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THE NECESSARY BUT UNFINISHED AGENDA

C. Kenneth Meyer
Thomas F. Shehan Distinguished Professor
Drake University
Keynote speech delivered at the ASBBS 29th Annual Conference

I am honored that Professor Wali Mondal has asked me to share some reflections on what I have been thinking about recently, especially since I am entering my 57th year as a college professor and I have regularly attended ASBBS conferences for decades.

Wali has always been crucial in my life as a mentor and friend and our time together has been even further shortened by the pandemic. I also want to thank those who did the research and contributed their papers presented in the different panels. Wali brought us all together in Las Vegas! To quote Walt Whitman, "Great places are the embodiment of great people."

You will learn that my remarks are not about the theories of management, or politics or of things administrative, nor will they be brief.

No, my talk will not focus on the techniques of assessment, the scientific method, or on how to measure job performance and productivity, or about the ancient historical theories of leadership or the contemporary theories of human resources management and organizational behavior.

We know all too well that human behavior is a product of past and present cultural forces and that management is a product of the economic, social, political and technological forces of the past and present. We all know that the industrialization and the age of information are relatively new things. People existed for eons before the great advances were made in power, communication, transportation, science and technology. In short, the household, the tribe the church, etc., existed before we arrived at the state we are in today and that management was central to the conduct of family, tribes, churches, states and the military.

These themes do not form the basis for your future life choices. They are interesting historical observations, but do not rise to the level of seriousness that I want to present in this address. Rather, my intention is to

remind you to re-balance and rethink what is valuable in your life, your relationships, in your families and communities and profession.

I have dreamed and thought about what our society might look like for over two generations of time. My dreams and aspirations have always been for a better society, a better understanding of the needs of the human family worldwide; a dream that people would be treated fairly, equally, and justly everywhere—and for everyone—and these dreams have not been reached. I remember writing an essay about immigration. It went something like this, and it was not received warmly in all quarters of the discipline:

> The immigrant is but a traveler who crosses the artificial territorial boundaries erected by government. Immigrants are not aliens--they are our neighbors; they are not terrorists—they are members of our human family; they do not want differently—they want what you and I want for our families and ourselves: love, peace, joy, happiness, opportunity, security, hope, acceptance and recognition. And from them will spring the great "New Phoenix" of American innovation, development, and civilization—that is if they are given the respect and dignity that belongs to all people."

My challenge is for you to keep these dreams of what can be alive.

At the beginning, it is important for me to give credit where credit is long past due. My journey was made possible because many others took an interest in me early on in my life, extended a helping hand and permitted me crawl up the ladders they provided from being able to attend and learn in a one room school in rural Minnesota to graduation from some of the most prestigious universities in America. I learned early on that what matters in your career is not where you are from, but what you do when you arrive!

Recently, I gave the eulogy for my brother and interestingly, my remarks were on his love of family and the enduring values which he left engrained in his children. It had nothing to do with his financial success as a businessperson. It was about what he valued: loyalty, integrity, empathy,

compassion, honesty, and giving voice to those who could not fully speak for themselves.

And, I want to address a few more things that I have come to know at different stages in my own life. As you reflect on these statements, you might consider making up your own statements:

I realize the value of having a mother who loved her children so much that she supported her family by working away from the home.

I realize the value of having a gentle father who worked hard doing labor that no one else wanted to do. But he shoveled the dirty coal and chopped the hard wood into kindling and never talked uncharitably about anyone.

I realized the value of having a brother who helped raise me and showered his love in such a way that my twin brother and I knew we could survive!

I realize the value of my children and if only I had one day to give them all of my love, uninterrupted, I would do so,

And, the importance of having a wife of 56 years who loved democracy, truthfulness and integrity and showed a caring concern for the all people, regardless of status, and insisted that all people be treated with respect and human dignity.

Some of the statements I will make reflect on what is going on in our society today. They statements are important if the values on which this nation is based are to endure. They are simply the enduring questions that will not go away! They are about living and the future direction of our society and the Republic; questions that beg for reasoned understanding and rational responses. Our answers will not easily submit to 30 second sound bites.

I will not repeat the often cited maladies that we face as a society—you already know what they are and they need not be repeated now. Rather, here are a few of the issues that I believe should be on the public agenda: A sample of these topics should suffice: Authoritarianism, climate change, biotechnology, new forms of energy generation, biofuels, genetically modified organisms, species extinction, cross species transplantation,

childhood obesity, cloning of life, the Genome (mapping of the human genetic structure) to the management our federal and state lands, water and forests and other resources. Of course, the nature of violence and war and peace—topics that I have researched and written on since 1972.
The riders of societal dysfunction and death cannot be overlooked either: Authoritarianism, racism, sexism, militarism, nativism, ageism, etc., the many phobias, such as homophobia and xenophobia.

In a political sense, there are the issues of international terrorism, armed conflict, torture, homeland security, human rights, civil rights, the rights of disabled persons, the right to migrate, the right to adequate food, the right to make a living wage, to the right to food, the digital divide and humanitarian law. The right to mental and physical health care. In addition to this cacophony of problems, I would like to add the following to our listing:

1. Plato said in ancient times: "Who shall guard the guardians." Who should regulate those who would govern us? This topic has been on the front porch of policy discussion, especially as we see a rise in authoritarianism I will address this topic further at the end of my presentation.

2. Why do young black men have the poorest life chances of anyone in our society? How does their low earning and joblessness factor in to reduction in marriage, addiction, and other social problems?

3. Why are Blacks in many other places, more likely to be out of work than Whites?

4. Why is it necessary for gay, lesbian and transgendered to cry out that "we are everywhere:" When will everyone's civil and human rights receive the protection they deserve.

5. What will be the fate of the nearly 650,000 individuals who leave state and federal prisons and come back to our neighborhoods each year? What impact do former prisoners have on their families and communities when they reenter civil society? What is their impact on public health, work, public safety, families and children, housing, and community capacity? Remember: They all come back! And what about the 2.5 million children who have incarcerated parents?

6. How will mass immigration change the face of both rural and urban America. Most attention is place on urban immigration, but we also need to understand what happens when migrants work on farms, agriculture related industries, and in sweat shops, and at wages below the poverty level. Yes, some make it and others find poverty, crime, and overcrowded conditions as they live in the "secret" shadows of illegality.

7. We work and we work hard in America; we value and respect work—true enough. But economic justice requires that workers earn a fair day's pay for a fair day's work. The economics of work must be balanced with economic justice. We can work better in America and we know that to be true. In sum, we are working harder, smarter, longer (equivalent to a 13th month), and the kicker is that we are working for less).

