money “on the table” and fails to capitalize on the entirety of available reimbursement. This creates an accounting scenario where EMS billing processes appear to only collect 30-50% of billed rates. While this in and of itself is not completely different from many healthcare facilities that have fee for service payment models, because the driving factor is the distance travelled rather than the specific care, an environment that drives operational efficiency instead of any type of clinical accountability or innovation is standard. Consider the following: as an EMS executive your service operates 5 ambulances 24/7/365. Each ambulance averages 9 billable patient transports per 24-hour shift, and the average bill for each is \$1,435 and average receipts are \$428 per transport. I use these numbers only as examples as these figures will vary from service to service based on payor mix, geographic applicability of rural Medicare bonuses, average transport mileage, and the effectiveness of the billing department to file claims accurately and in a timely manner. Over the last decade your reimbursement rates have had little to no change as CMS rates have remained flat and private insurance rates have generally followed. However, your cost to operate an ambulance each day has increased 32% over the last decade as wage increases, ambulance purchase costs, fuel, medical supplies, and medical equipment costs have all risen each year. Assuming that 10 years ago you had a 20% operating margin and no change in operating volume, you are now effectively losing money with each passing day. The traditional solution to this has simply been to add volume or reduce expenses, neither of which allow for any advances in medical technology or care. In spite of the fact that many medical technologies have become more portable and cost effective, since EMS has no financial incentive to see these technologies utilized, there has been very little growth in those areas in the industry. Considering the same scenario, if you are a manager and you can have a standard, lightweight ambulance with a standard man powered stretcher and outdated, but still serviceable medical

equipment that costs \$380 per transport to operate, or you can have a safer, stronger ambulance with a power loading stretcher system and the latest medical equipment including cutting edge technology like point of care ultrasound and blood lab equipment for a cost of \$550 per transport, which would you choose? From a fiscal and operational longevity perspective there is no choice. The only way a more advanced system can be afforded is if it is subsidized by an outside source of revenue, such as taxes or grants. Added to this is the complexity and variability of agencies in the United States. In a 2010 report to Congress, the GAO reported that providers costs per transport ranged from \$224 to \$2,204 with a median of \$429 (GAO, 2010). There are also a wide array of ownership structures of EMS services including but not limited to: Private for profit, private not for profit, hospital based, fire department based, municipal service, county service, and special district service. This creates a vast array of service models and is compounded further by issues such as career vs. volunteer services, geographic location and population density, and many more thus creating a highly varied costs of delivery and degrees of organizational agility. Ultimately, EMS is treated as a local governmental decision, as there are virtually no unified Federal or State EMS systems, but rather collections of local systems, each varied by their specific mission and local support. This variety allows each service to focus on the needs of its own community, but also hampers efforts to have truly appropriate reimbursement techniques, as what may work well for a high-volume urban service rarely works well for its rural counterpart. The scenario previously referenced is further accentuated in the rural and frontier EMS environment. Unlike urban environments where there are numerous hospitals and emergency departments, many of which have the highest levels of care available for critical patients such as those suffering from trauma, heart attack, or stroke, rural services often only have one local facility available to transport to. Further, the facility may be a significant distance from the patient's location and may not have the level of care needed to provide definitive care for the patient, necessitating a long-distance EMS transfer to a tertiary facility. In this situation, the clinical aspects of having the superior equipment and clinical capabilities are clear, but only in a few rare occasions where Specialty Care Transport base rates become effective would there be any financial incentive to provide those higher levels of care, and even then, only certain aspects of higher care, mainly a ventilator, are required to make the financial incentive applicable. Other medical advances are not applicable to the increased rate. In 2003 the GAO reported to congress that altering Medicare payments to allow for higher payments to rural EMS providers was appropriate and in the best interest of the country's EMS

infrastructure (GAO, 2003). These “rural” and “super rural” bonuses provide recognition that more rural EMS agencies often do not have the volume to support the cost of readiness to respond to 911 calls, and instead are forced to rely on local taxing authorities to subsidize the EMS operation. These bonuses have been continued by CMS, albeit at the cost of other areas of the EMS reimbursement in order to keep a budget effect neutral. In addition, the closure of rural hospitals has placed growing and ongoing strain on rural EMS systems. Struggling hospitals are unable to subsidize their EMS agency, and hospital closure force rural facilities to transport patients many more miles to the next available facility (Kelly 2020). Recent articles including Kelly’s continue to demonstrate the struggles faced by many rural hospitals and the increasing closure rate. As these facilities close, EMS becomes the last line of medical care. However, with their own challenges in revenue stream, many rural EMS services are in a weaker financial position than their hospital counterparts. While services that are not owned and operated by the failing hospital may continue to operate after the hospital closure, they often do so at tremendous cost to the local taxpayer.

PROPOSED SOLUTIONS

One traditional source of additional revenue in EMS is the provision of interfacility transports to supplement volume from 911 requests for service. In larger metropolitan regions this business line is lucrative enough for private for-profit EMS agencies to provide the service in a competitive environment, but in more rural regions the volume is not enough to sustain such operations, and 911 agencies often accept these transports to help support the 911 readiness cost. However, doing so without remaining within economies of scale may actually increase cost and decrease efficiencies (Lindsey, 2014). Specialty Care Transport (SCT) is a higher level of base rate for care specifically limited to interfacility transfers for critically ill or injured patients who need a level of care exceeding that of a normal ambulance and requires additional training or personnel and equipment beyond that of a typical ambulance. The most common need that reaches the SCT rate is a patient who is ventilated and on IV drip medications. These are complex invasive procedures requiring equipment beyond the normal scope of ambulances, and outside of the initial training of paramedics. There is evidence that the provision of such care does lead to improved short-term outcomes (Kim, 2019). This billing code also has a much higher allowable rate, and can be beneficial in providing both a higher clinical value as well as generating additional revenue. Unfortunately, for many rural services the cost of training and equipment to attain the SCT rate is far higher than any marginal revenue such transports would provide. There has also been an

influx of air ambulance providers throughout the rural portions of the United States which provides these types of transports via the much faster helicopter or fixed wing aircraft. The air ambulance industry faces many challenges of its own, however since it has specific oversight by the FAA, they are exceptionally different than ground ambulances, both in reimbursement and in operational logistics, and thus are beyond the purview of this paper. Some urban EMS services have found shared risk capitation models with private insurers to be financially beneficial. While this is an exchange of revenue rather than a new revenue stream, it is a fundamental shift in EMS reimbursement where the fee for service model has been the only method of reimbursement for decades. Sharing the risk burden can incentivize EMS services to decrease unnecessary transports, and find alternative transport destinations that are more appropriate for patient transport; without losing revenue that would be lost for that reduction of transports billable under the fee for service model. This lines up with the fundamental goal of capitation as discussed by Frakt, to share the risk and thus incentivize the provider to lower costs (Frakt, 2012). While this concept can be very effective, it requires a few key components that very few EMS services have: a large population with known payers willing to enter into capitation agreements, a lack of EMS competition to serve these patients, a very clearly known and understood cost function of the service where the value of the capitation cost decrease can be clearly and effectively defined in the negotiation process, and lastly the organizational agility to make the negotiations in a timely fashion. Very few services have all of these components, and so very few capitation agreements currently exist in EMS and I do not expect that number to grow significantly over the next decade. Community paramedicine has been a buzz term in EMS for the last decade and may present another opportunity. It expands the service model of EMS to include the provision of a type of primary care beyond the typical scope of emergency care typical to EMS. While many community paramedic programs exist, they vary widely in delivery model, and mission focus. Some focus on decreasing unnecessary readmission and limited 911 abuse, while others have a strong mental health focus. Others see substance abuse and reducing overdoses as their main goals. While many community paramedic programs have grown across the country, to date very little of that service model has found any source of reimbursement. Most of those that do have revenue streams have found them by sharing cost savings with a partner, usually a major hospital system or health care payer. In spite of this, many forward-thinking EMS leaders believe this program is critical to the ongoing success of EMS by bringing it in line with the goals of the healthcare system as a whole (Zavadsky, 2013). Zavadsky and the Medstar

Mobile Integrated Health Care service in Fort Worth, Texas have been leaders in community paramedicine for many years and have found revenue by shared cost savings with partner facilities in their area by decreasing the high-cost use of chronically ill, but non-compliant, patients. By sharing the cost savings of the reduction of unnecessary use by addressing the patient's overall needs with home visits, medication reconciliations, and consults with the patient's physicians, the patient is better cared for and has a single point of contact to reach out to for help that isn't emergent, but that is likely to reduce the patient's need for emergency care going forward. Patients who have ongoing diagnosis of uncontrolled diabetes, congestive heart failure, and liver disorders are often targets for referral into these community paramedic programs. While the benefit to the individual patients and to the community as a whole are well documented, without a more secure funding source, the long-term growth outlook for these programs appears to be poor. Point of care blood labs are another creative revenue stream available to EMS that often ties in with the widened scope of care in community paramedicine or specialty care transport. While the point of care blood lab technology has been readily available for decades (Harvey, 1999), the regulatory burden that must be met to provide point of care labs (Ehrmeyer, 2011) is beyond those waived by the Clinical Laboratory Improvement Amendments (CLIA), a division of the FDA for regulating laboratories providing clinical information (Gutierrez, 2004). The application of point of care labs in EMS has been proven to be very valuable, especially to rural agencies with long transports to hospitals, and revenue can be obtained by these agencies, as long as the laboratory division is treated as a separate provider with its own national provider identifier. However, the revenue per analyte tested is fairly small, and often is on par with costs for the consumable supplies. Thus, these programs often require a higher volume to obtain a return on investment than many rural agencies have available. Further, the regulatory burden on these programs is immense. CLIA effectively has four levels of facility certificates: Waived, Moderate Complexity, High Complexity, and Provider Performed Microscopy. For the purposes of this paper, we will focus only on the waived and moderate complexity levels as the other two have little practical application outside of hospitals and large reference laboratories. Practically all EMS agencies have a CLIA certificate of waiver. This certificate allows the agency to perform lab tests that are qualified as waived by the FDA. The most common use in EMS for this certificate is the use of a glucometer to check the blood sugar levels of a diabetic patient. Beyond this, most forms of POC labs that are relevant to emergency medical care fall into the moderate complexity level. The regulatory burden on the certificate of waiver is

virtually non-existent, but for a facility or agency to attain a moderately complex certificate, the regulatory burden is severe. Several years ago, the EMS services I was leading chose to pursue a certificate of accreditation rather than a certificate of compliance. This allowed us to join an accrediting body who performs our regulatory oversight, and accredit us to CLIA. While this gave us a buffer between our agency and the regulatory body, the regulatory burden is equal, as all of the same rules and regulations must be followed. Our accrediting body produces an accreditation manual which is 181 pages long covering regulations from qualifications required for staff members, to the quality assurance programs, to proficiency testing, and much more. Unlike many aspects of healthcare, EMS tends to be lightly regulated comparatively, so this level of additional regulatory scrutiny is a huge undertaking, particularly for a small service that doesn't have dedicated administrative staff, but rather staff that work both in administrative and clinical roles. Further, many of the regulations are not written for, or particularly applicable to, point of care devices, which generally have little to no ability for the user to adjust, modify, or maintain them. If the FDA and CLIA would make a new regulatory section specific to point of care testing, the number of regulations could be drastically reduced, and simplified to be more applicable to the point of care model. This would encourage not only EMS agencies, but private clinics, home health, and others, to better utilize point of care testing in settings that do not have rapid access to a full laboratory. Another area of point of care technology is point of care ultrasound. This technology provides EMS providers one of the most significant clinical advances ever seen in the field. For the first time, we can visualize inside the body in the field, providing critical diagnostic evidence and guidance for advanced invasive skills. Providing this assessment comes with no harm to the patient, and no radiological concerns like X-Rays or CT scanners would create. This advance however, has no tangible reimbursement available, so in spite of the clinical applications that could be significant and have a real impact on patient outcomes (Pickham, 2019), very few agencies have been able to afford the investment without any revenue generation in sight. Some agencies who have procured this technology have not been able to support the program in an ongoing capacity. The ability to clearly identify life threatening conditions such as tension pneumothorax, or cardiac tamponade with visual ultrasound is far more reliable and clinically definitive than simply relying on signs and symptoms that may be missed, or may be misleading. Also, performing invasive skills such as deep IV placement, needle thoracostomy, or pericardial synthesis can be done with real time ultrasound guidance, making dangerous blind operations obsolete.

Hemodynamic monitoring and assessment of cardiac wall movement and strength are further applications of ultrasound technology that are available, not to mention one of the most recognizable uses of ultrasound: fetal monitoring. Reforms providing funding not only for pilot programs, but for continued and ongoing use of this clinical tool are vital to encouraging its use and growth in the EMS field. As we consider reimbursement reforms, one of the most critical areas to address is the fact that the reimbursement models currently utilized in the United State fail to provide any consideration for the cost of readiness. EMS is expected by society to be available for 911 operations 24 hours a day, 365 days a year without fail, but is only paid for services provided during patient transport. For most agencies, transports only constitute a small fraction of their operational time. Typically, the only mechanism to provide funding for readiness to ensure that availability is local tax organizations who own and operate, or contract with, the EMS agency. This is a subsidy, which many EMS services require in order to remain in business. Even in urban environments where the volume is high enough to generate enough revenue to support the EMS system, there are often hidden support structures funded by tax dollars, such as fire department personnel and equipment responding to medical emergencies providing faster response times to the initial first response that would require a much higher EMS expenditure to match if the fire department was not made available for such responses. Any true payment reform, particularly from a Federal level, should consider how to more appropriately reimburse agencies not just for the care they provide, but for the constant state of readiness they must maintain. Current payment methodologies for EMS routinely and completely miss the opportunity to encourage and reward appropriate clinical care. EMS has very little in the way of quality metrics when compared to our hospital counterparts. The few metrics that are observed across the industry are not clinically related, but operational in nature, such as scene time, or level of certification for the staff on a responding ambulance, or total loaded mileage. As long as EMS payment is closer to that of a Taxi than it is of a clinical provider, there will never be incentive to have EMS providers grow in the clinical care and excellence that they provide. In 2019 CMS announced the Emergency Triage, Treat, and Transport Model (ET3) program, which will provide a five-year, voluntary pilot payment model that provides payment for care without requiring transport to the emergency department (CMS, 2019). This is a tremendous step forward, but has been delayed due to the COVID pandemic. There are also concerns that the program may not yield the savings that CMS hopes it will, as many agencies which have already utilized these concepts may not be able to show any true cost savings as

they have already implemented these changes for the good of the patient's and community without reimbursement. We will have to wait and see the results of the program, but it is most certainly the first significant move in decades towards recognizing that EMS should not function or be incentivized in a "you call, we haul, that's all" mentality. The EMS industry's single largest challenge to instigating reimbursement reform is the lack of sophisticated, consistent, and industry wide leadership and advocacy. Because of the many various forms of service models that we have discussed prior, EMS often has a very broken and segregated representation. For instance, county-based EMS services might shy from EMS advocacy that might not be in line with county legislative goals; or fire-based EMS may be opposed to EMS initiatives that might take funding from sources routinely used to support fire departments. It is also important to note that EMS is a relatively young industry when compared to hospitals, physicians, or nurses, and as such has not yet had the time to build industry wide consensus and advocacy. The second, and only slightly smaller challenge to EMS reimbursement reform, is the ongoing and continuing mandate in government to cut healthcare spending. Throughout the industry's young history, most reforms have been at direct cost to another portion of the industry. For example, in 2015 the continuation of the rural bonus program required a reduction in payment for scheduled repetitive transports, which most often are for dialysis patients. Without a new infusion of funding into the EMS reimbursement model, any attempt to truly reconcile the issues we have addressed are doomed to failure, and since this is politically unpopular and EMS does not yet have a strong enough industry voice to advocate for such an expensive and unpopular political move, the chances of strong and effective reforms seem small at this point. This statement does not however in any way decrease the value or impact of such reforms, but simply recognizes the current political challenges to making such reforms at the current time.