8. Can you imagine a world in which nations refuse to use, for one bias or another, nearly 50 percent of its intellectual wealth? And, how is the nature of work itself changing: The versatilistic workforce (like a Swiss army knife); the resilient workforce; the Brazilianization of the American workforce.

9. Do we see the world from the perspective of those who suffer? Dietrich Bonheoffer gave his life in pursuit of those who suffer injustice. It is important that we see the world from the perspective of those who suffer. The issue for leaders is whether we see the world around us correctly and then are we able to act accordingly. When we see human injustice do we attempt to correct it. Please remember that we are made good and spend our life searching for it in others and learning how to be good ourselves.

10. Is anyone listening to the cries of those who are hopelessly disadvantaged—poorly
educated, poorly trained, poorly housed and poorly provided for in terms of employment, transportation, security, health care, safe nutrition, and justice?

11. Why do we respond politically to the needs of those over 65 years of age, but not for
those under 5 years of age?

12. Why do we celebrate statistics that show that the overall child poverty level has
dropped in the United States recently, and then re-emerged, and why has there been such a dramatic increase in the percent of families and children at the most severe poverty level?

13. What are the teachings of our society on the issues of human dignity, social justice and human injustice?
14. How can we find and respect our human dignity? Do people have a right to life—to
food, housing, health care, family, their culture, work, education, and sexual orientation and gender identity?
15. Why does California prison system release about 120,000 prisoners back into civil society yearly,
and within three years, about two-thirds of them will have returned to prison? Why are six of ten prisoners admitted to California prisons parolees and why do they generally make up about one-third of the total state's prison population?

16. Why do people like to live in communities where everyone thinks, acts and behaves alike? Why do we listen to talk shows that reinforce our pre-existing ideas, and why do we live and associate with only those we agree with? How does the "big sort" affect the future of our culture and society?

17. Why is science under a state of siege today? Politics and science should be as separable as oil and water. Why do we permit the reports of the EPA and other agencies to have their findings and studies altered in the area of greenhouse gases and global warming? Partisanship and politics must be removed from our sciences. Administrators, no matter how powerful, should never be permitted to manipulate the sciences, nor should scientists be suppressed and censored and their findings watered down to meet political purposes. This is important whether it is in the forensic sciences, NASA, and the Surgeon General's Office.

18. Why is American health care system still in a state of disarray? We know it is a complicated mixture of public and private programs and some argue it is a two-tier system--ne that works well for the rich and the other one that fails the poor.

Consequently, we end up with unequal care and have millions who are underinsured or have no health coverage at all—a health care system that varies by zip code.

19. And should work and workers be accorded dignity by receiving fair pay, having a safe work environments, and basic economic freedoms, such as the right to join unions, and free from repression and servitude?

In short, to think of America without a vibrant middle-class, the building block of our society, is like thinking of the Renaissance without the use of reason or enlightenment.

- Does it make a difference how we treat the poor and the most vulnerable in our society? And as cautionary tale, please remember what Associate Justice Brandeis stated nearly a century ago: "You can have democracy and you can have inequality, but you can't have both."

- Why does race still matter in America?

- Why have we heard so little about the poor in America over the past twenty years?

- Why are women still underrepresented by title, position, status, and positions of power in America's and the world's corporations and governmental systems?

- Why is it so difficult for managers and policy makers to understand the importance of treating a workforce with fairness, dignity, equality and justice?

- What about the 2 to 3 million youth age 16 to 24 who are out of school and out of work? Why are these people, and so many of them, disconnected, especially for young men, African American and low income men. And what role does non-custodial fatherhood play in this picture.

- Why is it that the rich get richer, the poor get downsized, and the middle-class foots the bill?

- Why is the death rate for infants higher for children among minorities than the majority population, sometimes by several times as high?

- Why do African American households have less wealth than white households—sometimes by nearly 90 percent less?

- How can states like MN, WI and Iowa, (Midwestern states) have the highest high school graduation rates and have such dismal graduation rates for blacks, American Indians, and Hispanic youth?

- Why do American Indian children kill themselves at such alarming rates—some times eleven or more times the national average for other Americans?

- Why do so many students fail in school and why does the pattern start so early on in their developing lives?

- Why is the level of illiteracy high even for those who graduate from high School? And, why does society tolerate this outcome?

- Why do poor youth score so low on standardized tests and what does this mean for the future development of their dignity, self-respect, and independence?

- Why are children not prepared mentally, socially, psychologically or emotionally for school or citizenship?

- Why can't we put more of our resources into building a greater society for tomorrow by fostering human development programs for all people?

- With 80 percent of our work force employed in Blue collar jobs, and adjusted for inflation, why are they learning less and less, while the top corporate executives are making more and more?

- When was the last time you heard a child say they wanted to become a scientist, engineer or researcher? The follow up questions for all of society is where here have all of the children gone? Why?

- Do you understand why one of the fastest growing segments of our economy is the working poor and why this is an important problem now and in the future?

- Are we interested in solving our most pressing and critical problems or are we merely interesting in joking around and playing political make believe with mindless political gamesmanship?

- With 80 percent of our work force employed in Blue collar jobs, and adjusted for inflation, why are they earning less and less, while the top corporate executives are making more and more?

- Who is fighting the wars over the past twenty years; which class of Americans? Why is war and patriotism such a virtue for the middle and lower classes but such an optional virtue for the elite? Who is sharing in the burden of the war?

- Who sits in the empty chair in our legislative assembly; or, in our conference room, or board room?—is it some special interest or does this empty chair represent those who are voiceless in our society?

- Do we hope that political leaders will make decisions based on wisdom and on facts…rather than on fear? Do we want decisions to be made with respect for others and not on make-believe issues or facts? Leadership is not about dishonesty, deception, winners and losers; leadership is not based on cowardice, lying, distrust, insincerity, cleaver word smiting, spin-meistering, special privilege, power, hypocrisy, cover-ups, and talking points. It is more than creating and shouting slogans

- These questions are difficult to answer.

And why can't we take on and solve these problems. We built the Hoover Dam during the depression—an economic crisis; we built the Golden Gate Bridge, and La Guardia airport in less than ten years, and in earlier times Pres. Thomas Jefferson was able to build a complex system of locks and canals. Yet, we are told we can't solve the employment crisis in ten years. Where is the American spirit and the American resiliency? And is there any reason we can't spend more than 1.6 Trillion needed to make our bridges, roads, tunnels and water systems safe? And no more than one-half percent of GDP for research and development

Last, can democracy survive the onslaught of lying, deception, dishonesty, corruption, deceit, and treason?

For a memory re-booting, consider where we have recently been as a country: Under the former president, 250 members of congress, and countless state and local governmental leaders we have experienced widespread republican support and furtherance of conspiracy theories that undermine the legitimacy and trust in established governmental institutions, structures, and processes, such as democratic elections, the independence of the judiciary, administrative competence and expertise (the deep state), and policies toward eliminating inequality.

We experienced executive pronouncements that jeopardize the long-established norms, laws, and practices of presidential succession and threaten to undermine the legitimacy of elections by questioning absentee and mail in ballots. Also, the corrupt use of foreign policy that puts self-interest above the national interest, thereby promoting distrust of government through disinformation, misinformation, untruthfulness--the prevalence of lies over truth and fantasy over reality:

l. Deceit, dishonesty and disinformation replacing empathy, equality and truthfulness

2. Widespread suppression of the vote or fundamental franchise (over 400 bills in state legislatures that suppress voting rights and /or jeopardize the veracity of free elections)

3. Continuation of the "Big Lie" and re-writing of the insurrection crisis of January 6th and the first time in U.S. history that the president of the United States instigated an insurrection and thwarted the outcome of a free election

3. Continued debasement of the rule of law, democratic ideals, and the continued untangling of democracy

4. Retaliation against political opponents and unwavering fidelity to former president and cult like leader

5. Continued denigration of basic democratic processes, norms, and the elevation of white supremacy as a laudatory standard

The institutional, economic, social, and political roots that nurture the current authoritarian threats to democracy are much deeper than initially suggested and will likely take generations to deflect and defeat.

The Western world, democracy as we know it, has been cherished over the last 200 years, and is predicated on two basic ideals: the ideals of liberty and freedom. These ideals must be cherished and defended; however, often in times of threats, internally or externally, they are lessened. What is at stake in America, should we have another major insurrection, are not only these values but what has been enshrined in the Constitution of the United States of America in jeopardy?

Today, we stand at a crossroads in the preservation of the democratic idea that is facing an existential threat, not from outside agents and influences, but rather from internal insurrectionists and terrorists. The need to embrace, for humanity's sake, the '"the rule of law," the need for Constitutional order," regularized and enshrined norms of democratic behavior associated with the conduct of free elections, the accuracy of counting all the peoples vote and their legal certification, etc., those who violated these cannons, regardless of their status or position, must be given the highest protections of procedural and substantive due process and, if criminal activity is discovered, be held accountable. Not to hold those who were involved in planning, fermenting, funding, and implementing the most egregious criminal acts since the Civil War, would be tantamount to give the coupe participants a second opportunity to have their say. Accordingly, full accountability requires those who fermented a violent insurrection and attack on and siege of the Citadel of Democracy; those who attempted to overturn a free and fair election; and those who engaged in a seditious conspiracy; and those who conspired to submit phony electoral certificates, be brought to justice.

So be vigilant. Keep in mind that democracies are not permanent forms of government—they have always been temporary. Indeed the average age of the world's greatest civilizations from the beginning of time has been about 200 years. We are now over 250 years of age and time keeps marching on. In the words of Winston Churchill: "…(**N)ever give in, never give in, never, never, never, never**…".

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PERCEPTIONS OF EMPLOYABILITY ATTRIBUTES AND DEFICITS: WHAT DISABLED AND NONDISABLED POPULATIONS THINK RECRUITERS WANT

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ABSTRACT

This study extends employability research by investigating how individuals with visible and non-visible disabilities may view attributes and employability (attribute) deficits compared to non-disabled individuals. An online questionnaire was completed by 518 participants. Results indicate a significant difference in employability perceptions for individuals with a non-visible disability regarding attributes. Additionally, a significant difference in employability (attribute) deficits between disabled individuals non-disabled and between disabled individuals with visible and non-visible disabilities.

Keywords: disability, non-visible disability, attribute deficit, employability, recruiting

INTRODUCTION

Assessment of individuals' employability is a judgment about the sum of their objective knowledge, skills, and abilities, and subjective perceptions of other attributes or characteristics (KSAO) and the extent to which these are valued by employers (Bangerter et al., 2012). Individuals seek to sway judgments of employability by highlighting positive KSAOs and concealing or minimizing negatively perceived KSAOs to influence positive employment outcomes (Higgins & Judge, 2004). Through training, individuals with disabilities are able to develop KSAOs, such as effective communication, and thereby achieve greater success and satisfaction in employability (Lu et al. 2020). Nevertheless, individuals with disabilities are more likely to conceal those disabilities, if not visibly apparent, when seeking employment due to potential negative perceptions (Mills, 2017).

Individuals with disabilities have over twice the rate of unemployment compared to those without disabilities (Erickson et al., 2016) Unemployment or underemployment are widespread issues (Stephens et al, 2005). Insufficient KSAOs, so called soft skills in particular, are the most common reason individuals

with disabilities face challenges with employability (Mueser et al, 2001). Given those challenges of disabled populations, especially for those with non-visible disabilities (Kocman et al., 2018), understanding their perceptions of positive and negative KSAOs may help to identify potential impacts on job interview and length of job search outcomes (Oursler et al., 2019).

Previous research has investigated perceptions of employability for disabled and non-disabled individuals (Ju et al., 2014). Kocman et al. (2018) suggested further investigation is needed with respect to differences in perceptions of employability, especially within disabled person subgroups. Given the impact of disability status related to potential perceptions of employability, the overarching purpose of this study is to investigate value differences in employability perceptions within disabled populations and between disabled and non-disabled populations.

HYPOTHESIS DEVELOPMENT

Attribute-based Employability and Disability Status

A recent trend suggests employers are valuing attributes and behaviors more strongly in the hiring process (Russell & Brannon, 2016), and attributes may be more highly valued than job-related skills and education (Jones et al., 2017). Highly valued attributes may include a positive attitude, being an effective team member, communication skills, interpersonal skills (Jones et al., 2017, McPherson, 2018), leadership (Jones et al., 2014, McPherson, 2018), adaptability, employer loyalty, supervisor loyalty, demonstrating competence, ability to learn-trainability, critical thinking, strong work ethic, and professional identity development (McPherson 2018).