PROPOSED IMPLEMENTATION PLAN

As described earlier in this paper, there are a number of currently available options to increase revenue streams available to EMS agencies. Investigating the potential for interfacility transfers as a revenue generator, adding a community paramedic program and finding a partner who is willing to share cost savings, or adding point of care lab testing are all valuable revenue lines that many EMS agencies either ignore or fail to recognize. While each service must focus on their primary mission, it is critical to determine if added value lines like those we have described may be beneficial without decreasing the effectiveness or efficiency of the agency in regards to its primary function. Each of these lines has distinct

and specific costs in both capital outlay and human resources. Adding interfacility transfers to your operation is a valuable way of increasing your utilization percentages, but also creates additional workload to your 911 crews unless there is sufficient volume to support adding new units specifically for transfers. The added regulatory burden of point of care labs is an enormous lift for EMS agencies, but it is a known revenue stream with a real clinical application. While there is great concern that community paramedicine has not found a clear-cut revenue stream, there is still a great opportunity to explore especially with partner facilities and payers. From the perspective of reimbursement reform, CMS has taken an important first step to recognizing the current problems in EMS reimbursement with the ET3 program. Unfortunately, the program is being treated as a pilot with only certain providers. ET3 should be extended to become the national standard as soon as sufficient evidence is available in the programs data to support the conclusion that seems obvious: paying EMS to care for patients without transporting them to the costliest form of healthcare will save money and be more effective for both patients and payors. ET3 also does not address other issues such as an ongoing lack of consideration for cost of readiness. CMS and other payors need to recognize there is an inherent cost to having the EMS system available to their beneficiaries, and help find a way to properly reimburse for that cost rather than expecting the agency to subsidize that cost with other revenue including local taxation. A value-added payment based on the provision of 911 coverage would be a tremendous breakthrough in recognizing EMS systems actual cost and that they provide a service even when they are waiting for the next call. Another area that CMS and other payors could immediately impact is improved EMS care and technology by providing reimbursement for treatment or assessment tools like ultrasound. This form of value provided to patients in the form of better technology and care should be clearly and well rewarded by payers, instead of ignored. Further, CMS and other payors should work with the EMS industry to find quality metrics that are truly applicable and equitable to EMS agencies and incentivize a higher quality of care. Once such metrics can be determined, there would be room to provide bonus payments to providers who do well, and penalize those who do poorly, thus directly incentivizing improved patient care. The FDA and CLIA should immediately create a new classification of laboratory regulation specific to point of care lab testing. Only devices and consumables that are truly portable and that require little to no user maintenance or technical expertise should be considered for regulation in this category, but those devices should have greatly decreased regulatory oversight as there is far less potential for patient harm or user error. This action would greatly reduce the

regulatory burden, and thus the cost, to EMS agencies who choose to use of point of care blood labs. The EMS industry as a whole needs a solidified, specific, and strong advocacy voice. Rather than focusing on all of the differences between various EMS delivery models, the industry needs to understand that a “rising tide raises all ships” and focus on advocacy objectives that serve the needs of the industry as a whole. EMS must also be treated as a single point of focus, rather than a secondary idea of a larger focus, like fire departments or municipalities. Only then will the industry have a strong enough voice to see effective change particularly at the Federal level. Once such solidified advocacy has the strength to succeed, it will be critical to fund strong legislative advocacy programs at both the State and Federal levels to drive these reimbursement reforms. Lastly, we as an industry must support our leadership growing in sophistication and education. The days of the EMS leader being the most senior paramedic on the team must be gone, and instead the qualities of leadership and executive management must be encouraged and required. The EMS industry’s youth often shows in the capabilities and sophistication of its leaders. While there are many EMS leaders who are well respected executive in their own right, there are many others who truly are simply the last medic standing in their agency. It is encouraging to see many young EMS leaders recognizing this and pursuing higher levels of education and interaction with our healthcare system executives and leaders.

CONCLUSION

Today in the United States there is an assumption by virtually all residents that if they have a medical emergency all they need to do is pick up the phone and dial 911 and an ambulance with well trained and equipped EMS personnel will arrive shortly to care for them and take them to the hospital. This assumption is often made without consideration of the cost of such a system, until that system is needed. Fundamentally, EMS has been treated as a transport function with a medical component since the 1960s, in spite of this, EMS has grown in sophistication and clinical capability. It is time that the reimbursement model reflects that growth. For EMS services, finding creative revenue streams is critical to growth and survival, and as a healthcare system we need to support and incentivize that growth. Some creative methods will be useful in certain EMS environments, others will not. There are still EMS services to this day that rely completely on volunteer staff and raffles, bake sales, and other fundraising activities to maintain their services. While we respect and appreciate such gallant efforts, we must, as an industry, recognize that the profession requires better and more appropriate funding methods in order to better serve our patients, and to truly be recognized as a member of the healthcare community.

Providing funding opportunities that will encourage EMS services, both individually and as an industry to improve the quality of care, patient satisfaction, and system efficiency will have a tremendous impact on our healthcare system as a whole. EMS is an effective safety net of acute medicine that is often easy to overlook, but is critical to meeting the expectation of care in our modern society. It is time for us to encourage and grow that service with a reimbursement model and revenue streams that will focus the efforts of the industry on quality, rather than simply quantity and cost savings.

REFERENCES

Kirkwood, S. (2015). *Management of ambulance services*. Boston, MA: Pearson.

Centers for Medicare and Medicaid Services: Billing for Ambulance Transports. (n.d.). <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Fast-Facts/Ambulance-Transport>

Dominguez, O. J. (2016). *EMS supervisor: Principles and practice*. Burlington, MA: Jones & Bartlett Learning.

Government Accountability Office: Ambulance Providers: Costs and Medicare Margins Varied Widely; Transports of Beneficiaries Have Increased. (2012, October).
<https://www.gao.gov/assets/650/649018.pdf>

Government Accountability Office: Ambulance Services: Medicare Payments Can Be Better Targeted to Trips in Less Densely Populated Rural Areas. (2003, September 19).
<https://www.gao.gov/assets/240/239813.html>

Kelly, M. (2020). The Crisis in Rural America: Rural hospitals are closing at an unprecedented rate—and residents are dying for lack of access. Will policymakers step in?.

Lindsey, J. (2014). *Management of ambulance services*. Boston, MA: Prentice Hall.

Kim, T. H., Song, K. J., Do Shin, S., Ro, Y. S., Hong, K. J., & Park, J. H. (2019). Effect of specialized critical care transport unit on short-term

- mortality of critically ill patients undergoing interhospital transport. *Prehospital Emergency Care*.
- Frakt, A. B., & Mayes, R. (2012). Beyond capitation: how new payment experiments seek to find the ‘sweet spot’ in amount of risk providers and payers bear. *Health Affairs*, 31(9), 1951-1958.
- Zavadsky, M. (2013). What community paramedicine is and why it’s the future of our profession. *NAEMT News*.
- Harvey, M. A. (1999). Point-of-care laboratory testing in critical care. *American Journal of Critical Care*, 8(2), 72.
- Ehrmeyer, S. S. (2011). The US regulatory requirements for point-of-care testing. *Point of Care*, 10(2), 59-62.
- Gutierrez, S. L., & Welty, T. E. (2004). Point-of-care testing: an introduction. *Annals of Pharmacotherapy*, 38(1), 119-125.
- Pickham, D., Valdez, A., Demeestere, J., Lemmens, R., Diaz, L., Hopper, S., ... & Lansberg, M. G. (2019). Prognostic value of BEFAST vs. FAST to identify stroke in a prehospital setting. *Prehospital Emergency Care*, 23(2), 195-200.
- Center for Medicare and Medicaid Services (2019). Emergency Triage, Treat, and Transport Model. <https://innovation.cms.gov/innovation-models/et3>

ACADEMIC CHEATING AND DEMOGRAPHIC DIFFERENCES: AN EXAMINATION OF FINNISH BUSINESS STUDENTS

Marty Ludlum

Burle Steelman

University of Central Oklahoma

Linn Hongell

Christa Tigerstedt

Arcada University of Applied Science, Finland

ABSTRACT: Academic cheating continues to be an important issue in most societies. This problem has not been adequately addressed in Finland. In this study, we examined Finnish business students and their views on academic cheating. In the current project, we surveyed students (n=153) in the spring of 2017 on academic dishonesty. Results of the survey revealed significant differences between students' attitudes on cheating based on several demographic factors, including gender, age, employment, marital status, and year in school.

Key words: academic ethics, college student, Finland, survey

INTRODUCTION

Academic integrity has been an issue since the development of education (McCabe & Trevino, 1996; and Ison, 2018). Dishonesty (cheating) is a global problem, not confined to a single nation (Moyo & Saidi, 2019) which causes harm not just to the individual student, but to integrity of the educational process (Anderman & Koenka, 2017; and Popoola et al., 2017). Yet, despite many changes and academic innovations, the climate of academic dishonesty still exists (Cronan, McHaney, Douglas, & Mullins, 2017).

In the current project, we surveyed an understudied population, Finnish business students on academic ethics. To support this analysis, we will first review the relevant literature. Second, we will examine the methods of the survey. Next, we will discuss the findings and results. We conclude by discussing the implications for further research in this area.

REVIEW OF LITERATURE

Perhaps no one has had as much influence in the study of academic cheating as Professor McCabe and his colleagues. Over the past few decades, McCabe and his co-authors have done multi-campus studies (McCabe, Butterfield, & Trevino, 2006; McCabe & Trevino, 1996, 1995, 1993; McCabe, 2005, 2002, 1997, 1992; McCabe, Trevino, & Butterfield, 2001; and McCabe and Bowers, 1994) and have concluded that cheating on campus is commonplace, especially as students view themselves as consumers of a good rather than scholars. McCabe's text (with Butterfield and Trevino) Cheating in College: Why Students do it and What Educators can do about it (2012) urged academics to take action immediately to restore integrity to the process.

The most thoroughly studied population has been American college students. The results have been less than flattering, but consistent. Cheating on American campuses is commonplace. Qualls, Figgars, & Gibbs (2017) studied American undergraduates (n=193) and found 85% admitted to academic dishonesty in college, but also discovered that academic dishonesty was heavily correlated with harsh physical punishment in childhood, which was assumed to erode moral development.

Yu, et al., (2017) surveyed a national sample of college students (n=2,503) and confirmed that cheating is commonplace, however, some demographic differences were important. They found being female, upper income, being younger, and not involved in extracurricular activities made a student less likely to report academic wrongdoing. Rettinger & Kramer (2009) surveyed 158 undergraduate students at a religious school in USA on 17 cheating behaviors. They described cheating as "disturbingly common." Most students (73%) engaged in at least one cheating behavior, and 37% reported serious cheating incidents (plagiarism or exam cheating).

Henselee et al., (2017) surveyed freshman engineering students in USA (n=1,074) and found that training on plagiarism reduced students' willingness to participate in those behaviors. Stiles, Wong, & LaBeff (2018) reported on research from the same American institution over four decades (n=506) and found academic entitlement was heavily correlated with college cheating. In addition, they found younger students, international students, underclassmen, and Greek organization members were more likely to cheat. Gender did not make a difference.

Nelson, et al., (2017) surveyed American millennial college students (n=256) and found students' support for religiosity and participation in religious activities was negatively related to cheating, but

spirituality was not. Elias (2017) examined US college students (n=370) and found while cheating was an epidemic on campus, not all students were equal. Specifically, Elias found males, younger students, and students who felt entitled were more likely to engage in academic misconduct.

However, the problem of academic cheating is global in scope, not confined to any single country or region (Teixeira & Rocha, 2010, 2008, 2006). McCabe, Butterfield, and Trevino (2006) surveyed graduate business students (n=5,331) from 54 schools in the USA and Canada on 13 specific unethical behaviors. They found 53% of business students admitted one or more cheating incidents. Teixeira (2013) studied 7,602 undergraduate students from 21 countries (not including Finland), and found that countries with higher levels of corruption showed higher rates of cheating on exams.

Ludlum and Gwinner (2016) examined students in Taiwan (n=1,410) and found cheating was common on exams, with 32% seeing cheating a few times, 11% seeing cheating many times, and 21% seeing cheating regularly. They found 59% of students would never report exam cheating to the instructor. Ives, et al., (2017) surveyed Romanian college students (n=1,127) and found 95% of their sample had engaged in academic dishonesty (22 listed behaviors) during college. Importantly, they found students who faced responsibility for his/her academically dishonest actions did not have a different view of dishonesty from those who acted without any consequence.

Thomas (2017) examined undergraduate students in Thailand (n=207) and found that an individualistic learning climate, a growth mindset, and motivation to study were negatively correlated with academic dishonesty. Guerrero-Dib, Portales, & Heredia-Escorza (2020) surveyed college students in Mexico (n=1,203) and found that unethical behavior in the classroom is tied to unethical behavior outside the classroom, arguing that cheating creates a normalization of such behaviors which survives after graduation.

Academic dishonesty is not confined to undergraduates. Abdulghani et al., (2018) studied medical students in Saudi Arabia and found that 29% self-reported cheating behaviors, and that males cheated more than females.

Research on Finland's student population has been limited. Research on ethics in the Finnish workplace has been well established in the literature (Huhtala, et al., 2013; Kujala, 2001, 2010; Lamsa & Takala, 2000; and Kujala, Lamsa, & Penttila, 2011).

However, research on academic ethics cheating with a Finnish sample is at its infancy compared to their heavily studied counterparts in America. Ludlum, Hongell, Tigerstedt, and Teeman (2017) surveyed Finnish business students (n=119) and found while nearly 40% of students have seen another student cheat on an exam, less than 2% have seen exam cheating regularly. Only 46% indicated they would always turn in the wrongdoer. Females, younger students, employed students, and underclassmen reported seeing more students cheat on an exam. Non-business students were more likely to report cheating to their professor than their business counterparts.

Ludlum, Hongell, Tigerstedt, and Alsobrook (2016) surveyed the ethical views of Finnish college students on their stakeholders and found the students had strong ethical support for employees, the environment, and their community.

Part of the motivation of this study is to examine an understudied population, Finnish college students. We wanted to add to the research in this area by examining the ethical attitudes, behaviors, and motivations of students. Finland's population of higher education students is small, about 300,000, and this represented the majority (60%+) of those graduating high school (Statistica, 2021).

In addition, Finland is a unique example. Finland's society is very ethical. "Corruption does not significantly impact businesses operating in Finland. The Finnish regulatory system is transparent, and administrative corruption is almost non-existent" (Ganintegrity, 2020). Finland has been described as "the third wealthiest, the third least corrupt, the second most socially progressive and the third most socially just" country in the world (Henley, 2018).

Finland is also identified as the second most ethical companies in the world, and one of the best governed nations globally. (Henley, 2018). In 2019, Finland was rated as the third least corrupt country in the world by Transparency International's Corruption Perceptions Index (Transparency International, 2021).

How would this highly ethical society work in an academic environment? Would the Finnish higher education system be plagued with cheating like America and the rest of the globe?

International comparisons are difficult. Individual values are influenced by national cultural beliefs (Hofstede, 1983). Hofstede (1983) defined culture into dimensions to allow comparisons. Hofstede (1983, 1991, and 1993) argued cultural differences impact conduct in business behaviors, communication, and decision-making. Socialization and training also shape personal values (Hofstede, 1991). As a result, each

nation/culture should be examined individually. The results from one culture may or may not be similar to another.

The second motivation for examining Finland would be to see if the highly ethical society would affect the academic behaviors of students.

This study examines an understudied population of college students in Finland. For the current project, we posed the following Research Questions:

1. What is the rate of academic cheating in Finland? Is Finland's rate comparable to America's despite the difference in ethical climate?
2. Do demographic differences (Year in school, age, gender, marriage, and employment) affect Finnish college student attitudes towards academic cheating?

METHODS

Participants

Participants were students at Arcada University of Applied Sciences in Helsinki, Finland in the spring of 2017. The college has over 2,700 students and over 200 faculty and staff (Arcada, 2020). There are two divisions of higher education in Finland, universities (research-based education) and polytechnics (universities of applied science) which train professionals for labor market needs (Jääskelä and Nissilä, 2015). Arcada represents the second part of this division.

The survey was administered to a large required course for all business majors. As a result, all the participants were business majors or in related disciplines. The respondents were in the following academic years: first, 64% (n=98); second, 22% (n=33); third, 11% (n=17); and fourth, 3% (n=5). Upperclassmen were underrepresented in our sample.

In our sample, females outnumbered males 51% to 49%. This is inconsistent with prior research, which found Finnish college students were over 75% female (Jauhiainen, et al 2007). Our group consisted of primarily traditional students (80%, n=122, were aged 18-22). Only ten students (7% of the sample) were married, and only eight students (5.2%) had children. Prior research found a significant number (33%) of Finnish college students were married (Jauhiainen, et al 2007). As a result, our sample underrepresented females and married students.

Most students worked while attending school (59%). This finding is consistent with prior studies, which found 57% of Finnish college students were employed (Jauhiainen, et al 2007). See table below for information on our sample.

Table 1. Descriptive statistics for sample surveyed

Total surveys completed	164	
Samples used for analyses	153	
Year in school	n	Percent
One	98	64%
Two	33	22%
Three	17	11%
Four	5	3%
Gender		
Males	75	49%
Females	78	51%
Employment status		
Not employed	63	41%
Part-time	83	54%
Full-time	7	5%
Marital status		
Married	10	7%
Not married	143	93%
Age		
18-23	122	80%
24+	31	20%
Number of children		
0	145	95%
1 +	8	5%

Procedures

A convenience sample was taken from large required introductory classes in the business program during an international visiting lecture. The survey was conducted in English. Arcada students are multilingual (Finnish, Swedish, and English), with several programs taught in English. Finland has a long history of being a multilingual country with two official languages (Anckar, 2000). Students completed the questionnaire during class time. The survey instrument was voluntary and anonymous. The

instructor did not participate in the survey administration process to avoid undue influence. Students were advised they did not have to participate. No inducements were offered to the students to participate.

Measures

A total of 164 surveys resulted. Eleven surveys were returned blank, leaving 153 completed surveys, a completion rate of 92%. However, some questions had fewer than 153 responses.

Questions were derived and adapted from several previous projects including Brown, Weible, et al (2010); Blau, Kunkle, et al (2017); Carpenter, Harding, et al (2006); Passow, Mayhew et al (2006); Rabi, Patton, et al (2006); O'Rourke, Barnes, et al (2010); MacGregor & Stuebs (2014); and Qualls (2014). A complete text of the questions is provided in appendixes 1 and 2. Complete statistical analysis is available upon request from the first author.

The first set of questions (Scale 1 = Attitudes) used Likert-scale responses 1-5 for strongly agree to strongly disagree with 3 indicating a neutral response. The second set of questions (Scale 2 = Behaviors) used the following scale: a) never, b) only once, c) a few times, d) many times, and e) it is a common occurrence. For analyses, we used Stata/IC 12.1 for Windows.

FINDINGS

We wish to highlight a few findings. Finnish students are motivated to do his/her own work (77.5% agree or strongly agree). Finnish students also have strong disapproval for taking credit for another's work. Students disapprove of copying 100% of a paper from the internet (66.5% strongly disagree); and disapprove of copying exam answers from another student (74.2% disagree); and disapprove of copying another student's homework answers (58% agree, 19.8% disagree).

However, students are uncomfortable with being obligated to report other student's misdeeds. Finnish students indicated they would not report student cheating which he/she had witnessed (47.8% agree, 23.3% disagree). While Finnish students value their own efforts and disapprove of cheating generally, they do not want to be in the position of having to regulate other students' conduct. As for motivations for cheating, the largest factor seemed to be a lack of time and inability to do the work.

The incidence of cheating in Finland is much lower than similar projects in America. Nearly a third of students (30%) self-reported exam cheating at some point during college, a figure less than half of similar

American studies. These figures should not be interpreted as proof, since the sample was small and not random. However, the results are very positive when compared to an American sample.

Next, we wanted to examine demographic subgroups for differences. We conducted ordinal logistic regression for each of the 47 questions. In Table 2, we reported the logistic regression coefficients for each model producing significant results ($p < .05$ or less), with standard errors in parentheses.

Table 2. Ordinal logistic regression.

	Year	M/F	Employ	Married	Age
Allow others to take credit for homework***	.20 (.19)	1.16*** (.31)	-.51+ (.27)	-.35 (.66)	.03 (.05)
Take credit for others' work for homework**	.02 (.18)	.83** (.31)	-.12 (.27)	-2.18** (.78)	.02 (.05)
Allow others to use my answers on exams*	-.24 (.19)	.73* (.30)	-.68* (.28)	-.47 (.70)	.04 (.05)
Take credit for others' work on group projects***	- .63* ** (.19)	1.03*** (.31)	-.18 (.27)	-1.31+ (.71)	.05 (.06)
Cheat because I do not want to do the work*	-.38* (.19)	.37 (.31)	.20 (.28)	-.87 (.78)	.11+ (.06)
Cheat because I do not know how to do the work*	-.46* (.19)	-.06 (.30)	.21 (.29)	-1.44 (.89)	.07 (.06)
Would not report another student I saw cheating*	-.07 (.18)	-.09 (.30)	.50+ (.27)	-1.91** (.66)	-.02 (.05)

Note: + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

From the results displayed above, we saw the influence of gender on several responses. The positive coefficient indicated female respondents tended to disagree with the statements for which there were significant results. Specifically, we noted females were more likely to disagree with the statements: "I allow other students to take credit for my homework," "I take credit for other students' work for my homework," "I allow other students to use my answers on an exam," and "I take credit for the work of other students when we work on a group project."

Students' year in school produced significant negative coefficients, indicating higher levels of agreement with the statements the longer the student has been in school. For the statement "I take credit for the work of

other students when we work on a group project” we noted more senior students tended to agree with the statement than their colleagues. We noted the same directionality and significance for statements “I cheat because I do not want to do the work” and “I cheat because I do not know how to do the work.” Both models indicated students tended to agree more with the statements the longer they have been in school.

Students’ employment status (not employed, employed part-time, or employed full-time) produced significant negative results for only one of our questions, “I allow other students to use my answers on an exam.” Those not employed tended to agree with the statement more than employed students. Unmarried students were more likely to agree with the statement “I take credit for other students’ work for my homework” and they would be less likely to report a student they observed cheating.

Table 3. Ordinal logistic regression results.

	Year in School	Gender	Employment Status	Marital Status	Age
I have cheated on a college exam**	.75*** (.20)	.59 (.37)	.17 (.34)	-.62 (.77)	-.02 (.06)
I have taken credit for work completed by other students*	.25 (.19)	-.88** (.32)	.40 (.28)	-.80 (.72)	-.08 (.06)
I have turned in another student for cheating on a group assignment*	.58* (.25)	.51 (.46)	.29 (.42)	-1.35 (.85)	.05 (.06)
I have turned in another student for cheating on an essay copied from the internet**	.53+ (.30)	1.48* (.64)	.42 (.54)	-2.07* (.92)	.003 (.07)

From the table above, we noted significant positive coefficients for year in school related to cheating on an exam and turning in another student for cheating on a group assignment. More senior students were more likely to experience those events more often. Female students were less likely to have taken credit for others’ work and more likely to turn in

another student for submitting plagiarized essays. Unmarried students reported turning in other students for submitting essays copied from the internet less often than married students.

The instrument was highly correlated. The Cronbach's alpha for Scale 1, Attitudes was .848 and the alpha for Scale 2, Behaviors was .886, exceeding the .70 standard measure for reliability.

DISCUSSION

Research surveys on cheating behaviors are difficult. Students may not want to be candid about their views and behaviors. We were best able to minimize the socially desirability bias common in cheating surveys by using a large group survey, with anonymous results and confidential submissions.

Finland's results should be considered a success. While the rate of cheating was not zero, the rate was far below the results obtained from similar samples in America and around the globe. For this, the high ethical orientation of Finland's society has appeared to influence the academic environment.

Delving further, we discovered that not all students are the same in attitudes and behaviors towards cheating. Our analyses indicated females' responses tended to indicate greater ethical standards than those expressed by their male counterparts. More senior students seemed to have lower ethical standards regarding cheating, according to their responses on several of the statements. Generally, students' age and employment status had little impact on responses.

IMPLICATIONS FOR FURTHER RESEARCH & CONCLUSION

One obvious problem with academic ethics research is examining the attitudes towards cheating, and the number of self-reported incidents. We have no way to validate these self-reports with any objective measure. Students may perceive more cheating or believe they have witnessed cheating when perhaps none existed.

One limitation of this study is that we only examined one higher education institution. This school might or might not be representative of all Finnish applied science colleges and does not represent Finnish universities. Another limitation of this study is the sample size. A larger sample size could result in more detailed analysis of the sub-groups. For example, a larger sample size could define business majors into discipline areas (accounting, tourism, management, etc.) to see if any disciplines had different views.

In addition, future projects should have questions that are time limited (this semester, this year, this course) rather than an all-encompassing “anytime” as used in many projects on academic misconduct (Liebler, 2016).

In addition, we should explore the motivations of who cheats and why. If males are more likely to cheat (as it appears), what motivates them to cheat more (or females cheat less)? Does religion or political affiliation affect the attitudes towards cheating? Clearly, further research on this topic is warranted. In Finland, cheating on campus is significant. Students, even those from a highly ethical society, are tempted to break the rules once they enter a college campus.

Acknowledgement

This project was funded by the Office of High Impact Practices at the University of Central Oklahoma. The authors want to thank Josue Carreno & Ashley Wiltz, two undergraduate research assistants from the University of Central Oklahoma for their long hours of hard work on data collection and input. This project would not be possible without them. The authors want to thank two anonymous reviewers for their helpful comments. Any errors or omissions remain those of the authors.

REFERENCES

- Abdulghani, H.M., Haque, S., Almusalam, Y.A., Alanezi, S.L., Alsulaiman, Y.A., Irshad, M., Shalk, S.A., & Khamis, N. (2018). Self-reported cheating among medical students: An alarming finding in a cross-sectional study from Saudi Arabia. *PLoS One* 13(3).
- Anckar, O. (2000). University education in a bilingual country: The case of Finland. *Higher Education in Europe* 25.4, 499-506.
- Anderman, E.M., & Koenka, A.C. (2017). The relation between academic motivation and cheating. *Theory into Practice* 56, 95-102.
- Arcada University. (2020). About Arcada’ available at <http://www.arcada.fi/en/about-arcada/arcada-university-applied-sciences-0>.
- Blau, G., Kunkle, M., Mittal, N., Rivera, M., and B. Ozkan. (2017). Measuring business school faculty perceptions of student cheating. *Journal of Education for Business*, 92.6, 263-270.

- Brown, B. S., Weible, R. J., & Olmosk, K. E. (2010). Business school deans on student academic dishonesty: A survey. *College Student Journal*, 44(2), 299-308.
- Carpenter, D.D., Harding, T.S., Finelli, C.J., Montgomery, S.M., & H.J. Passow. (2006). Engineering students' perceptions of and attitudes toward cheating. *Journal of Engineering Education* 95.3, 181-194.
- Cronan, T.P., McHaney, R., Douglas, D.E., & Mullins, J.K. (2017). Changing the academic integrity climate on campus using a technology-based intervention. *Ethics and Behavior* 27.2, 89-105.
- Elias, R.Z. (2017). Academic entitlement and its relationship with perception of cheating ethics. *Journal of Education for Business* 92.4, 194-199.
- Ganintergrity. (2020). *Finland Corruption Report*, available at <https://www.ganintergrity.com/portal/country-profiles/finland/>.
- Guerrero-Dib, J.G., Portales, L. & Heredia-Escorza, Y. (2020). Impact of academic integrity on workplace ethical behavior. *International Journal of Educational Integrity* 16.2.
- Henley, J. (2018). Safe, happy and free: Does Finland have all the answers? *The Guardian* Feb. 12) available at <https://www.theguardian.com/world/2018/feb/12/safe-happy-and-free-does-finland-have-all-the-answers>.
- Henslee, A.M., Murray, S.L., Olbricht, G.R., Ludlow, D.K., Hays, M.E., & Nelson, H.M. (2017). Assessing freshman engineering students' understanding of ethical behavior. *Science Engineering Ethics* 23, 287-304.
- Hofstede, G. (1993). Cultural constraints in management theories. *Academy of Management Executive* 7.1, 81-94.
- Hofstede, G. (1991). *Cultures and Organizations: Software of the Mind*. London: McGraw Hill.
- Hofstede, G. (1983). National cultures in four dimensions. *International Studies of Management and Organization* 13.1-2, 46-74
- Huhtala, M., Kangas, M., Lamsa, A.M., & Feldt, T. (2013). Ethical managers in ethical organizations? The leadership-culture connection among Finnish managers. *Leadership & Organization Development Journal* 34.3, 250-270.
- Ison, D.C. (2018). An empirical analysis of differences in plagiarism among world cultures. *Journal of Higher Education Policy and Management* 40.4, 291-304.
- Ives, B., Alama, M., Mosora, L.C., Mosora, M., Grosu-Radulescu, L., Cliciu, A.I., Cazan, A., Badescu, G., Tufis, C., Diaconu, M., & Dutu, A. (2017). Patterns and predictors of academic dishonesty in Romanian university students. *Higher Education* 74, 815-831.

- Jääskelä, P. and Nissilä, P. (2015). Identifying themes for research-based development of pedagogy and guidance in higher education. *Scandinavian Journal of Educational Research* 59.1, 24-41.
- Jauhiainen, A., Nori, H., and Alho-Malmelin, M. (2007). Various portraits of Finnish open university students. *Scandinavian Journal of Educational Research* 51.1, 23-39.
- Kujala, J. (2001). A multidimensional approach to Finnish managers' moral decision making. *Journal of Business Ethics* 34, 231-254.
- Kujala, J. (2010). Corporate responsibility perceptions in change: Finnish managers' views on stakeholder issues from 1994 to 2004. *Business Ethics: A European Journal* 19.1, 14-34.
- Kujala, J., Lamsa, A.M., & Penttilä, K. (2011). Managers' moral decision-making patterns over time: A multidimensional approach. *Journal of Business Ethics* 100, 191-207.
- Lamsa, A., & Takala, T. (2000). Downsizing and ethics of personnel dismissals – the case of Finnish managers. *Journal of Business Ethics* 23, 389-399.
- Liebler, R. (2016). Collecting and reporting self-reports of the number of times cheated. *College Student Journal* 50.1, 95-101.
- Ludlum, M., Gwinner, T. (2016). Academic Ethics of Taiwanese College Students. *Global Education Journal*, 2016(4), 2-18.
- Ludlum, M., Hongell, L., Tigerstedt, C., and Teeman, J. (2017). Academic ethics: A pilot study on the attitudes of Finnish students. *Journal of Academic Ethics* 15, 307-320.
- Ludlum, M., Hongell, L., Tigerstedt, C., Alsobrook, L. (2016). Gender, Indoctrination, and Religious Effects on Ethical Stakeholders: An Investigative Study of Finnish Business Students. *Journal of Business and Educational Leadership*, 6(1), 13-26.
- MacGregor, J. & M. Steubs. (2014). The silent Samaritan syndrome: Why the whistle remains unblown. *Journal of Business Ethics*, 120, 149-164.
- McCabe, D.L. (1997). Classroom cheating among natural science and engineering majors. *Science & Engineering Ethics* 3.4, 433-445.
- McCabe, D.L. (1992). The influence of situational ethics on cheating among college students. *Sociological Inquiry* 62, 365-374.
- McCabe, D.L. (2002). Honor codes and other contextual influences on academic integrity: A replication and extension to modified honor code settings. *Research in Higher Education* 43, 357-378.
- McCabe, D.L. (2005). Cheating among college and university students: A North American perspective. *International Journal of Educational Integrity* 1.1, 1-11.