Individuals with disabilities may display highly valued attributes to a lesser extent than non-disabled counterparts or may even display attributes that are counter to those that are highly valued by employers. Individuals' disabilities may be either visible or non-visible. Visible disabilities include observable factors such as blindness or paralysis. Non-visible disabilities include intellectual and mental health conditions as well as non-visible physical disabilities and chronic health conditions that can significantly impact daily functions (Disabled World, 2020).

Though not easily observable, non-visible disabilities may impact highly valued attributes such as oral or written communication skills, social/interpersonal skills, self-direction and the ability to follow instructions, the performance of basic reading, writing, and math skills, as well as the ability to follow safety guidelines (Equal Employment Opportunity Commission, 2013). The Mayo Foundation for Medical Education and Research (1998-2021) suggested symptoms of nonvisible disabilities experienced in the workplace include being sad or displaying extreme mood changes, inability to concentrate, excessive worry, inability to handle stress or problems, excessive anger, withdrawal from social activities. Since employers cannot observed and, therefore, may not be aware of the non-visible disability,

these symptoms potentially impact employers' perceptions. This leads to the first hypothesis.

Hypothesis 1: Significant differences exist in the perceptions of hiring attributes between disability status (non-disabled, visible disability, non-visible disability).

Employability Deficits and Disability Status

Employability deficits are attributes or other characteristics such as attitudes, behaviors, and actions that are perceived by the employer to signal a poor match with the organization. McPherson (2018) lists perceived employability deficits including: difficulty with work commitment/absenteeism, poor oral or written communication skills, lack of learning behavior/ no evidence of continued learning, poor learning attitude/not pursuing learning opportunities to acquire new skills, lack of continuing education, unrealistic expectations, being uninformed about their chosen career track, and lack of understanding about their bargaining power related to labor surpluses or shortages. Employability deficits signal poor work ethic, short job tenure, opposing value systems, and poor communication skills (Berkelaar, 2014). When considering the impact of disabilities on attributes or characteristics perceived as a deficit, Ju et al. (2014) found that applicants with a disability were more likely to be eliminated early from the recruiting process due to perceptions of poor social skills; poor personal attributes including integrity/honesty, adaptability, motivation, and work interest; and assumptions about the inability to perform the job including appropriate reading, listening, speaking, and writing skills.

Cybervetting, the process of seeking positive and negative signals from personal narratives, professional experiences, photos, and videos in applicants' online presence, has increased concerns with signals and perceptions about employability deficits. Multiple recent studies have found that recruiters and hiring managers are cybervetting (Berkelaar, 2014). Lack of consistency across platforms and visible deletions lead to assumptions that the applicant may be concealing information (Berkelaar, 2014). Jans et al. (2012) found that most individuals with highly stigmatized disabilities chose not to disclose their disability based on fear of the potential negative impact. Because individuals with non-visible disabilities are more likely to conceal their disabilities (Mills, 2017), cybervetting may lead to perceptions of employability deficits including dishonesty (Roberts & Macan, 2006). This leads to the second hypothesis.

Hypothesis 2: Significant differences exist in perceptions of deficit hiring attributes between disability status.

METHOD

Participants

To test the hypotheses, this study surveyed labor market participants who were 18 years old or older, employed or unemployed, and self-identified with a visible disability, non-visible disability, or non-disabled. In an effort to sample a wide cross section of labor market participants, study participants were solicited from websites such as Amazon Mechanical Turk, Facebook, LinkedIn, YouTube, and Upwork. A total of 534 online surveys were submitted. Incomplete surveys and those completed by persons not currently working in the United States were eliminated, resulting in 518 usable surveys. Table 1 summarizes the demographic characteristics of the sample.

Table 1
Demographic Characteristics of Study Participants

Disability status				
None	Visible Disability	Non-visible Disability		
74.13% (n=384)	3.86% (n=20)	22.01% (n=114)		
Gender				
Male	Female	Other		
41.12% (n=304)	58.69% (n=213)	0.19% (n=1)		
Age				
18 – 25	25 – 29	30 – 39	40 – 49	Over 49
8.49% (n=44)	24.32% (n=126)	37.45% (N=194)	12.36% (n=64)	5.02% (n=26)
Employment status[1]				
Employed: Manager / Supervisor	Employed: Other	Unemployed: Seeking Contract Work	Unemployed: Seeking Full-Time	Student: Not Working
76.46% (n=397)	12.93% (n=67)	2.70% (n=14)	3.07% (n=19)	1.16% (n=6)

[1]Percentages sum to more than 100% because participants could select more than one employment status.

Measures

The survey instrument included a list of 14 hiring attributes and deficits identified through a review of the literature and previous survey instruments (Schenider 1978; Hafer and Hoth 1981; Moss 1994). The attributes and deficits were evaluated for face validity, clarity, and readability via an online survey of 15 participants. Participants were asked to complete the survey and give feedback. The pretest resulted in changes to make the scale more relevant for all demographics to answer. The final survey items measured the constructs, and respondents rated items on a five-point anchored Likert scale. The scale described the extent to which the person being rated believed the attribute or deficit possessed impacted employment opportunities. The final Job Mobility Attributes inventory assessed 14 different attributes and deficits that could impact opportunities for employment, with each item being a statement of an attribute or deficit described in Table 2. Conventional guidelines were followed to reduce bias (Podsakoff et al., 2003). Each survey page started with a brief introduction and contained only the items belonging to one construct.

Table 2
Attributes and Deficits Impacting Employability

Attributes	
Communication skills (listening, oral, written)	Listens closely to people at work and organizes and clearly presents information both orally and in writing
Soft skills	Develops cooperative relationships, has the ability to reflect on the relationships, and grasps the emotional issues quickly
Adaptability	Has the ability to manage ambiguity and uncertainty, encourages and accepts suggestions, and is willing to modify plans
Work ethic	Can be counted on to follow through to get the job done, holds self answerable for work, and is willing to work long hours when necessary
Loyalty to supervisor	Shows commitment to supervisors and effectively respects authority
Loyalty to employer	Shows commitment, strives to keep improving, and works to benefit the entire organization

Professional identity development	Shows a commitment to developing knowledge, skills, and abilities in a particular profession and may even seek out profession-related certifications
Leadership	Uses a variety of approaches to influence and lead others
Critical thinking	Effectively identifies, analyzes, and resolves difficulties and uncertainties at work
Collaborative	Actively participates in the development of cohesiveness and cooperation among others
Deficits	
Work commitment	Has difficulty with productivity levels, frequency of absences, willingness to stay until the job is done, and following directions
Communication skills	Has difficulty with the ability to organize thoughts using good grammar and diction in face-to-face or written communication
Learning behavior	Lacks evidence of continued learning, interest in learning for personal interest, or seeking out opportunities to learn new things at work or at home
Learning attitude	Lacks concern about or willingness to pursue opportunities or assignments inside or outside work environment to acquire new skills or experiences

Participants were asked to indicate what they thought an interviewer would think is an important attribute when they are being considered for a potential job opening, "In what way do you think each characteristic is important to an interviewer when he/she is considering an individual for a job opening?" Participants rated the attribute on a Likert scale as (1) undesirable applicant, (2) somewhat good applicant, (3) good applicant, (4) very good applicant, and (5) highly desirable applicant.