- McCabe, D.L., & Bowers, W.J. (1994). Academic dishonesty among males in college: A thirty-year perspective. *Journal of College Student Development* 35, 5-10.
- McCabe, D.L., Butterfield, K.D. & Trevino, L. K. (2012). *Cheating in College: Why Students Do It and What Educators Can Do About It* (Baltimore MD: John Hopkins Univ. Press).
- McCabe, D.L., Butterfield, K. D., & Trevino, L. K. (2006). Academic dishonesty in graduate business programs: Prevalence, causes, and proposed action. *Academy of Management Learning & Education*, 5(3), 294-30.
- McCabe, D.L., & Trevino, L. K. (1995). Cheating among business students: A challenge for business leaders and educators. *The Journal of Management Education* 19.2, 205-218.
- McCabe, D.L., & Trevino, L. K. (1993). Academic dishonesty: Honor codes and other contextual influences. *Journal of Higher Education* 64, 522-538.
- McCabe, D.L., & Trevino, L. K. (1996). What we know about cheating in college. *Change* 28, 28-35.
- McCabe, D.L., & Trevino, L. K., & Butterfield, K.D. (2001). Cheating in academic institutions: A decade of research. *Ethics and Behavior* 11, 219-232.
- Miller, A.D., Murdock, T.B. & Grotewiel, M.M. (2017). Addressing academic dishonesty among the highest achievers. *Theory into Practice* 56, 121-128.
- Moyo, C.S., & Saidi, A. (2019). The snowball effects of practices that compromise the credibility and integrity of higher education. *South African Journal of Higher Education* 33.5, 249-263.
- Nelson, M.F., James, M.S.L., Miles, A., Morrell, D.L., and Sledge, S. (2017). Academic integrity of millennials: The impact of religion and spirituality. *Ethics and Behavior* 27(5), 385-400.
- O'Rourke, J., Barnes, J., Deaton, A., Fulks, K., Ryan, K., & Rettinger, D. A. (2010). Imitation Is the Sincerest Form of Cheating: The Influence of Direct Knowledge and Attitudes on Academic Dishonesty. *Ethics & Behavior*, 20(1), 47-64.
- Passow, H.J., Mayhew, M.J., Finelli, C.J., Harding, T.S., & D.D. Carpenter. (2006). Factors influencing engineering students' decisions to cheat by type of assessment. *Research in Higher Education*, 47.6, 643-684.
- Popoola, I., Garner, B., Ammeter, A., Krey, N., Ammeeter, D.B., and Schafer, S. (2017). Hoes does ethics institutionalization reduce academic cheating? *Journal of Education for Business* 92.1, 29-35.
- Qualls, R.C. (2014) The Relationship between disciplinary practices in childhood and academic dishonesty in college students. 48.3 *College Student Journal* 362-374.

- Qualls, R.C., Figgars, L., & Gibbs, D. (2017). The Relationship among childhood discipline, adult attachments, and academic dishonesty in college students. 51.1 *College Student Journal* 7-18.
- Rabi, S.M., Patton, L.R., Fjortoft, N., and D.P. Zgarrick. (2006). Characteristics, prevalence, attitudes, and perceptions of academic dishonesty among pharmacy students. *American Journal of Pharmaceutical Education* 70.4, article 73.
- Statistica. (2021). Number of students in educational institutions in Finland in 2020, by type of institution. (Feb.) available at <https://www.statista.com/statistics/526059/finland-number-of-students-by-educational-institution/>.
- Stiles, B.L., Wong, N.C.W., & LaBeff, E.E. (2018). College cheating thirty years later: The role of academic entitlement. *Deviant Behavior* 39.7, 823-834.
- Teixeira, A.A.C., & Rocha, M.F. (2010). Cheating by economics and business undergraduate students: an exploratory international assessment. *Higher Education*, 59(6), 663-701.
- Teixeira, A.A.C., & Rocha, M. F. (2008). Academic cheating in Spain and Portugal: An empirical explanation. *International Journal of Iberian Studies*, 21(1), 3-22.
- Teixeira, A.A.C., & Rocha, M. F. (2006). College cheating in Austria, Portugal, Romania and Spain: A comparative analysis. *Research in Comparative and International Education*, 1(3), 198-209.
- Teixeira, A.A.C. (2013). Sanding the wheels of growth: cheating by economics and business students and 'real world' corruption, *Journal of Academic Ethics*, 11 (4): 269-274.
- Thomas, D. (2017). Factors that explain academic dishonesty among university students in Thailand. *Ethics and Behavior*, 27(2), 140-154.
- Transparency International. (2021). *Transparency International Finland* available at <https://www.transparency.org/en/countries/finland#>.
- Yu, H., Glanzer, P.L., Srifam, R., Johnson, B.R., and Moore, B. (2017). What contributes to college students' cheating? A study of individual factors. *Ethics and Behavior* 27(5), 401-422.

Appendix 1. Results of opinion questions

Question
I always do my own work.
I allow other students to take credit for my homework.
I dislike group projects because someone is always taking credit for my work.
I take credit for other students' work for my homework.
It is not really cheating if everyone is doing it.
It is not really cheating if I copy 100% of a paper from the internet.
It is not really cheating if I only copy 10% of a paper from the internet.
It is not really cheating if the assignment does not count for a grade.
It is not really cheating if the assignment does not count for more than 10% of the course grade.
I allow other students to use my answers on an exam.
I copy answers from other students on exam(s).
I allow students to take credit for my work when we work on a group project.
I take credit for the work of other students when we work on a group project.
It is wrong to take credit for the work of other students on a group project.
It is wrong to take copy the answers of another student's homework for a grade.
It is wrong to take credit for an essay copied mostly from an internet source.
I cheat because of the pressures my family put on me to succeed in college.
I cheat because of the importance of grades in a competitive job environment.
I cheat because I do not want to do the work.
I cheat because I do not know how to do the work.
I cheat because I do not have the time to do the work because of my job.
I cheat because I do not have the time to do the work because of my family obligations.
If I saw another student cheating on an exam, I never would report that student to my instructor.
If I saw another student cheating on an exam, I always would report that student to my instructor.
I am more likely to cheat in a class outside my major.
If I saw another student cheating on an exam, I might report that student to my instructor depending on my friendship with the student.
If I saw another student cheating on an exam, I might report that student to my instructor depending on the severity of the cheating.
If I saw another student cheating on an exam, I might report that student to my instructor depending on my relationship with the instructor.
I am more likely to cheat in a class where I do not like the instructor.
I am more likely to cheat in a class in my major, because those grades really matter.
I am more likely to cheat in a class I am forced to take but do not want to take.

Appendix 2. Results for frequency questions

Question
I have seen other college students cheat on an exam
I have cheated on a college exam
I have seen other college students take credit for work completed by other students
I have taken credit for work completed by other students
I have turned in another student for cheating on an exam.
I have turned in another student for cheating on homework.
I have turned in another student for cheating on a group assignment.
I have turned in another student for cheating on an essay copied from the internet.
This semester, I have seen other college students cheat on an exam
This semester, I have cheated on a college exam
This semester, I have seen other college students take credit for work completed by other students
This semester, I have taken credit for work completed by other students
This semester, I have turned in another student for cheating on an exam.
This semester, I have turned in another student for cheating on homework.
This semester, I have turned in another student for cheating on a group assignment.
This semester, I have turned in another student for cheating on an essay copied from the internet.

AN ANALYSIS OF NURSE BURNOUT IN THE EMERGENCY DEPARTMENT

Brock Sexton

Lauren Klein Levine

Debra Flores

Texas Tech University Health Science Center

ABSTRACT

Emergency Departments (ED) are known for their high-stress environment as patient care can be unpredictable. Because of this environment, burnout among nurses is exceptionally high in the emergency department. Burnout rates continue to rise, and this is problematic for the profession. However, there is now research demonstrating how to combat burnout effectively. Burnout symptoms are identified as emotional exhaustion or compassion fatigue, stress, depersonalization, and lack of job satisfaction. The common causes of nurse burnout in the ED include workplace environment, stress performance, and lack of leadership support. When an ED nurse is experiencing the symptoms of burnout, it will have the potential to harm both the patients and the organization. This paper will focus on recognizing the symptoms of nurse burnout, its cause, searching for solutions to address this issue, and proposing a new workplace preventive program that focusing on alleviating the stressors of nurse burnout in the ED.

Key Words: nursing, burnout, Emergency Departments, nurse burnout, workplace, turnover

INTRODUCTION

Burnout among skilled nurses is problematic for many global healthcare systems, with the Emergency Department (ED) consistently being one of the leading areas of highest professional burnout and turnover. The United States' pressure-filled EDs are replete with complex patients presenting a wide range of injuries or illnesses. When this pressure is added to the ever-present expectation to provide quality and patient-friendly services in a poor working environment, the emotional wounds that nurses may suffer from traumatic events can produce a perfect storm of conditions that leads to ED nurse burnout (Hunskater et al., 2015). A study in 2010 found that nearly 82% of Emergency Department nurses were at risk of professional burnout (Hooper et al., 2010). There were seventeen studies

throughout 25 years of research that found on average, nearly 25% of emergency nurses suffer from burnout symptoms; however the burnout rate will differ depending on the location of the facility and the internal work environment (Adrianenssens et al., 2015). The importance of caring for our nurse's emotional needs while providing external support is vital when insisting on quality of care for those patients that come through the ED. This departmental issue is fixable, but it will take a great deal of commitment to change the working environment if an organization hopes to retain staff members.

STAFF BURNOUT IN THE ED

Evidence suggests emergency department nurses experience higher burnout and compassion fatigue and less compassion satisfaction (Hooper et al. 2010). However, within the emergency department, emergency physicians have been shown to have a higher level of burnout compared to nurses (Moukarzel. et al., 2019). Nevertheless, the rate of workplace violence is higher among nurses than physicians indicating increased rates of burnout in nursing (Sachdevaet al., 2019, Vincent-Hoper et al., 2020). It is critical for hospitals to address nurse burnout in the emergency room, in addition to physician burnout, because high burnout rates are an indicator of high turnover. Studies have shown that inadequate nurse staffing can potentially lead to poor patient outcomes, including missed or delayed care, missed deterioration, and additional ED visits resulting (Wolf et al., 2017).

BURNOUT OF ED NURSES NEEDS TO BE ADDRESSED

According to Maslach et al. (1996), burnout (BO) is a natural reaction to prolonged work-related stress that can gradually affect the individual mentally and physically. The themes most often associated with burnout include emotional exhaustion, depersonalization, and reduced job satisfaction. Bakhamis et al. (2019), also is define BO as the state of emotional exhaustion experienced as nurses take on more responsibilities than they can handle, thereby feeling unable to meet the job's demand and a failure to meet their patient's expectations. Burnout can occur to any individual working in the healthcare setting. Treating patients can take an emotional toll if specific preventive strategies are not in place to protect the staff, such as the nurses in the Emergency Department. Burnout is often interchangeable with compassion fatigue in research, even though there are minor differences between the two.

Compassion Fatigue (CF) differs from the definition of burnout, as the effects of compassion fatigue can contribute to nurse burnout in the ED without an intervention. Compassion fatigue is a sudden negative consequence of being involved in several patient traumatic events with nurses being highly empathetic and loss of compassion occurs (Hunskater et al., 2015). Prolonged feeling of CF can result in absenteeism, low job satisfaction, burnout, and ED nurse turnover, all

of which can directly impact patient care or the lack thereof (Hunskater et al., 2015) is necessary to address the issue promptly, since nurse burnout in the ED dramatically contributes to the existing nurse shortage, the rising cost of turnover and can hinder the organization's ability to make future improvements such as additional staffing or resources.

Some of the other signs of nurse burnout in the ED are depersonalization and reduced levels of job satisfaction. Depersonalization is when nurses become disengaged from their patients and peers, ultimately losing the caring, humane aspect of their personality that is often a benefit in the health profession (Henderson, 2015). The concern of depersonalization among ED nursing staff is the potential increase in medical errors if these embattled nurses may be "going through the motions" when providing care to patients. Compassion fatigue can lead to medical history errors, charting, and medication distribution; this problem can have significant consequences, since the author stated that nearly 63% of human errors could be preventable considering that they are within the nurses' daily routine (Henderson, 2015). Another sign of nurse burnout is low job satisfaction. Studies indicate that this component of burnout is an essential indicator of potential nurse turnover, especially since low job satisfaction makes retention and recruitment difficult in a tight job market for quality specialty nurses such as ED nurses (Hooper et al., 2010). The causes of burnout among ED nurses can vary from facility to facility; however, one of the themes in the research is the work environment (e.g., workplace violence, overcrowding in the ED, stress from the pressure to perform, and lack of support from leadership).

LITERATURE REVIEW

Several factors are involved in understanding the burnout syndrome plaguing the nurses who work in United States Emergency Departments from identifying symptoms, causations solutions to reduce burnout effectively. The first step for hospital administrators is to identify the symptoms of potential burnout before it manifests into the nurses leaving the department or the profession. A literature review conducted by Bakhamis et al. (2019) asserted that one of the most effective tools to measure potential burnout is the Maslach Burnout Inventory (MBI). The MBI survey tool can gather data from staff to determine who is at risk of potential burnout using questions from the three themes: emotional exhaustion, depersonalization, and inefficacy. Another way for administrators to identify potential burnouts within the ED is using the Professional Quality of Life Scale version 5 (ProQOL 5). This measurement allows the administrators to measure both the prevalence of burnout and compassion fatigue (Flarity et al., 2013; Hunsaker et al., 2015). This study found that 54.1% of ED nurses were at risk of burnout (Hunsaker et al., 2015). A study using the ProQOL 5 survey to measure the risk of burnout before and after the intervention was implemented at a Level I trauma center in the U.S. The results from a survey showed that nearly 42% of the

staff were at risk of burnout, nearly 25% felt that they were overwhelmed, and roughly 16% were at high risk of burnout (Berg et al., 2016).

The recommended coping strategies within the team varied from groups to individual strategies as the preference depended on the individual. These measurement tools are relevant to this proposal. Both surveys will act as an effectiveness scale with surveys being deployed before implementing the proposal and after to determine if the programs were successful in reducing the potential stressors of nurse burnout in the ED.

COST RELATED TO BURNOUT

When an ED nurse is suffering from symptoms of burnout, it can have detrimental effects on patient safety. There is a clear correlation between nurse burnout and patient safety as a compromised nurse increases the potential of medical errors like healthcare-associated infections while being treated (Cimiotti et al., 2012). Healthcare-associated infections can include urinary tract and surgical site infections which can cause mortality, morbidity, and loss of revenue for the organization. The risks of infection can be preventable (Cimiotti et al., 2012). Cimiotti et al. (2012) found that the average cost per urinary tract infection ranged from \$749 to \$832, while surgical site infections can range from \$11,087 to \$29,443 (Cimiotti et al., 2012).

The cost of burnout of ED nurses for each hospital organization will vary from facility to facility based on several factors, including the location, demographic, and type of facility. For example, a study on the cost of burnout among emergency trauma professionals in the state of West Virginia found that the effect of burnout leads to turnover, which can financially cost the organization somewhere in the range of \$65,000 to nearly \$250,000 in recruitment and loss wages for each ED personnel loss to burnout both nurses and physicians (Bethea et al., 2020). The cost of burnout is calculated in patient safety and outcomes. A study of nearly 95,500 nurses from various settings demonstrated that patient safety had been negatively affected by nurse burnout in several facets: 19.4% increase in mortality rates, 36% increase of nurses miss critical information on patient's health, and nearly 7% increase in readmissions (McHugh et al., 2011).

WORK ENVIRONMENT CAUSATIONS

The work environment is one of the instrumental themes measuring the effectiveness of nurses in the ED. A hostile environment can further intensify nurse burnout or turnover, while a positive environment can help with the recruitment and retention of ED nurses. Some attributes that can negatively affect the work environment for ED nurses include workplace violence (WPV), personal stress, and lack of leadership involvement. The issue of workplace violence in the ED should be a key focus for administration since this department has a higher

possibility of WPV that can cause mental or physical injury to the nurses contributing to burnout (Rozo et al., 2017). The ED experiences a higher average of WPV than other units as patients under the influence of substances, mental illness, or severe pain are often seen in the ED and are prone to violent outbursts. The concern with WPV associated with nurse burnout in the ED is that when a nurse experiences workplace violence from a patient, it can create prolonged stress as they begin to fear the next possible WPV event affecting their job performance and quality of patient care and potentially lead to burnout. A longitudinal study performed by Kowalenko et al. (2013) in six hospitals in two states found that workers in the ED will, on average, experience nearly 5.5 workplace violence events (WPV) per year. Workplace violence events are one of the highest rates among healthcare professionals, second only psychiatric nurses. The violence can result in physical, emotional, and psychological distress for the nurses that can eventually progress into the symptoms of burnout (Kowalenko et al., 2013; Speroni et al., 2014).

There is ample evidence to support that those working in the ED are predisposed to developing burnout symptoms such as compassion fatigue and personal stress regardless of coping strategy. Stress is another theme frequently cited as a contributor to burnout among ED nurses. According to Hersch et al. (2016), one course of action to reduce the prevalence of burnout is to manage the stress through education and training programs, personal coping strategies, and developing an organizational approach to improve resilience among ED nurses. Resilience in ED nurses are critical to reducing burnout and turnover since this skill can help them tolerate the mental stress due to job demands. Building resilience encourages nurses to adapt to adversities they may face while maintaining a positive outlook in the workplace (Wei et al., 2019). Fostering resiliency can be done through a series of education/training programs to equip nurses with the necessary knowledge on handling stressful situations while ensuring the traumatic events do not affect their ability to care for the patient (Wei et al., 2019).