Participants were asked, in turn, "I believe a job applicant that has (a work history demonstrating difficulty with or lack of work commitment, communication skills, learning behaviors, or learning attitudes) would be rated by an interviewer as what type of applicant?" Participants rated the applicant with an attribute deficit on a Likert scale as (1) undesirable, (2) somewhat undesirable, (3) neither undesirable nor good, (4) somewhat good, (5) good.

RESULTS

Perceptions of Attribute-Based Employability by Disability Status

A series of Kruskal-Wallis tests were conducted with independent grouping variables corresponding to disability and ordinal-level dependent variables corresponding to the participants' ratings of employability attributes. Table 3 shows that only one of the ten Kruskal-Wallis tests was statistically significant (loyalty to a supervisor).

Table 3
Employability Attributes by Disability Status

Variable		No Disability	Visible Disability	Non-visible Disability	*H*	*p*
Communication skills	*M*	3.97	4.28	4.02	2.36	0.307
	SD	0.83	0.57	0.78		
	n	345	18	93		
Soft skills	*M*	3.83	4.11	3.89	1.97	0.373
	SD	0.92	0.90	0.93		
	n	345	18	93		
Adaptability	*M*	3.96	4.17	3.82	2.41	0.299
	SD	0.83	0.62	0.95		
	n	344	18	93		
Work ethic	*M*	4.21	4.11	4.14	1.33	0.514
	SD	0.91	1.13	0.84		
	n	344	18	93		
Loyalty to supervisor	*M*	2.58	4.17	3.89	13.09	0.001
	SD	0.95	0.86	1.00		
	n	343	18	92		
Loyalty to employer	*M*	3.79	4.44	3.88	9.97	0.007
	SD	0.89	0.70	0.88		
	n	343	18	93		
Professional identity development	*M*	3.88	4.06	3.80	1.49	0.475
	SD	0.88	0.73	0.90		
	n	344	18	93		
Leadership	*M*	3.84	4.29	3.86	3.98	0.137
	SD	0.92	0.77	0.93		
	n	344	17	91		
Critical thinking	*M*	4.11	3.89	4.08	0.99	0.610
	SD	0.88	1.02	0.91		
	n	344	18	93		
Collaborative	*M*	3.95	4.06	4.03	1.15	0.562
	SD	0.85	0.94	0.85		
	n	344	18	93		

Participants with a visible or non-visible disability had significantly higher mean scores in comparison to those without a disability, suggesting a perceived higher level of salience for this attribute as compared to non-disabled applicants.

Perceptions of Employability Deficits by Disability Status

Additional Kruskal-Wallis tests were conducted to examine differences in ratings between self-reported disability status: non-disabled, visible disability, non-visible disability. See Table 4. All four Kruskal-Wallis tests were statistically significant, suggesting that the ratings of applicants were significantly different by applicants' disability status. Those with a visible disability or non-visible disability had higher mean scores in comparison to those without a disability. This implies that disabled individuals would perceive an applicant with an attribute deficit as a higher quality applicant than non-disabled individuals would perceive the same applicant.

Table 4
Employability Deficits by Disability Status

Variable		No Disability	Visible Disability	Non-visible Disability	*H*	*p*
Work commitment	*M*	2.51	3.83	3.24	28.03	<.001
	SD	1.47	1.29	1.39		
	n	347	18	93		
Communication skills	*M*	2.79	3.72	3.40	20.29	<.001
	SD	1.33	1.45	1.34		
	n	347	18	93		
Learning behavior	*M*	2.86	3.56	3.43	20.26	<.001
	SD	1.22	1.15	1.20		
	n	346	18	92		
Learning attitude	*M*	2.69	3.71	3.31	23.02	<.001
	SD	1.27	1.49	1.29		
	n	347	18	93		

DISCUSSION

The results imply general similarities between disabled and non-disabled individuals with respect to employment attributes, yet differences with respect to perceptions of deficits. When considering the attributes included in this study, the disabled and non-disabled individuals agreed the assessed attributes were important in a high-quality applicant from the interviewer's perspective. While comparisons of non-disabled and disabled individuals showed agreement in the perceived value of positive attributes of a high-quality applicant, loyalty to the supervisor was notably more highly perceived by disabled participants. In contrast,

results showed statistically significant differences in the perception of employability deficits between disabled and non-disabled individuals.

Loyalty to Supervisor

Results of this study found that loyalty to supervisor was more highly valued by disabled individuals than non-disabled individuals. In contrast to current literature (von Schrader, Malzer, & Bruyere, 2014), individuals with visible disabilities indicated loyalty to supervisor was significantly more important as an attribute than those with an non-visible disability. Both rated the attribute higher than non-disabled participants. This suggests that disabled individuals perceive the supervisor-subordinate relationship as more valuable to the interviewer than perhaps non-disabled individuals do.

Farmer and Aguinis (2005) suggest a higher value of loyalty to supervisor may be related to having a greater dependence on the supervisor for resources necessary for success. The need for supervisor-based access to resources may include job design or redesign, task delegation and latitude, advocacy, personal support, or mentoring. While Farmer and Aguinis (2005) do not address the impact of disability on dependence, current literature suggests resources to support work role performance may be impacted by the visibility, relevance, and severity of the disability as well as the psychological and emotional strain due to struggles with disability-related limitations (Santuzzi et al., 2019). Therefore, the supervisor may be perceived to have greater power, and the subordinate's potential dependence on the supervisor may be related to needed access to resources (Farmer & Aguinis, 2005). Additionally, the higher perceived value of loyalty to supervisor by the disabled individuals also suggests that they are more likely to be potential long-term employees. Many previous studies have found clear links between employees' feeling of loyalty to their supervisor with increased intentions to stay with the organization (Chen, 2001).

These results may signal a tendency by disabled individuals in the interview to focus on and value the supervisor-subordinate relationship. What is not clear from the results of this study or from the current literature is the employer's perception and reaction to this potential emphasis on the supervisor-subordinate relationship by disabled individuals. When considering current literature on disability and retention, there appears to be a gap in the literature suggesting future research should investigate the link between disabled individuals' feelings of loyalty to their supervisor and potentially increased retention, work role performance, and promotion as compared to non-disabled populations.

Deficit Attributes

Results showed that an applicant with deficits related to work commitment, communication skills, learning behavior, and learning attitude would be perceived more positively by disabled individuals than by non-disabled

individuals. Further, results suggest participants with a visible disability perceived employability deficits to be less impactful to perceptions of a high-quality applicant (response = somewhat good (more employable)) in comparison to participants with non-visible disabilities (response = neither good nor bad (less employable)) and non-disabled participants (response = somewhat undesirable (less employable)). Consistent with prior research, outcomes of this study suggest individuals with non-visible disabilities, who rated applicants with attribute deficits less employable, may be more sensitive to the impacts of their disability on perceived employability than individuals with visible disabilities (Margin, Marini, & Nicolotti, 2019).

When compared to non-disabled individuals, those participants with either visible and non-visible disabilities perceived an overall lesser impact of attribute deficits on perceived employability. The underlying causality of these results is unclear. It may be that individuals with a disability have higher levels of self-perceived strengths and abilities, adaptive strategies, or understanding of job tasks leading to higher levels of self-confidence (Jans et al. 2012). Conversely, a lower level of awareness may be mitigating the perceived impact of employability deficits.

While future research into causality would obviously be important, results of this study are nevertheless relevant to potential disabled applicants, employers, and workforce intermediaries. Prior research shows that hiring managers perceive employability deficits as a signal of a poor match with the organization (Berkelaar, 2014). Understanding that individuals with disabilities, especially those with visible disabilities, may perceive these attribute deficits significantly less negatively can potentially impact the potential of disabled applicants to be perceived as employable and receive a job offer. Given the lower perceived employability of disabled individuals (Ju et al. 2014), future research should investigate the difference between perceptions of individuals with visible and non-visible disabilities with respect to employability deficits and how those perceptions could lead to erroneously lessening the perceived impact of one's own deficits, or accurately perceiving one’s own strengths, abilities, or adaptive strategies.

CONCLUSION

Disabled individuals’ perceptions of attributes impact their employability and, potentially, their job search behaviors and employment outcomes. This study provides additional insight into the employability perceptions of individuals with and without disabilities as well as between those with visible and non-visible disabilities. Results show significant differences with respect to the positive attribute of loyalty to supervisor as well as perceptions of employability deficits. This study extends existing knowledge of employability perceptions between those with a visible or non-visible disability and helps further understand the employability perceptions of disabled individuals that may impact interview outcomes and length of job search.

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QUALITY OF CARE AND PATIENT SAFETY IMPROVEMENT THROUGH EFFECTIVE PATIENT COMMUNICATION AND FEEDBACK

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ABSTRACT

The U.S. healthcare industry has an unacceptable number of medical errors when compared to other high-risk industries such as aviation and nuclear power. Ineffective communication has been shown to be a considerable cause of patient safety and medical errors. This paper reviews 25 peer-reviewed studies and articles which discussed a variety of barriers to communication both within teams and between providers, patients and their families, as well as numerous tools and solutions offered to combat those challenges. TeamSTEPPS® tools to enhance team communication and collaborative processes were discussed in many of the articles, in addition to the importance of a patient safety and organizational culture, consideration of patient feedback, commitment to technology, and patient and provider education and training. The inclusion of such solutions was found to be effective in the effort to reduce errors and improve patient safety.

Keywords: Patient, Safety, Quality, Communication, Improvement, TeamSTEPPS and The Joint Commission

INTRODUCTION

The prevention of medical errors and improvement of patient safety has been a highly discussed topic of urgency since To Err is Human: Building a Safer Health System was released by the Institute of Medicine (IOM) in 1999 (IOM, 2000). Myriad articles have quoted that, "as many as 98,000 people die in any given year from medical errors that occur in hospitals," and that, "increased hospital costs alone of preventable adverse drug events affecting inpatients are about $2 billion for the nation as a whole," (IOM, 2000). Indeed, current data from Leapfrog (2018) display an unsettling increase in adverse events since that landmark IOM publication, stating that, "nearly 250,000 patients die annually from preventable errors, injuries, accidents and infections in hospitals."

With the healthcare industry borrowing many of its safety and quality improvement programs and tools from industries such as aviation and nuclear energy, which tout nearly zero tolerance for error (Leapfrog, 2018), it is surprising that such error rates are tolerated within the United States, where one in four Medicare patients will be the victim of an error in a hospital, and one in 25 patients will acquire a preventable infection (Leapfrog, 2018). These events fuel the need for further data and introspection to determine what causes medication errors, sentinel events, and other preventable mistakes. While there are many factors, there is also a spotlight being shone upon the industry to identify whether ineffective communication contributes to the commission of such medical errors, and if so, to what degree; but further, to determine which critical actions physicians, hospitals, and care teams should implement to save lives and improve patient safety for those within their immediate realm of responsibility. There are multiple, substantive peer-reviewed research studies and literature reviews published within the past five years that have assessed medical errors, and many have found ineffective communication to be a primary contributor to adverse events and unacceptable levels of patient safety within the U.S. healthcare system. This research finds various barriers and reasons for poor communication which hinder not only patients and their families, but the physicians and care teams as well.

When taken together, these gaps in communication escalate the opportunities for preventable medical errors, yet all the while patient safety declines, quality of care suffers, and a multitude of lives are impacted. Hospitals and outpatient clinics have both a moral and financial imperative to prioritize patient safety, reduce the number of adverse events, and bring safety levels on par with other risk-averse industries. This can be accomplished through the standardization and implementation of proven communication processes and tools designed to improve safety for the patients they serve.

DESCRIPTION OF THE PROBLEM

According to Guttman et al. (2012), The Joint Commission (TJC) states that, “communication errors are still the most common attributable root case in 65% of sentinel events,” while “ineffective communication costs on average U.S. $2.2 million per year per healthcare system,” (Guttman et al., 2012). There are many systemic difficulties within the hospital or care structure that may hinder communication within the team, including staffing burnout and turnover (Garcia et al., 2019), the need for improved collaborative or transition of care processes, and lack of communication training, among others. Other issues to be addressed include language and communication barriers, difficulty understanding the intricacies of the care team and its many members, and negative attitudes or perceptions by the physicians or other care team members which impact the flow and understanding of essential information.