Leaders in an organization are essential to implementing any relevant changes to reduce burnout among ED nurses. The effectiveness of the changes starts with hospital administrators and nurse managers' willingness to change the department culture for the betterment of the staff members like the ED nurses (Gorman, 2019). The lack of leadership support contributes to nursing burnout as many staff members in the literature discuss the disconnection between clinical staff and administrators. According to Gorman (2019), healthcare leaders often disregard the mental health of their staff and make unilateral decisions for the department without staff input for cash flow purposes regardless of the backlash on their staff. There is a general understanding among healthcare professionals that specific parts of the ED environment lack control at times; however, the facility's leadership can enact strategic support systems to reduce stressors of burnout among ED nurses. Some leadership changes can include creating a more positive environment to reduce burnout by actively involving clinical staff in decision making, sharing

specific operational responsibilities, and developing a leadership rounding program to encourage communication between the two groups (Adams et al., 2019).

IDENTIFICATION AND DISCUSSION OF SOLUTIONS TO THE ISSUE

Nurse burnout continues to be problematic for healthcare organizations, including the ED. Burnout affects both the staff members and the patients they care which can negatively affect the organization. Organizations are continuously seeking new strategies to address burnout among ED nurses as this issue worsens. Prevention is the most effective approach to reduce burnout to eliminate the environmental stressors to help current nurses prevail in a high-stress working environment.

STRESS AND RESILIENCE

In order to mitigate burnout symptoms among nurses in the ED, education and training to identify compassion fatigue and burnout symptoms is essential. The factors that contribute to nursing burnout in the ED may vary from facility to facility. However, the responsibility falls on the administrator or project manager to develop an organization-specific approach to foster the resilience of its own ED nurses, such as education or training (Wei et al., 2019). A burnout education program proposal included explanations of the types of stressors within the ED that can contribute to burnout (Flarity et al., 2013). Another aspect of an education program is making additional resources available for the ED nurses on stress management, resiliency strategies, and theoretical prevention strategies discussed in the lecture. This education allows the nurses to control their livelihood by understanding when it is too much to handle by themselves and when it is time to seek help (Flarity et al., 2013). Further education on identifying burnout through self-assessment by the ED nurses or in their peers has improved burnout awareness and allowed nurses to seek help before the symptoms take a toll on their mental health and affect their ability to provide quality care.

One of the more cost-effective methods of reducing burnout among nurses in the ED is implementing mental stress management programs that focus on providing intervention to those in a high-stress environment with unpredictable schedules. A web-based program called “BREATHE” was developed in 2014 by the ISA group with the primary objective to improve workforce health promotion (Dutton & Kozachik, 2020). This study used this web-based program to measure six hospitals’ nursing staff stress levels before and after implementing of the program (Hersch et al., 2016). The study wanted to demonstrate the effectiveness of relaxation and cognitive-behavioral techniques in helping nurses to cope with their profession’s mounting stress. The program focused on helping nurses identify stress management tools, respond to specific stressors, effectively communicate

with peers or administrators, and the physical strain stress has on one's body (Hersch et al., 2016). The study's outcome of the study showed that the experimental group that received the "BREATHE" program had significantly reduced scores on the stress scale compared to both the control group and their pre-intervention scores after three months of the program. One of the benefits to implementing the web program is convenient access for the nurses as scheduling is unpredictable in the ED, and the cost is estimated to be around \$2,500 for up to a hundred users, which could be more cost-effective than in-person stress management programs (Hersch et al., 2016; Dutton & Kozachik, 2020).

A study on stress management suggests implementing an innovative room that offers a safe space that allows ED nurses to de-stress after a traumatic event or feeling overwhelmed. The space included various tools to create a calm environment and several requested tools from a questionnaire given to the ED staff beforehand. In this project, the implementation of a serenity space in a regional ED effectively boosted nurse job satisfaction and minimized staff member in the ED. This intervention project resulted in several ED nurses stating that the innovative room reduced their work stress for a short time. This space provided a time to gather their thoughts and feel more focused (Salmela et al., 2020).

WORKPLACE VIOLENCE

There are various solutions to workplace violence in the ED that can be valuable to decreasing stress, lower risks of burnout, and increase safety for both the staff and patients. A WPV solution plan is necessary for an organization as the aftermaths of these events can be costly to the organization due to workers' compensation, leaves of absence, and turnover in the ED. A solution to WPV is incorporating a more effective reporting process when a violent event occurs. According to Stene et al. (2015), the current reporting process of WPV events for nurses in the ED of an academic trauma facility was inconsistent because they felt that it was part of the job. The goal was to reduce under-reporting of violence in the ED by implementing an informal reporting tool that complemented the formal online reporting process. The study found that the formal process (15-20min.) was not time efficient, especially in the ED. Therefore, the implementation of the informal tool is more efficient according to the reporting time (1-2 min), primarily since the ED nurses identify the patient's name, medical record number, the date the incident occurred, and a brief description of the incident. The informal process can be done on paper or online to ease the time constraint nurses have while working in the ED. The intervention project also included an educational program that discusses what qualifies as WPV, the physical precursors of potential violence, and why reporting the event is critical to the staff and the patients (Stene et al, 2015). The education program and reporting tool effectively reduced needless stress caused by violence in the ED as nurses were able to trust that leadership would use data to develop a more detailed prevention plan or develop a safety team in the near future.

DEBRIEFING TO MITIGATE BURNOUT

Debriefing is a method for healthcare leaders to decrease workplace stress and increase work engagement (Schmidt & Haglund, 2017). Debriefing can be an effective tool in reducing compassion fatigue while also reducing the risks of burnout among ED nurses. The Personal Reflective Debrief (PRD) is a tool that systematically creates a debriefing and then adds personal reflection in order to incorporate further social support between administration and nurses. The study performed by Schmidt and Haglund (2017) used the PRD method during one-on-one interventions with ED nurses that suffered from a traumatic event and found debriefing to alleviate stress and open a line of communication as nurses often felt like they may have made a mistake. The PRD tool is beneficial to reducing two potential stressors of burnout in unwanted stress and lack of communication between staff and leadership.

LEADERSHIP'S INFLUENCE

The leadership at a community hospital ED in Texas performed a study by implementing a Cultural Change Toolkit to determine if the toolkit will improve the nursing environment and reduce burnout of ED nurses in their facility (Adams et al., 2019). The toolkit included additional information on positive practice changes that individual nurses could self-perform and functional organizational changes that can reduce burnout of ED nurses by shared decision-making, increased recognition/reward, and increased leadership support. The various intervention strategies presented include changing the workspace to accommodate the nurses and open a communication/feedback system between peers and leadership (Adams et al., 2019). Development of leadership rounding to improve social support and communication between leaders and nursing staff in the ED is recommended. The informal feedback system demonstrated further leadership involvement, which ED nurses stated improved their job satisfaction and trust in leadership. The findings of the implementation of the Cultural Change Toolkit indicated a reduction in the self-reported number of burnouts among nurses within the facility, and no ED nurse turnover occurred during the study (Adams et al., 2019).

CONFLICTS OF THE SOLUTIONS

These proposed solutions are methods to combat burnout by reducing one of the three components: Compassion fatigue, stress, and job dissatisfaction. The solutions have their challenges when attempting to implement these strategies in the hospital. All parties that work in the emergency department must buy in the cultural change as most of the proposals include working in tandem with peers and hospital leaders. Another obstacle is the small sample size studied when other

researchers have implemented these projects, and the solutions may prove to be less effective in one ED than another. The proposals are cost-effective strategies in theory if the organization can save costs by reducing absenteeism, turnover, and medical errors associated with nurse burnout.

IMPLANTATION PLAN PROPOSAL

The development and implementation of this proposal are estimated to take six months until the organization can improve these programs within the following year. The majority of the proposal includes programs that can be cost-effective and easy to implement for an organization with leadership approval. One of the first steps of the proposal is receiving approval from the organization's stakeholders, such as hospital administrators, nursing managers, mental health counselors/chaplains, employee wellness staff, and ED nurses. The project manager should be responsible for gathering data on the current nurses in the ED by using the Maslach Burnout Inventory; this instrument can be helpful to understand the current state of the ED nurses' emotions, and their perceptions of their current working environment. The research for the project will also include the ProQOL survey as a pre-/posttest examine the project's effectiveness.

PREVENTION EDUCATION AND TRAINING

This proposal will provide an educational program that will give ED nurses knowledge on identifying symptoms of burnout within themselves and their peers. The education program will be an interactive group lecture of ED nurses starting with a two-hour education session with a PowerPoint developed by the project manager on identifying the symptoms of burnout, discuss potential external causes of stress in the ED, and provide theoretical prevention strategies for the organization as well as self-help strategies. The next aspect of the education program is a group discussion to allow nurses to converse about the lecture's content and ask questions regarding the material with the project manager. The discussion will include both group exercises of burnout symptoms and examples for a visual representation to understand better the material and guided imagery exercise to provide a quick stress relief strategy used whenever needed.

The third part of the educational program group discusses the self-help strategies given in the lecture having the group discuss their thoughts on the potential strategies and offer to share their coping strategy for workplace stress and if it is adequate to relieve the stress or build resilience. Secondary resources provided at the end of the education program, includes a printed copy of the presentation lecture; pamphlets that will include all of the services offered to all employees via the organization and contact information for those services, and another pamphlet that will give ED nurses access to educational resources on stress and compassion

fatigue created by the project manager. The primary goal of the educational resources is to help ED nurses gain a better understanding of burnout, how to start developing personal strategies to prevent the symptoms and locate additional help is located if needed.

The next step of the proposal is to implement a de-stressing method such as the web-based program “BREATHE” that would allow the ED staff to have access to coping techniques to handle various stressful events, including recommended response to the stress triggers if they occur. The preventive stress program would be available for the ED staff either at work or at home. The web-based program “BREATHE: Stress Management for Nurses,” created by the ISA Group has an annual cost starting around \$2,500 for the first hundred users, which should be enough to cover the ED nursing staff. The program entails modules that would ask the ED nurse to identify stressors, assess their stress level, their current coping strategy, and give recommended coping strategies. Hopefully, the web-based program can prevent the development of burnout symptoms by attacking the problem at the onset of stress rather than waiting until it is too late.

WORKPLACE ENVIRONMENT

Workplace environment violence (WPV) is one of the more challenging areas to combat nurse burnout in the ED, but it could also be the most effective if the implementation is done correctly. The first intervention would be a workplace violence program that increases the nurse awareness of WPV provides information on handling violence. The training implementation will occur as a hybrid-training program that combines a web-based slide presentation that defines WPV, identifying potential precursors of violence such as mental or behavioral cues, in-person exercises provided by the project manager to practice the responses when violence occurs in the ED and apply the education given through the presentation. The slide presentation created by the project manager and their team will highlight the importance of reporting WPV and offer further detail on the informal reporting tool to help mitigate the response time between when a WPV event occurs, and the report is submitted.

The informal tool requires the ED nurses to identify the patient’s name, medical record number, the date of the incident, and a brief description of the incident. ED nurses can access the tool electronically through EMR or on a paper form placed at the charge nurse desk, the Serenity room, and inside the mental health counselor’s office. The paper-based reporting tool will be on a bright colored paper for easy identification and allow ED nurses to complete the WPV form in real-time. The form is put in the patient’s paper file until the patient services have concluded then the ED nurse will transfer the WPV report to the EMR. The EMR will include an additional tab on documentation that allows nurses to document the WPV report on the patient’s record. Once the report is submitted, the ED leaders can use the reports as proof that a WPV event occurred and be used in a legal

course of action if an ED nurse or any staff member experienced severe pain. Internal record keeping will inform ED nurses of potential violent high-risk patients and provide sufficient data to develop a safety committee in the near future. The patient's medical record identified as high-risk for potential violence is marked to inform personnel that extra caution is warranted. Hospital security will be on standby for patients who exhibited violence during care and they will be monitored until discharge.

Another proposal for improving the work environment would be to introducing a "Serenity Room" for staff in the ED to go to decompress. ED staff members will have the opportunity to be a part of the decision-making about what the room would entail in order to help alleviate stress and reduce burnout. Some recommended items by leadership include reclining chairs, office table and chairs, calming fragrance, and yoga mats. Leadership will embrace the idea of utilizing this space for the ED staff as they will incorporate policies that will allow professionals to take a break from the stress to use the serenity room and other staff members can cover for a short amount of time. The room will be in a break room close to the ED to allow for the nurses to utilize without the worry of neglecting their duties.

TRANSFORMATIONAL LEADERSHIP APPROACH

The project manager will incorporate a staff feedback program or a suggestion box in the serenity room to allow staff to voice their thoughts or concerns without the risk of being retaliation. The staff feedback program will also include an informal method to gather feedback by incorporating a leadership rounding that encourages the leadership team to walk through the ED once every two weeks to communicate with the ED staff in order to get a measurement on staff satisfaction but also allow staff members to discuss their thoughts and concerns directly to the administration. The feedback responses will be discussed between the project manager and leadership to see if any additional changes will be offered to ED nurses and staff members within reason. Potential changes from staff feedback would be rolled out by email to the ED staff on how leadership intends to rectify those matters. This process has an ulterior outcome as ED nurses have felt some job satisfaction and less stress when they can visually see their leaders willing to be involved with the staff members. A change in leadership style may be needed to foster a stronger relationship between clinical staff and administrators as a supportive relationship can create positive environment and reduce unnecessary stress which reduces potential burnout of ED nurses. The recommendation would be to develop a transformational leadership approach to allow the leaders to work in tandem with the seasoned ED staff to give more autonomy to the departmental staff. A small team comprised of seasoned ED staff members, including nurses, nurse managers, and physicians, to act as an intermediary on decisions regarding the ED.

The project manager will implement mandatory debriefing sessions after a traumatic event such as workplace violence or a loss of a patient occurs while the ED nurse was treating the patient. The nurse manager or leadership working in the ED would seek the ED nurse whom they deemed experienced a traumatic event and offer the opportunity to participate in the debrief after shift change or make a scheduled appointment within the next three days of the event. The nurse or project manager would need to communicate with other staff (e.g., human resource team, chaplain, and mental health counselors) to develop psychological coping strategies to discuss during the mandatory post-traumatic debriefing. The debriefing will include the shift nursing manager, ED nurse who experience the event, and either the counselor or the chaplain for emotional support. The session will be an informal tone with the ED nurse discussing the event using several interviews prompts to ensure the nursing manager gets the full scope of the event. The prompts will include recollection of how the event occurred, what went wrong, what went right, could it have been avoided, and if so, how could it be avoided. The ending of the sessions should involve the managers focusing on the positive takeaways and monitor the well-being of the nurse. The purpose of this strategy is to diminish any indications of fatigue or stress bottled up for a prolonged period without a release point. Stressful events are nearly impossible to avoid when working in the ED; debriefs are critical to offering an emotional release for the ED nurses and give the organization leaders a preview of the proposed WPV prevention strategy to determine effectiveness.

The project manager will propose developing a scheduled regular offering of a Personal Reflective Debrief (PRD) that proactively provides emotional support for all ED staff members. The objective of the debrief is to help nurses and leaders recognize the emotional symptoms of burnout or compassion fatigue early and facilitating intervention for the group or individual. The PRD will include separate sessions for those who want to schedule a session individually or with a group of staff members within the department. The debrief will follow suit on prompts from the mandatory sessions however; this debriefing session is optional for those ED staff who want to utilize the resource. For successful implementation, the PRD will be called after the shift weekly and announced well ahead of time so that nurses can schedule and plan to stay. The project manager, newly developed team of seasoned ED staff, and leadership will monitor the programs by determining the utilization rate of the rooms and debriefings in the beginning. The team will monitor the responses from nurses when WPV events occur before the intervention and responses after intervention. The proposal will be measured on effectiveness using the ProQOL survey as a posttest to examine if these programs effectively reduced the stressors of burnout among ED nurses.

CONCLUSION

Hospital leaders continue to seek strategies to reduce the growing problem of burnout symptoms among ED nurses to reverse the adverse chain reaction that

reduces an organization's ability to provide quality care. Burnout is a byproduct of several components working against the nurse and their workplace environment. The primary component of this problem includes emotional exhaustion, compassion fatigue, and stress. These components of burnout can be easy to identify but difficult to treat, especially in a stressful environment such as an emergency department. The best course of action is to improve the specific areas that leaders can control, such as the working environment, and offer resources or tools to cope with the stress and build resiliency. Organizational support is one of the most effective methods to battle nurse burnout in the ED on several fronts, including stress management and increasing job satisfaction if the nurses feel their leaders recognize them. A cost-effective method of making minimal changes to the work environment is more beneficial to the organization, nurses, and patients, especially since this proposal allows the administrator to handle the factors that are under their control. The proposal will not eliminate all the burnout symptoms; however, the goal is to provide the nurses with the necessary tools required to be resilient against the stress of the environment and produce a positive workplace.