Aids to improving communication include the addition of navigators and interpreters, who can improve patient care by functioning as trusted liaisons for those patients and family members who may need additional support within the hospital or community setting (Hilder, Gray & Stubbe, 2019), and, the TeamSTEPPS® model. TeamSTEPPS® developed in collaboration by the Agency for Healthcare Quality and Research (AHRQ) and the Department of Defense (DOD), stands for "Team Strategies and Tools to Enhance Performance and Patient Safety," (Agency for Healthcare Quality and Research, About TeamSTEPPS®, 2019). The program offers a multitude of communication and collaborative care processes and tools designed to improve communication both within the care team and between the care team and patients/families in an effort to prevent and reduce errors.

CULTURE / ORGANIZATION / SYSTEM

Current sentinel event data presented in the General Information & 2021 Update (The Joint Commission, 2022) indicates that "communication failures" is one of the factors driving patient falls, which is first on the Top 10 Frequently Reviewed Sentinel Events in 2021 list. The same source also attributes 29 main causes of wrong-site surgeries, four of which are related to inefficient communication: lack of written documentation by schedulers who accepted verbal orders instead; poor communication during briefing or hand-off in the operating room; lack of participation by all team members in the time-out process; and organizational culture failure to empower staff to speak up for safety. "Communication failures" is also cited as one of seven reasons for sentinel events due to delay of treatment (TJC, 2022).

PATIENT COMMUNICATION/FEEDBACK

Berger, Saut and Berssaneti (2020) presented a qualitative multi-case study that evaluated Brazilian hospitals with a patient safety culture, with managers responding to a survey regarding how staff accept patient feedback provided in a multitude of ways. Management culture training was found to be critical, with the organization placing appropriate importance and recognition of the need for hardwired processes regarding a safety culture mentality. A separate study by Biasibetti, Hoffmann, Rodrigues, Wegner and Robhca (2019) used semi-structured interviews by both patients and care professionals within three Brazilian pediatric hospitals, finding in particular that, "ineffective communication between patients/companions/professionals can lead to errors such as the suspension of surgeries, tests or procedures, failures in the administration of drugs or even errors related to diet therapy," (Biasibetti et al., 2019). Lack of training, diverse cultures, lack of professional commitment, and poor integration between the staff and patients/companions created gaps that could be remediated by the intentional use of communication tools (Biasibetti et al., 2019). A very simple patient-driven communication tool called a Personal Medical Information Card (PMIC) was

tested and implemented in primary care clinics in Canada, and was determined by Loo, Boot, Corral, and Bassett (2020) to be an effective way to promote patient safety.

Adverse patient events driven by medical errors may lead to litigation, and healthcare organizations must take legal responsibility with the utmost caution. Dijkstra, Roodbeen, Bouwaman, Pemberton and Friele (2022) focused on communication efforts with patients following adverse events. These assist not only in preventing litigation and providing appropriate levels of closure and further harm prevention for the patients and their families, but also in aiding those professionals involved in the incidents.

One peer-reviewed mixed-methods feasibility trial by Hernan et al. (2020) focused on the impact of patient feedback upon safety within primary care offices in Australia. The study used a survey soliciting patient feedback in nine different areas found to cause safety events in a primary care environment, followed by a Plan Do Study Act (PDSA) cycle managed by a safety improvement team, with statistically significant results signaling successful changes and improvements had been made.

Other articles targeted concerns with Culturally and Linguistically Diverse (CALD) and Limited English Proficiency (LEP) patient populations. Hilder, Gray and Stubbe (2019) analyzed 81 cases in international literature to evaluate barriers to care in these populations, including "language and cultural barriers, health system complexity, limited number of care providers from CALD communities, service cost, physical access to service, health literacy, mistrust, employment challenges, and heavy family commitments." The addition of community health workers (CWHs) and patient navigators to care teams was promoted as a natural bridge to these populations, who could build trust and understanding in ways others could not. A qualitative study by Suarez et al. (2021) involved LEP patient populations with delineation of caregiver perceptions of the outcomes of poor communication with the patients and families, with resulting actions that could be implemented to make inroads and improvements in those five areas determined to be significantly impacted by inefficient communication. Those categories include, "subpar diagnosis and treatment, unmet patient/family expectations, decreased patient autonomy, unmet end-of-life desires, and moral distress for the clinicians due to such communication breakdowns," (Suarez et al., 2021).

TEAMSTEPPS® AND TEAMWORK

There were many peer-reviewed studies and articles surrounding the importance of teamwork and the TeamSTEPPS® tools and processes to improve communication and collaboration within teams. Aaberg, Hall-Lord, Husebø, and Ballangrud (2021) conducted a pre-post study designed to determine whether intentional organizational training using TeamSTEPPS® questionnaires, tools, and

processes (AHRQ, About TeamSTEPPS®, 2017) could generate communication, teamwork and safety improvements in a surgical ward, with success noted at six months and continued hardwiring at 12 months. A separate quasi-experimental study by Ahsan et al. (2021) similarly utilized a pre-post design with nursing teams in a hospital but conversely did not show any difference pre-post implementation, with possible reasons being lack of nursing commitment, lack of training time and low motivation (Ahsan et al., 2021). Dartiguelongue and Cafiero (2021) reviewed health care team communication and the importance of communication effectiveness on patient safety. They highlighted an emphasis on the need for intentional staff training to promote effective active listening, with a patient-family centered focus, but also the importance of organizational safety culture support and a willingness to make changes to impact patient safety. In 2016, authors Gaston, Short, Ralyea, and Casterline (2016) reviewed 18 research studies and overall found positive results within "staff perceptions of both teamwork and/or communication" with decreased patient safety incidents following the intentional implementation of TeamSTEPPS® tools. They embarked on a quality improvement project of their own utilizing the TeamSTEPPS® Teamwork Perceptions Questionniare for pre-post measurement, and their results supported the prior data with statistical significance. Parker, Forsythe, and Kohlmorgen (2019) similarly found success within their review of 19 studies regarding the effectiveness of the TeamSTEPPS® tools, with "significant findings in improvement in attitude towards communication, teamwork skills, leadership, and mutual support."