REFERENCES

- Adams, A., Hollingsworth, A., & Osman, A. (2019). The implementation of a cultural change toolkit to reduce nursing burnout and mitigate nurse turnover in the emergency department. *Journal of Emergency Nursing*, 45(4), 452–456. <https://doi.org/10.1016/j.jen.2019.03.004>
- Adriaenssens, J., De Gucht, V., & Maes, S. (2015). Determinants and prevalence of burnout in emergency nurses: A systematic review of 25 years of research. *International Journal of Nursing Studies*, 52(2), 649–661. <https://doi.org/10.1016/j.ijnurstu.2014.11.004>
- Bakhamis, L., Paul, D. P., 3rd, Smith, H., & Coustasse, A. (2019). Still an Epidemic: The burnout syndrome in hospital registered nurses. *The Health Care Manager*, 38(1), 3–10. <https://doi.org/10.1097/HCM.0000000000000243>
- Berg, G. M., Harshbarger, J. L., Ahlers-Schmidt, C. R., & Lippoldt, D. (2016). Exposing compassion fatigue and burnout syndrome in a trauma team: A qualitative study. *Journal of Trauma Nursing : The Official Journal of the Society of Trauma Nurses*, 23(1), 3–10. <https://doi.org/10.1097/JTN.0000000000000172>
- Bethea, A., Samanta, D., Kali, M., Lucente, F. C., & Richmond, B. K. (2020). The impact of burnout syndrome on practitioners working within rural healthcare systems. *The American Journal of Emergency Medicine*, 38(3), 582–588. <https://doi.org/10.1016/j.ajem.2019.07.009>
- Cimiotti, J. P., Aiken, L. H., Sloane, D. M., & Wu, E. S. (2012). Nurse staffing, burnout, and health care-associated infection. *American Journal of Infection Control*, 40(6), 486–490.

- Dutton, S., & Kozachik, S. L. (2020). Evaluating the outcomes of a web-based stress management program for nurses and nursing assistants. *Worldviews on evidence-based nursing*, 17(1), 32–38.
<https://doi.org/10.1111/wvn.12417>
- Flarity, K., Gentry, J. E., & Mesnikoff, N. (2013). The effectiveness of an educational program on preventing and treating compassion fatigue in emergency nurses. *Advanced Emergency Nursing Journal*, 35(3), 247–258.
<https://doi.org/10.1097/TME.0b013e31829b726f>
- Gorman V. L. (2019). Future emergency nursing workforce: What the evidence is telling us. *Journal of Emergency Nursing*, 45(2), 132–136.
<https://doi.org/10.1016/j.jen.2018.09.009>
- Henderson, J. (2015). The effect of hardiness of education on hardiness and burnout on registered nurses. *Nursing Economics*, 204–209.
- Hersch, R. K., Cook, R. F., Deitz, D. K., Kaplan, S., Hughes, D., Friesen, M. A., & Vezina, M. (2016). Reducing nurses' stress: A randomized controlled trial of a web-based stress management program for nurses. *Applied Nursing Research*, 32, 18–25. <https://doi.org/10.1016/j.apnr.2016.04.003>
- Hooper, C. Craig, J., Janvrin, D. R., Wetsel, M. A., & Reimels, E. (2010). Compassion satisfaction, burnout, and compassion fatigue among emergency nurses compared with nurses in other selected inpatient specialties. *Journal of Emergency Nursing*, 36(5), 420–427.
- Hunsaker, S., Chen, H. C., Maughan, D., & Heaston, S. (2015). Factors that influence the development of compassion fatigue, burnout, and compassion satisfaction in emergency department nurses. *Journal of Nursing Scholarship : An Official Publication of Sigma Theta Tau International Honor Society of Nursing*, 47(2), 186–194.
<https://doi.org/10.1111/jnu.12122>
- Kowalenko, T., Gates, D., Gillespie, G. L., Succop, P., & Mentzel, T. K. (2013). Prospective study of violence against ED workers. *The American Journal of Emergency Medicine*, 31(1), 197–205.
<https://doi.org/10.1016/j.ajem.2012.07.010>
- Maslach, C., Jackson, W. E., & Leiter, M. P. (1996). Maslach burnout inventory manual (3rd ed.). New York, NY: John Wiley & Sons, Inc.
- McHugh, M. D., Kutney-Lee, A., Cimiotti, J. P., Sloane, D. M., & Aiken, L. H. (2011). Nurses' widespread job dissatisfaction, burnout, and frustration with health benefits signal problems for patient care. *Health Affairs (Project Hope)*, 30(2), 202–210. <https://doi.org/10.1377/hlthaff.2010.0100>
- Moukarzel, A., Michelet, P., Durand, A., Sebbane, M., Bourgeois, S., Markarian, T., Bompard, C., Gentile, S., (2019) Burnout Syndrome among Emergency Department Staff: Prevalence and Associated Factors, *BioMed Research International*, 2019, <https://doi.org/10.1155/2019/6462472>
- Rozo, J. A., Olson, D. M., Thu, H. S., & Stutzman, S. E. (2017). Situational factors associated with burnout among emergency department nurses. *Workplace Health & Safety*, 65(6), 262–265.
<https://doi.org/10.1177/2165079917705669>

- Sachdeva, S., Jamshed, N., Aggarwal, P., & Kashyap, S. R. (2019). Perception of Workplace Violence in the Emergency Department. *Journal of emergencies, trauma, and shock*, 12(3), 179–184. https://doi.org/10.4103/JETS.JETS_81_18
- Salmela, L., Woehrle, T., Marleau, E., & Kitch, L. (2020). Implementation of a "Serenity Room": Promoting resiliency in the ED. *Nursing*, 50(10), 58–63. <https://doi.org/10.1097/01.NURSE.0000697160.77297.06>
- Schmidt, M., & Haglund, K. (2017). Debrief in emergency departments to improve compassion fatigue and promote resiliency. *Journal of Trauma Nursing : The Official Journal of the Society of Trauma Nurses*, 24(5), 317–322. <https://doi.org/10.1097/JTN.0000000000000315>
- Speroni, K. G., Fitch, T., Dawson, E., Dugan, L., & Atherton, M. (2014). Incidence and cost of nurse workplace violence perpetrated by hospital patients or patient visitors. *Journal of Emergency Nursing*, 40(3), 218–295. <https://doi.org/10.1016/j.jen.2013.05.014>
- Stene, J., Larson, E., Levy, M., & Dohlman, M. (2015). Workplace violence in the emergency department: Giving staff the tools and support to report. *The Permanente Journal*, 19(2), e113–e117. <https://doi.org/10.7812/TPP/14-187>
- Vincent-Höper, S., Stein, M., Nienhaus, A., & Schablon, A. (2020). Workplace Aggression and Burnout in Nursing-The Moderating Role of Follow-Up Counseling. *International journal of environmental research and public health*, 17(9), 3152. <https://doi.org/10.3390/ijerph17093152>
- Wei, H., Roberts, P., Strickler, J., & Corbett, R. W. (2019). Nurse leaders' strategies to foster nurse resilience. *Journal of Nursing Management*, 27(4), 681–687. <https://doi.org/10.1111/jonm.12736>
- Wolf, L. A., Perhats, C., Delao, A. M., Clark, P. R., & Moon, M. D. (2017). On the Threshold of Safety: A Qualitative Exploration of Nurses' Perceptions of Factors Involved in Safe Staffing Levels in Emergency Departments. *Journal of emergency nursing*, 43(2), 150–157. <https://doi.org/10.1016/j.jen.2016.09.003>

A TWO-STEP APPROACH IN PROJECT PORTFOLIO SELECTION

Kamy Farahbod
Jay Varzandeh

California State University, San Bernardino

ABSTRACT

There is a fundamental difference between project management and project portfolio management that has been recognized by all project managers and the Project Management Institute (PMI) for many years. While project management is about doing the selected projects right, project portfolio management helps us to do the right projects. Given the mixture of many qualitative and quantitative factors/concerns, such as the returns, risks, and strategic issues, selecting the right portfolio could be a challenge for project managers and the Project Management Office (PMO). The purpose of this paper is to identify the various methods that are currently being used to create the best project portfolio, and to further propose an approach that has not yet been considered by neither academics nor professionals for this purpose. It is suggested that a two-step approach consisting of Data Envelopment Analysis (DEA) and 0-1 integer programming will enable the project selection committees to objectively evaluate the potential project portfolios and select the ones with the highest level of efficiency.

Key Words: Project Portfolio Management, Data Envelopment Analysis, 0-1 Integer Programming, Optimal Project Portfolio

INTRODUCTION

Historically, business organizations have used elaborate approaches to evaluate, prioritize, and select their portfolio of projects, as shown in Table 1. While these approaches range from simple judgements to sophisticated schemes, their importance to overall success of the organization cannot be overstated. According to PMBoK, the strategy of an organization is an action plan to achieve its business goals and objectives, and it determines the portfolio of projects and programs that the organization will execute (Sangher, 2019). Most organizations form committees within their project management offices (PMOs) that are commissioned to meet their strategic

objectives and further increase the likelihood of realizing the desired return on investment. Of course, not all projects have a strategic disposition and are evaluated carefully, but for the projects that are vital to the competitive performance of the organization, project portfolio management is necessary in determining the priority of the projects and making limited resources available for their completion.

Project selection models should be realistic, capable, flexible, easy to use, cost effective, and easily computerized (Pinto, 2010). By realistic, we mean that the model should reflect objectives and strategic goals of organizations. Capability refers to the ability of the model to simulate different scenarios and optimize the decisions. Flexible models can be modified for application in the presence of changes. Ease of use indicates the model is simple and understandable in all areas of the organization. Cost effective refers to the low cost of data gathering and modeling relative to the project cost. And finally, easily computerized suggests the model can be easily applied to many projects and solved effortlessly using computer technology for comparison purposes.

Table 1 represents the most widely accepted methods for project selection. Each method presents a particular combination of advantages and disadvantages that must be considered by the project selection committee. Archer, et al. (2004, p 244) suggest “scoring models are probably the easiest to use, and weighted factor scoring method has been shown to be preferred in different kind of projects and industry sectors.” However, the importance of using more comprehensive methods that allow for a certain level of sophistication to evaluate the duration and the mix of vital strategic projects is self-evident. One such approach is data envelopment analysis.

Using a multi-step process in the portfolio selection process is not new. Keren et al. (2014) used a combination of Analytical Hierarchy Process (AHP) and DEA to select a project manager; and additionally, Dia (2009) used a 4-step process in order to select a portfolio of stocks. It is important, however, to ensure that the steps are easily understood, supported, and applied in a project environment where the stakeholders usually come from different functions with various personalities and educational/technical abilities.

DATA ENVELOPMENT ANALYSIS

Frontier analysis, also called data envelopment analysis (DEA) has been used extensively in many business settings. Malhotra, et al., (2010) use DEA to rate corporate bonds. Soheilirad, et al. (2018) provide an example of the application of DEA in supply chain research. This method was first introduced in 1978 by Charnes, Cooper, and Rhodes to measure the relative

efficiency of decision-making units (DMUs) in organizations. Using DEA and mathematical programming, the performance of peer units can be evaluated. DEA examines the resources used by the DMU's (inputs) and their outputs. A DMU is efficient if no other DMU can produce more outputs for the same or less quantity of inputs, or can produce the same output for less inputs. Efficient DMUs are located on the efficient frontier, enabling the analyst to identify the reasons for the inefficiency of the other DMUs. DEA helps us reveal the weaknesses and strengths of the DMUs, prepare the DMUs to meet their customers' needs, and pinpoint the opportunities to improve the existing operations and to create new products, services, and processes. It is a non-parametric approach, and as such, has the advantage of not assuming any particular shape or form for the efficient frontier function. This, plus the flexibility of DEA in the treatment of the inputs and the

Table 1 – Project Selection Methods

Nonnumeric Project Selection Methods:		
	Sacred Cow*	
	Operating Necessity*	
	Competitive Necessity*	
	Product Line Extension*	
	Comparative Benefit Model*	
	Sustainability*	Q-Sort*
Numeric Project Selection Methods		
	Profit/Profitability*	
		Payback period*
		Discounted Cash Flow*
		Internal Rate of Return*
		Benefit-Cost ratio*
		Real Options*
	Scoring**	
		Unweighted 0-1 Factor**
		Unweighted Factor Scoring**
		Weighted Factor Scoring**
	Discovery-Driven Planning*	
	Mathematical Programming***	
		0-1 Integer Programming***
		Goal Programming Model***
Nonnumeric/Numeric Project Selection Methods		
	Strategic Multi-Attribute Evaluation****	
	Analytic Hierarchy Process*****	

*Meredith et al. (2017)

**Archer et al. (2004)

***Ghasemzadeh, et. al. (1999)

**** Sarkis et.al. (1997)

***** Strang (2011)

outputs, makes it one of the most widely used methodologies in business analysis. Most recent applications of DEA deal with measuring the efficiency and profitability of supply chains (Amirteimoori, et al., 2011). The purpose of this research is to identify the most efficient projects, given the time and budget constraints, so that they are selected for the company's project portfolio. One important advantage of DEA over the typical statistical approaches that compare DMUs to an "average" DMU is that DEA compares each DMU with the "best" DMU, given the amount of inputs and outputs for each DMU. DEA can also pinpoint specific inefficiencies of each DMU. However, this paper uses this methodology for the sole purpose of identifying the most efficient projects and there is no need for analyzing the efficiency of the inefficient projects. Once the most efficient projects are identified, given the numerical and nonnumerical constraints, a 0-1 integer programming model can be used to identify the best portfolio.

0-1 INTEGER PROGRAMMING

It is well known that "0-1 integer variables can be used to model situations in which k projects out of a set of n projects must be selected, as well as situations in which the acceptance of one project is conditional on the acceptance of another" (Anderson et al., 2019). The general formulation of these models includes the optimization of an objective function subject to a series of constraints that include binary variables that assume an optimal solution of "1," when the selection of a project is optimal, and assume an optimal solution of "0," when not selecting a project is optimal. This level of flexibility of the 0-1 integer programming enables the project selection committees to successfully create optimal portfolios (Ghasemzadeh et al., 1999).

In this paper, we use 0-1 integer programming for the purpose of finding the most efficient portfolio among all possible portfolios, given the constraints that the projects are facing.

PORTFOLIO SELECTION METHODOLOGY

As mentioned earlier, the proposed methodology is divided into two sequential steps. In the first step, the relevant inputs and outputs of the DMUs (projects) are pinpointed and preferences of the project selection committee are specified. Then, using DEA, efficiency ratios of the DMUs are calculated. In the second step, a 0-1 integer programming model designed to identify the most efficient portfolio of projects, given the organization's constraints, is formulated and solved.

This methodology provides both the simplicity of the modeling and the solving processes, while also providing ease of understanding and application for the project stakeholders. The data collection process for DEA and 0-1 integer programming is done simultaneously, allowing the methodology to generate a portfolio that is objective and based directly on organization's value system.

AN ILLUSTRATIVE CASE

For illustration purposes, we have chosen an IT company that is currently considering 39 projects that mostly require labor hours for consulting, software development and more (costs), other costs (including materials, permits, licenses, software, training, etc.), and time (in weeks). All of these resource requirements and times (inputs in DEA) are estimated in the preplanning phase of the projects' life cycles. Hopefully, the estimated budget at completion (BAC) is less than the contract value for each project, providing a reasonable profit. Of course, as is aforementioned, some projects are selected based on considerations other than profitability, and therefore, may result in losses. Projects 10, 12, 14, 15, and 36 in our case are expected to be completed at a loss. However, the management insists on doing the first two for operating necessity, competitive necessity, or other reasons.

Step 1: The Most Efficient Projects

In the first step, the most efficient projects are identified. Table 2 lists all 39 projects and the resulting efficiencies, using DEA. Projects 3, 9, 18, 21, and 22 are on the frontier of efficiency and are the most efficient. However, as mentioned earlier, other considerations such as the total costs, time, and other factors play decisive roles and impose constraints in project portfolio selections. A 0-1 integer programming analysis will enable the selection committee to find the most efficient portfolio, given all constraints and considerations.

Step 2: The Most Efficient Portfolio

Once the efficiency of the projects is determined, a 0-1 (binary) integer programming model can be used to find the best portfolio of projects. Each decision variable X_i can represent the inclusion/absence of a particular project in the portfolio, with $X_i = 1$ implying the inclusion, and $X_i = 0$ implying the absence of the project "i" in the optimal portfolio. Of course, all constraints challenging the selection process must be included in the model. As mentioned above, money losing projects 10 and 12 are selected

due to other considerations. However, there is no need to include projects 14, 15, and 36 as they will be completed at a loss.

Table 2 – Data Inputs and Output and Efficiency of Projects

Project	Cost of Labor	Other Costs	Duration (Weeks)	Contract Value	Efficiency
1	\$ 95,000.00	\$2,469,000.00	24	\$2,650,500.00	0.765
2	\$ 495,000.00	\$ 679,800.00	80	\$1,340,900.00	0.391
3	\$ 6,500.00	\$ 896,400.00	4	\$1,054,600.00	1.000
4	\$ 6,200.00	\$ 948,500.00	4	\$995,400.00	0.990
5	\$ 52,000.00	\$ 4,900.00	12	\$189,500.00	0.515
6	\$ 3,400.00	\$ 171,800.00	2	\$187,500.00	0.776
7	\$ 3,200.00	\$ 152,400.00	1	\$169,600.00	0.876
8	\$ 4,000.00	\$ 129,600.00	1	\$144,300.00	0.839
9	\$ 15,300.00	\$ 79,500.00	1	\$149,700.00	1.000
10	\$ 15,500.00	\$ 65,100.00	1	\$75,300.00	0.588
11	\$ 6,200.00	\$ 59,900.00	1	\$69,900.00	0.661
12	\$ 19,800.00	\$ 55,400.00	1	\$69,200.00	0.610
13	\$ 11,900.00	\$ 3,200.00	8	\$42,100.00	0.172
14	\$ 3,400.00	\$ 18,700.00	4	\$21,500.00	0.172
15	\$ 4,900.00	\$ 16,515.00	1	\$18,900.00	0.344
16	\$ 605,000.00	\$ -	48	\$1,125,600.00	0.832
17	\$ 475,400.00	\$ -	82	\$558,300.00	0.347
18	\$1,199,000.00	\$ -	50	\$1,408,500.00	1.000
19	\$ 300,100.00	\$ -	48	\$343,800.00	0.345
20	\$ 665,400.00	\$ -	52	\$789,300.00	0.539
21	\$ 35,800.00	\$ -	50	\$513,800.00	1.000
22	\$ 7,600.00	\$ -	8	\$240,600.00	1.000
23	\$ 15,100.00	\$ -	8	\$101,700.00	0.423
24	\$ 11,900.00	\$ -	12	\$100,900.00	0.376
25	\$ 47,500.00	\$ -	24	\$99,800.00	0.265
26	\$ 59,900.00	\$ -	24	\$91,200.00	0.234
27	\$ 59,900.00	\$ -	12	\$74,900.00	0.233
28	\$ 50,100.00	\$ -	24	\$69,800.00	0.184
29	\$ 40,200.00	\$ -	4	\$45,200.00	0.376
30	\$ 14,900.00	\$ -	16	\$43,800.00	0.149
31	\$ 11,800.00	\$ -	4	\$29,900.00	0.249
32	\$ 21,100.00	\$ -	4	\$28,500.00	0.237
33	\$ 11,900.00	\$ -	2	\$20,500.00	0.341
34	\$ 17,300.00	\$ -	12	\$19,800.00	0.072
35	\$ 14,950.00	\$ -	4	\$15,200.00	0.126
36	\$ 11,000.00	\$ -	4	\$10,400.00	0.086
37	\$ 8,900.00	\$ -	2	\$9,999.00	0.166
38	\$ 5,900.00	\$ -	12	\$74,900.00	0.401
39	\$ 10,000.00	\$ -	8	\$10,600.00	0.044

If we assume a total budget of \$3 million has been allocated and the maximum allowable time to finish a project is one year (52 weeks), then a 0-1 integer programming model that can maximize total efficiency of the portfolio given these constraints will identify the selected project for the most efficient portfolio, as shown in Table 3. Realistically, it is quite possible to receive partial payments for completed parts of the projects; if this is the case, then the constraints of the model would have to be modified to account for the funds as they become available in future weeks.

CONCLUSION

While project portfolio selection committees have quite a few alternative means for their selection processes, a more objective and comprehensive approach based on optimization of important factors, such as efficiencies, can improve the quality of the selected portfolio. This paper proposes a simultaneously broader and easier two-step approach to the project portfolio process. As shown in the illustrative case, data envelopment analysis can be used in the first step to identify the most efficient projects. Given the list of these projects, a 0-1 integer programming model that includes all the constraints and challenges facing the selection committee can be used to maximize the efficiency of the portfolio.

Given the power of the optimization methods that are used in this paper and the ease of their use, there is no doubt that this two-step approach should be added to the list of the available methods in Table 1 to enhance and improve the selection process.

Table 3 – The Portfolio of the Most Efficient Projects

Project	Total Estimated Costs
4	\$954,700.00
5	\$56,900.00
6	\$175,200.00
7	\$155,600.00
8	\$133,600.00
9	\$94,800.00
10	\$80,600.00
11	\$66,100.00
12	\$75,200.00
13	\$15,100.00
15	\$21,415.00
20	\$665,400.00
21	\$35,800.00
22	\$7,600.00
23	\$15,100.00
24	\$11,900.00
25	\$47,500.00
26	\$59,900.00
27	\$59,900.00
28	\$50,100.00
29	\$40,200.00
30	\$14,900.00
31	\$11,800.00
32	\$21,100.00
33	\$11,900.00
34	\$17,300.00
35	\$14,950.00
37	\$8,900.00
38	\$5,900.00
39	\$10,000.00

Total Cost of the Portfolio \$2,939,365.00

REFERENCES

- Amirteimoori, A. and L. Khoshandam. (2011). "A Data Envelopment Analysis Approach to Supply Chain Efficiency." *Advances in Decision Sciences*, Volume 2011.
- Anderson, D., Sweeney, D., Williams, T., Camm, J., Cochran, J., Fry, M., Ohlmann, J. (2013). Quantitative Methods for Business, 12th ed., Cengage Learning.
- Archer, N., & Ghasemzadeh, F. (2004). "Project portfolio selection and management." In P. W. G. Morris & J. K. Pinto (Eds.), The Wiley Guide to Managing Projects. (pp. 237–255). Hoboken, NJ: John Wiley & Sons.
- Charnes, A., W. Cooper, and E. Rhodes (1978). "Measuring the Efficiency of Decision Making Units." *European Journal of Operational Research*, 2, pp. 429-444.
- Dia, M. (2009). "A Portfolio Selection Methodology Based on Data Envelopment Analysis." *INFOR*. Vol. 47, No. 1, February, pp. 71-79.
- Ghasemzadeh, F., Archer, N., & Iyogun, P. (1999). "A Zero-one model for project portfolio selection and scheduling," *The Journal of the Operation Research Society*, 50 (7), pp. 745–755.
- Keren, B., Hadad, Y., and Z. Laslo (2014). "Combining AHP and DEA Methods for Selecting a Project Manager." *Management: Journal of Sustainable Business and Management Solutions in Emerging Economies*, Belgrade Vol. 19, Iss. 71, pp. 17-28.
- Malhorta, R., Malhorta, D, and R. Russel (2010). "Using Data Envelopment Analysis to Rate Bonds." *Journal of Business & Economic Studies*, Volume 16, No. 1, 60-78.
- Meredith, J. and S. Mantel (2017). Project Management: A Managerial Approach, 9th ed. John Wiley & Sons.
- Pinto, J. (2010). *Project Management: Achieving Competitive Advantage*. Prentice Hall.
- Sanghera, P. (2019). PMP® in Depth: Project Management Professional Certification Study Guide for the PMP® Exam, Paul Sanghera.
- Sarkis, J., Presley, A., and D. Liles (1997). "The strategic evaluation of candidate business process reengineering projects." *International Journal of Production Economics*, 50(2–3), pp. 261–274.
- Soheilrad, S., Govindan, K., Mardani, A., Zavadskas, E., Nilashi. M., and N. Zakuan (2018). "Application of data envelopment analysis models in supply chain management: a systematic review and meta-analysis." *Annals of Operations Research*, 271.
- Strang, K. D. (2011). "Portfolio selection methodology for a nuclear project." *Project Management Journal*, 42(2), pp. 81–93.

UTILIZING MEDIATION TO RESOLVE CAMPUS CONFLICT: THE SKY IS NOT THE LIMIT

Anne L. Brown

Joshua E. Bienstock

New York Institute of Technology

Amr Swid

St. Edwards University

ABSTRACT

Litigation, for a variety of reasons, has proven to be an imperfect platform to resolve conflicts arising on university campuses. Aside from the anxiety, wasted cost, and time associated with litigation, both students and university administrators run the risk of damaged relationships and very embarrassing publicity when they resort to litigating their conflicts. Litigation by its nature is adversarial and results in win/lose outcomes. Given these realities, universities have turned to mediation as an alternative conflict resolution tool: a tool which affords both parties the ability to resolve their conflict in an environment where confidentiality may be preserved and relationships salvaged. Mediation affords disputants the opportunity to voluntarily formulate win/win outcomes addressing their respective needs. However, mediation is not suited for all disputes arising on campus. For instance, in cases involving criminal assault, searching for a mutual agreement between the victim and the perpetrator is not feasible. Similarly, where a university expels a student for cheating or plagiarism, the university may have an institutional interest in proceeding to court so that it may vindicate its position and establish precedent for future disputes.

This paper will explore those instances where mediation is appropriate to resolve campus conflict and when it is not. We conclude with proposed study in which we will survey students and university administrators to shed light on which campus disputes they would be willing to resolve through mediation and which disputes they would prefer to address in court.

INTRODUCTION

This paper explores the boundaries and limitations of mediation to resolve campus conflict. We will examine three case studies and analyze the nature of the disputes

arising in each, and assess the appropriateness of utilizing mediation to resolve those disputes. Then we will propose a study of students and university administrators to determine which campus conflicts they would be willing and unwilling to resolve in mediation.

LITERATURE REVIEW

We live in a society where the kneejerk reaction to a perceived wrong is to litigate (Bienstock, 2019b). Notably, of the approximately 40,000,000 lawsuits initiated in the United States every year, approximately 90% are resolved before going to trial by utilizing the alternative dispute resolution platforms of negotiation, mediation and arbitration.

Conflict on U.S. college campuses is prevalent, making the U.S. college campus a breeding ground for litigiousness. Significantly, the very nature of the world of academia often promotes conflict, by encouraging intellectual inquiry through the use of debate, questioning and argumentation (Bienstock 2019a; Palmdesso 2017; Din, et al 2011). As West (2006, 187) explains, “debate and dissent are the lifeblood of free universities.”

Further, universities are unique in that they are comprised of many different stakeholders, i.e., administration, faculty, staff, students with potentially diametrically different perspectives (Bienstock and Swid, 2017; Katz & Kovack, 2016; Warters, 2000). Conflict among various campus stakeholders is inevitable and is often exacerbated by the multitude of conflict stakeholders. (Warters 1995).

Student and university disputants quickly discover that litigation is time consuming, costly, stress inducing, and may result in permanent damage to the relationships and reputations of both parties. Thus, universities and university students have a mutual interest in resolving and reducing conflict. It serves neither the students’ nor the universities’ interests to engage in time consuming, expensive, stressful and relationship damaging litigation. Both parties benefit from resolving their disputes as quickly and as efficiently as possible. Mediation serves all of these interests, while at the same time providing the parties with a win/win model of conflict resolution.

In contrast, litigation offers a “I win, you lose” model of conflict resolution. Further, litigation often lasts for years, during which time the stakeholders all struggle under a cloud of uncertainty. Inevitably, the public nature of litigation results in the public airing of sensitive matters, harming the litigants’ reputations. Further exacerbating matters in the win/lose model of litigation is the fact that the relationship of the parties is often irreversibly harmed. Litigants must abide by rigid court/law generated decisions that often fail to take into account the underlying interests of the litigants. Mediated settlements enjoy greater credibility:

both parties, student and university, have the opportunity to control their destiny, by crafting solutions that address their individual and common interests and needs.

Mediation has become a much-favored platform for resolving campus conflict: as litigation has permeated the fabric of our society, mediation remains a favored means of resolving conflict. The business world, both domestically and internationally, has recognized the utility of mediation and its many advantages in resolving conflict more efficiently than litigation. Mediation is recognized as an effective and efficient way to resolve conflict in a wide variety of disputes, including: divorce; child custody; family matters; landlord/tenants; employer/employee or union; elder care; medical care; banking; business partners; and tort law (Honeyman, 2011; Roberts, n.d.; Hualing and Choy, 2004; Kauth, 2019; Swanson, n.d.).

In mediation, the parties agree to engage in a non-binding dispute resolution process in which a neutral with expertise in the subject matter of the dispute, seeks to assist the parties to resolve the dispute by exploring common interests (Warters 2000). As Fischer (2011) explains, the university and the student benefit from the mediation process: (1) privacy and confidentiality are maintained; (2) relationships can be preserved and even rebuilt; (3) the process is less formal, time consuming, costly and stressful than the court system; (4) the parties retain ownership of the issues and outcomes, thus the resolutions are predictable, customized and win/win, and (5) because the parties take part in creating the outcome, compliance with the settlement is more likely and the resolution is likely to promote lasting outcomes.

Conflict is no stranger to the college campus. Campus based disputes are complicated by the educational atmosphere, which encourages academic freedom and debate (Palmdesso 2017; Din, et al 2011; West 2006). Cultural diversity and personality differences may complicate campus relationships and generate friction resulting in thorny disputes, disputes which nevertheless can be effectively diffused in mediation (Volpe and Witherspoon 1992). Mediation of campus conflicts traces its origins to academic disputes such as student solution centers, counseling and wellness centers, residence halls, as well as campus academic and service offices ("campus conflict resolution services"). (Palmdesso 2017; Girard, et al, 1985; Warters (1995). For instance, campus mediation has been used on campus extensively to support students as issues arise freedom concerning campus adjustment (Griffin, 2002).

Today mediation of campus disputes is addressing a greater range of disputes far beyond the boundaries of academic related issues and is considered a fundamentally necessary platform for campus conflict resolution (Douglas, 1998). For instance, mediation is used to resolve a plethora of issues concerning various campus stakeholders including students, staff and occasionally the community adjoining the campus (Bienstock 2019; Griffin, 2002). Mediators offer advice and strategies to resolve interpersonal conflicts (Griffin, 2002) and educate the campus

stakeholders in alternative dispute resolution techniques (ADR) (Jameson, 1998). Mediation is also utilized in the field of athletics to help minimize disputes between players and players and coaches (Galton, 1998). Bienstock (2019a) has suggested that a wide array of campus disputes can be resolved through mediation, including academics, athletics, accidents, accommodations, class accommodations, campus accommodation for student clubs/groups and miscellaneous campus protests, community disputes, discrimination, disseminating material on campus, drug and alcohol abuse, employment, financial aid, freedom of expression, interpersonal disputes, intentional torts, harassment and student housing.

The relationship between students and institutions of higher education is unique in that the relationship begins with student enrollment, but frequently extends well past graduation as alumni often support the university financially and from a public relations and recruitment perspective. In this it would serve all interested parties to attempt to resolve the conflicts through mediation. The model for dispute resolution is collaborative and aims to achieve win/win resolutions, where both sides preserve and enhance their relationships and ultimately their reputations (Fisher, 2011).

Mediation is not appropriate to all campus conflicts: While there is extensive literature exploring the many campus-based conflicts that may be successfully resolved through mediation, little has been done to explore the limitations of its use, such as where the mediation platform is not acceptable to the disputants. Bienstock (2016) suggests that in certain disputes arising on campus, mediation would be contraindicated. For instance, if the institution of higher education determines that it needs a legally binding interpretation of the law or to clarify or validate a university policy to set precedent for future cases, mediation may not be viable. Likewise, where one of the parties to the conflict is accused of criminal and/or abusive behavior, mediation would not be appropriate. Or, when the interests of the student and university are diametrically incompatible, mediation will serve no useful purpose. Similarly, mediation will fail if one or both parties are not seeking relief, but rather retribution.

DISCUSSION

To explore when mediation is appropriate and when it is counter-productive, we examine three (3) case studies to shed light: Gomez-Jimenez v. New York Law School, Nungesser v. Columbia University, and Hernandez, et al v. Baylor University. The Gomez-Jimenez and Nungesser case studies provide excellent examples of matters of student conflict where litigation may have been avoided if the universities involved had utilized mediation when first faced with their students' complaints. The Hernandez case study suggests a situation where mediation, despite its many advantages, may nevertheless have ultimately failed

Brown, Bienstock and Swid

as a means of resolving an extraordinary, serious and wide spread conflict involving allegation of sexual assault and misconduct.

Gomez-Jimenez v. New York Law School, 103 A.D.3d 13 (1st Dept. 2012).

In the Gomez-Jimenez versus New York Law School case, the complaining students were upset, frustrated and angered by their inability to procure employment in the legal field following graduation. They felt misled by information regarding employment opportunities presented by the law school and blamed it for their inability to find employment. In essence, they were upset not simply by the alleged misleading information, but also by the fact that their primary interest, finding employment, had not been recognized or met.

Putting aside the question of whether information provided by the law school was legally fraudulent or misleading, the fact remains that had the law school recognized and addressed the interest of the students to procure employment, it could have avoided litigation. If, on learning of the students' complaint, the law school had applied the fundamental tenets of mediation, identifying and acknowledging the legitimacy of its opposition's interests in addition to their own interests, it would have been able to discuss and address those interests. It could have investigated and discussed mutually beneficial solutions. It could have recognized that these students were angry, frustrated and most importantly, fearful because they needed jobs in their chosen field. It could have seen that was in its own interest to help these students find employment and it could have recognized the very real possibility that failing to work to find a solution would ultimately be harmful to its relationship and reputation with these students and the public. Instead, by failing to identify the interests of the parties, litigation resulted, and the dispute became known to the general public, including potential student applicants. The public at large was left with the impression the school was not fully forthright regarding post-graduation job opportunities for its students. Needless to say, it further cast the school in a poor light as the public now knows that not only could these New York Law School graduates not get jobs as lawyers, but also that these graduates lost a high-profile lawsuit; not necessarily the best reflection of the students' legal judgment, nor of the law school's educational superiority.

Had the parties first engaged in the mediation process, the law school might have made further efforts to assist the students in finding employment, these students might very well now be praising the law school for its help, and the public would never have had reason to doubt the law school's competence.

Nungesser v. Columbia University, 169 F.Supp. 3d 353 (SDNY 2016)

In the Nungesser matter, Mr. Nungesser's dispute with Columbia University began with an allegation of sexual assault lodged against him by a fellow student (Ms. Sulkowicz). Despite the University's investigation of the charges against him and

its refusal to take disciplinary actions against him, continuing doubt as to his conduct remained. Mr. Nungesser felt betrayed by the University and vilified by the public. His reputation and integrity were maligned. In his view, the University was largely responsible for this continuing vilification and the damage to his reputation, not only in the view of his campus community, but also by the public at large. Mr. Nungesser had an obvious, indeed, vested interest in restoring his reputation.

Columbia University, on the other hand, had a significant interest in protecting the ongoing integrity of its complaint process. Ms. Sulkowicz's charges of sexual assault had been fully investigated by the University, a hearing was held and the University determined that disciplinary action against Mr. Nungesser was not merited. Nevertheless, the controversy remained and the University became the focus of a highly publicized dispute. Had the University applied basic mediation techniques, had it identified the parties' interests, it may have been able to fashion a solution which would address not only Mr. Nungesser's interest in defending his reputation, but also its own interests in upholding the integrity of its complaint process, avoiding litigation and protecting its relationships and reputation in the public eye. For example, in exchange for Mr. Nungesser's agreement not to sue, the University could have issued a public statement defending its complaint process, reiterating that a full and fair hearing had been held and stating that Mr. Nungesser was not disciplined for his conduct in the matter. Such a statement could have alleviated the public's fears, helped restore Mr. Nungesser's reputation and protected the University from further harm to its relationship with its students and reputation in the community.

Hernandez, et al v. Baylor University, 274 F.Supp. 3d 612 (WDTX 2017)

In the Hernandez, et al v. Baylor University matter, the University was faced with a critical and potentially devastating situation. In a brief eight-month period in 2016, fourteen female Baylor University students filed four separate lawsuits against the University, alleging, in some variant, that the University harmed them by failing to fully and fairly investigate their charges that they had been sexually harassed or assaulted on campus. Unprecedented turmoil, extensive negative publicity and overall distrust of the University's concern for the needs of its female student body, which have plagued the University since these student complaints became public knowledge, could have been avoided if the University had taken the time to examine the matter through the lens of mediation before any lawsuits were filed.

Permeating much of the controversy surrounding these student lawsuits is the general feeling (rightly or wrongly), by much of the public and student body, that the University turned a blind eye to the seriousness of the numerous allegations of sexual assault or harassment filed by female students because it wanted to protect its athletics department. Although the facts as they have been unfolding do not yet necessarily prove or disprove this supposition (not all of the underlying charges

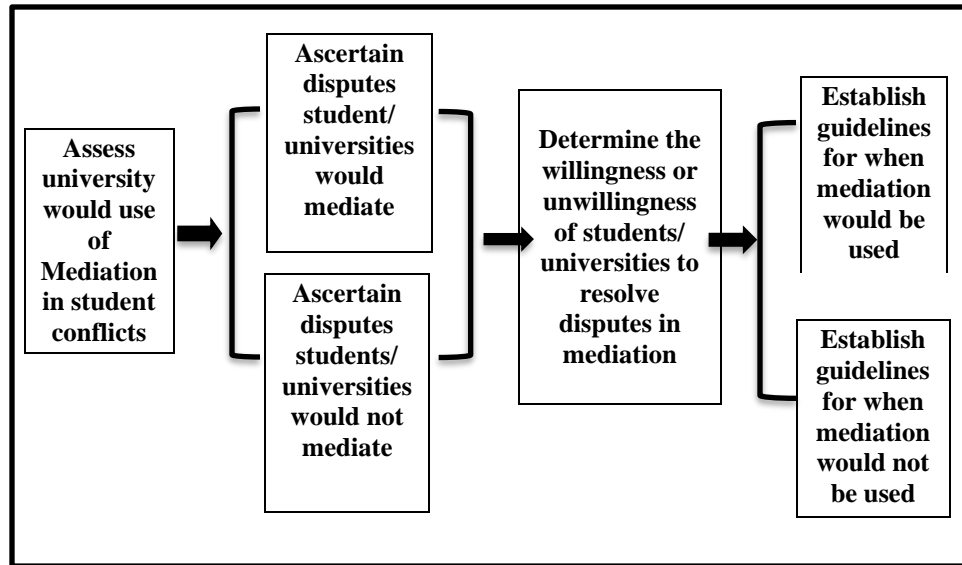
involved members of the school's athletics department), the public's perception that the University has favored its male athletes has nevertheless severely damaged the University's reputation.

Had the University used mediation when it first received complaints from these students alleging its failure to fairly investigate their claims, the University could have foreseen the overwhelming hit to its reputation, which continues to unfold. Under a mediation model, the University would have identified its interest in providing fair, thorough investigations, not only so that these students would have confidence in the process, but to assure that these students were actually treated fairly. It could have identified the interests of all of its students to be treated fairly. Taking these interests into account, the University might have been able to provide solutions which may have satisfied these students' interests, such as an agreement to reinvestigate the underlying claims, perhaps with a different University representative conducting the investigation. It might have offered to review its investigatory process and revise that process if needed. It could have solicited suggestions from the complaining students themselves, or the student body at large, for recommendations as to how to improve the investigatory process. Given the numerous allegations of sexual assault and misconduct involved, and the underlying serious, potentially criminal aspects of the allegations, efforts to mediate this crisis may have been unsuccessful. However, having failed to make any attempt to mediate the issue, the University will never know if any of the possible solutions offered herein might have been feasible. Had the University, using mediation, made the offer to explore alternative solutions, it may, or may not, have averted the publicity nightmare it now faces. Having failed to make any offer to mediate, the University will never know.

Developing Guidelines to Determine When Mediation is an Inappropriate Forum for Campus Conflict Resolution: The aforementioned cases offer some limited insight into when mediation of campus conflict may work and when it is appears doomed to fail. We propose a study to explore when mediation of campus conflicts would be out of bounds: whether because of the nature of the relief being sought; or because a power imbalance exists; or due to an abusive or criminal component; or for institutional reasons; or perhaps the underlying interests of the disputants are completely incompatible or inconsistent.

By surveying students and university administrators we propose to identify those disputes that lend themselves to being resolved in mediation and those disputes that would more appropriately be addressed in court.

Figure 1. RESEARCH PROPOSAL: What campus disputes would either students or universities be unwilling to resolve through mediation?



PROPOSED METHOD

Method: We will use a qualitative research approach. The surveys will explore the disputes that students and administrators would be willing to resolve through mediation, and, also identify the disputes that they would refuse to consider resolving in mediation. For all disputes for which the participants indicate an unwillingness to resolve through mediation, the participants will be asked to identify their favored platform for its resolution, i.e., negotiation, arbitration or litigation.

Participants: The focus group will be drawn from surveying 100 domestic and international students and 100 university administrators at two randomly selected universities in the New York City metropolitan area; one university in the public sector and one university in the private sector. The study will be conducted over a two-year period. The confidentiality of the participants will be preserved and data will be securely stored.

Recruiting will commence in Fall 2020 and conclude in Spring 2021.

Analysis: Data analysis will be conducted in Fall 2021 and we anticipate reporting our findings in the Spring of 2022. We will be searching for disputes that where solely the student or solely the administrator would be unwilling to mediate the campus conflict and where jointly both student and administrator would reject

mediation. We also will be looking to see whether any university administrators have written or unwritten policies setting forth which campus disputes are not subject to their mediation process

Contribution: We hope to utilize our findings to establish model guidelines outlining when mediation is an appropriate platform for campus conflict resolution and when it is not. These guidelines could provide insight to universities interested in implementing either a voluntary or mandatory mediation system to resolve campus-based student conflict.

Future Research: We suggest that future research focus on successful mediation cases, which might provoke more universities and students to pursue mediation rather than litigation. The understanding the key criteria for a successful mediation would help universities utilize their resources and processes for the mediation, thus saving, cost, time and effort required for a win-lose litigation. On the other hand, we also think that future research should investigate the drawbacks of mediation in higher education institution, thus helping university administration to avoid pitfalls and pursue a well-informed mediation process

REFERENCES

- Bienstock, J.E. (2019a). Campus conflict resolution: The time has come for mandatory mediation. *Journal of Business and Behavioral Sciences*, 31(1), 36-47.
- Bienstock, J.E. (2019b, March). *Applying interest-based problem solving to the U.S. university complaint process: Preempting avoidable student-university litigation*. Paper presented at 26th Annual American Society of Business and Behavioral Sciences, Las Vegas, Nevada.
- Bienstock, J.E. & Swid, A. (2017). International students' adjustment to U.S. universities: Utilizing a campus mediation approach. Proceedings of the 24th annual conference, American Society of Business and Behavioral Sciences. ISSN: 1935-0583, 56-65
- Bienstock, J.E. (2016, November). *Students' lawsuits proliferate: Is mediation the cure?* Paper presented at Nassau County Bar Association, Garden City, New York.
- Din, S., Khan, B., Rehman, R. & Bibi, Z. (2011). An investigation of conflict management in public and private sector universities. *African Journal of Business Management*, 5(16), 6981-6990.
- Douglas, J. M. (1998). Conflict resolution in the academy: A modest proposal. In Susan A. Holton (Ed.). *Mending the Cracks in the Ivory Tower*:

Strategies for Conflict Management in Higher Education. Bolton, MA: Anker Publishing Company, Inc.

Fisher, R., Ury, W.L. & Patton, B. (2011). *Getting to Yes: Negotiating Agreement Without Giving In*, 3rd ed. New York: Penguin.

Galton, E. (1998). Mediation programs for collegiate sports teams. *Dispute Resolution Journal*, 53(4), 37.

Girard, K., Rifkin, J., & Townley, A. (1985). *Peaceful persuasion: A guide to creating mediation dispute resolution programs on college campuses*. Amherst, MA: The Mediation Project.

Griffin, T. (2002). Similarities and differences between campus ombudsing and mediation. *Conflict Management in Higher Education Report*, 3, 1. doi:10.18411/d-2016-154

Honeyman, C. (2011, November 17). What mediation is and when it should be used. Retrieved from <https://www.adrtimes.com/library/2011/11/17/what-mediation-is-and-when-it-should-be-used.html>.

Hualing, F. and Choy, D.W. (2004). From mediation to adjudication: Settling labor disputes in China. *China Rights Forum*, 3, 17-22. Retrieved from https://www.hrichina.org/sites/default/files/PDFs/CRF.3.2004/From_Mediation_to_Adjudication_-_Settling_Labor_Disputes_in_China.pdf

Jameson, Jessica Katz (1998). Diffusion of a campus innovation: Integration of a new student dispute resolution center into the university culture. *Conflict Resolution Quarterly*, 16, 129-46.

Katz, N. H. and Kovack, L.N. (2016). Higher education's current state of alternative dispute resolution services for students." *Journal of Conflict Management*, 4 (1), 5-37.

Kauth, K. (2019). Eldercare mediation: Setting families up for success. *Mediate.com*. Retrieved from <https://www.mediate.com/articles/kauth-eldercare-mediation.cfm>.

Klingel, S. and Maffie, M. (2011). Conflict management systems in higher education: A look at mediation in public universities. *Dispute Resolution Journal*, 66(3), 12-14,17. Retrieved from <http://arktos.nyit.edu/login?url=https://search-proquest-com.arktos.nyit.edu/docview/905246263?accountid=12917>

Mediation: What cases are eligible for mediation? *FindLaw*. Retrieved from <https://adr.findlaw.com/mediation/mediation-cases-what-cases-are-eligible-for-meditation.html>

Palmdesso, N.S. (2017). Student mediators solving campus conflict: The efficient shift from discipline to dispute resolution. *Dispute Resolution Journal*, 72(3), 55-86.

Resolving nursing home liability cases with ADR. (March 5, 2013). *Massachusetts Dispute Resolution Services*. Retrieved from <https://www.mdrs.com/using-adr-to-resolve-nursing-home-liability-cases>.

Roberts, M. (n.d.). Resolving disputes through employment mediation. *Mediate.com*. Retrieved from <https://www.mediate.com/articles/roberts2.cfm>.

Sisson, V. S. and Todd, S.R. (1995). Using mediation in response to sexual assault on college and university campuses. *NASPA Journal*, 32(4), 262-269.

Spiller, D. (2002). ADR in the university: The limits of a problem-solving paradigm. *ADR Bulletin*, 5(8), 1-7.

Swanson, D.L. (n.d.). Mediating business disputes: Caucus format is unfortunate. *Mediatbankry*. Retrieved from <https://mediatbankry.com/2019/08/13/mediating-business-disputes-caucus-format-is-unfortunate>.

Ury, W.L., Brett, J.M. and Goldberg, S. (1988). *Getting Disputes Resolved: Designing Systems to Cut the Costs of Conflict*. San Francisco: Jossey-Bass.

Volpe, M. R. and Chandler, D. (2001). Resolving and managing conflicts in academic communities: The emerging role of the 'Pracademic.' *Negotiation Journal*, 17, 245-55.

Volpe, M. R., and Witherspoon, R. (1992). Mediation and cultural diversity on college campuses. *Mediation Quarterly*, 9(4), 341-351.

Warters, B. (1991). Mediation on campus: A history and planning guide. *The Fourth R*, 33, 4-5.

- Warters, B. (1995). Making the case for campus mediation.
<http://files.eric.ed.gov/arktos.nyit.edu/fulltext/ED499548.pdf> (originally published in *The Fourth R*, 55, Feb/March 1995).
- Warters, W.C. (2000). *Mediation in the Campus Community: Designing and Managing Effective Programs*. San Francisco, CA: Jossey-Bass.
- West, P.W.A. (2006). Conflict in higher education and its resolution. *Higher Education Quarterly*, 60(2), 187-197.
- Yarn, Doug (2014). Designing a conflict management system for higher education: A case for design in integrative organizations. *Conflict Resolution Quarterly* 32(1):83-105.