Guttman et al. (2021) took a slightly different approach, emphasizing that clarity of terminology with regard to what constitutes "communication errors" leads to improved categorization of errors and ability to determine root cause and thus remediation of those errors. He and the authors categorize communication breakdowns into five "barriers," including behavioral, cognitive, linguistic, environmental, and technological, each of which have designated tools and processes designated to prevent those errors (Guttman et al., 2021).

A single longitudinal study by authors Doorey et al. (2022) centered upon a five-year study within a catheterization lab in order to provide comprehensive observation of a quality improvement project to study Closed Loop Communications (CLC), which is essentially the read-back of verbal orders. The study found that incomplete physician orders contributed to poor read-back, as did the number of people in the room, the acuity level of the patient, and lack of consistent standardization of communication processes throughout the unit (Doorey et al., 2022). Training on CLC was successful.

Neville, Miltner, and Shirley (2021) reviewed a hemo-dialysis unit as part of a quality improvement project using clinical team training (CTT) and a communication hand-off tool to reduce communication-related errors by 50%. The unit had calculated that "63% of its safety events were due to ineffective

teamwork and communication during care transition," thus interventions focused on teamwork, communication, coordination, structured handoff-communication checklists, and intentional training. The interventions were effective, with a reduction in communication-related patient safety events from 2.75 average per month to zero (Neville, Miltner & Shirley, 2021).

TECHNOLOGY

Dalal and Schnipper (2016) stressed the importance of patient-centered communication in the efforts to improve patient safety and emphasized the ability for a patient or family to accurately identify one's care team as a method to improve communication between the patient and the providers. The authors indicated that, "only 11% to 51% of patients identify their providers correctly," (Dalal & Schnipper, 2016), which can lead to inaccurate information, delayed messaging, and inability to reach the appropriate staff in an emergency.

CHALLENGES

An article by Clapper and Ching (2020) disagreed with the general findings in this research paper, questioning whether miscommunication truly drives errors. The discussion centered upon the need to look at root-cause and whether errors have been generalized as "communication errors," when in actuality they occur due to "errors of omission and commission," (Clapper & Ching, 2020). They cite a lack of standardization around reporting and lack of clarity in terminology, in the vein of arguments by Guttman et al. (2021). They do reference that provider hesitation to report, in conjunction with TJC reporting being voluntary, and not mandated, plays a part in potential inaccuracies to claims of communication failure causing medical errors, and also determined that "system communication failure was typically more at fault than interpersonal skill failure," (Clapper & Ching, 2020).

IDENTIFICATION AND DISCUSSION OF SOLUTIONS

The literature and studies reviewed presented a variety of solutions to address ineffective communication and promote improved patient safety. They include a focus on communication improvement, education, and training on the importance of a safety culture within the organization, education and implementation of TeamSTEPPS® communication tools and processes, the use of technology to help prevent errors, and patient engagement.

NEED FOR COMMUNICATION IMPROVEMENT

Communication improvement between team members, and between patients and team members, must be prioritized in order to reduce the number of medical errors while enhancing patient safety. Biasibetti et al. (2019) identified

gaps including "lack of training, culture, professional commitment, and integration between the staff and patients/companions as barriers to effective communication". Not only will clarity in communication aid in the prevention of adverse and sentinel events, there is another critical outcome. The ability to provide patients and their families with a stronger degree of confidence in their care team itself will serve to improve patient and family satisfaction, enhancing the trust which is such a critical component of the physician-patient relationship. Improved communication, the provision of clear patient care instructions upon discharge, and easy access to the care team for questions after arriving home are all necessary to ensure a successful outcome. Patients must be timely when communicating complications following care, as this period after discharge can be even more critical to the patient's safety than when under constant supervision in a hospital. A point raised by Dijikstra et al. (2022) indicates there should be an intentional focus on the proactive prevention of litigation, and building strong care team relationships with patients is a key driver in that effort.

EDUCATION/TRAINING ON ORGANIZATIONAL SAFETY CULTURE

Healthcare organizations must remain steadfast in their commitment to provide top quality care and an excellent patient experience, with requisite successful outcomes. Hospitals must remain both relevant and competitive in the marketplace, with the financial sustainability to continue growing, reinvesting, and adapting to the needs of its patients and community. Critical to these efforts is the need to disseminate and reinforce the culture of the organization to all within its walls, from the board, senior leadership, and physicians, down to every member of the organization. The promotion of a safety culture, or an accountability to "see something, say something," is an imperative to the prioritization of patient safety. Staff, in their efforts to achieve Zero Harm, must be both accountable and empowered to speak up in any situation.

Event or incident reporting is an integral component of a healthy safety culture within an organization. An organization without a true reporting process is unable to analyze data, as Neville et al., (2021) indicated in their study, nor perform root-cause analysis, identify trends nor specify departments/patients that must be considered high-risk or prone to safety errors. All these actions are necessary for implementation of corrective measures and to proactively identify and prevent potential future errors. Abbas et al. (2020) discussed interventions to help reduce hospital errors, with significant attention paid to critical incident reporting. Of 1,470 physicians surveyed, reasons for not reporting medical errors included "fear of medico-legal issues (44.2%), unwillingness to provide details for various reasons (22.3%), fear of judgement by colleagues (16.7%), and unclear reporting channels (16.7%)," and yet 89% believed that critical incident reporting would help improve safety standards (Abbas et al., 2020).

Patient feedback and complaint data can be mined from a number of sources to help identify causes of medical errors. Analytical and system tools must be designed to interface and extract data from the incident reporting system, but additionally formal patient surveys, feedback from website comments forms, and social media or internet postings should be carefully monitored with a standardized process for identifying concerning information and responding within a designated period of time, typically 24-48 hours. Additionally, care team physicians, management, and staff must receive intentional training on the importance of listening to patient feedback, with a willingness to take action that may require changes within departments or additional time commitments from clinical or other staff, as identified by Dartigulongue and Cafiero, (2021). A fairly novel approach may include proactive patient or family involvement and inclusion on patient advocacy or service excellence committees, particularly for those with positive relationships with the organization, or alternatively collaborating with "patients-as-partners in learning from health care incidents," (Dijkstra et al., 2022), providing both an avenue of root-cause identification in addition to offering a patient an avenue towards resolution or closure after involvement in an adverse event.

TEAMSTEPPS/COMMUNICATION TOOLS AND PROCESS IMPROVEMENT

The success of AHRQ's TeamSTEPPS® tools and processes to improve team collaboration and communication is demonstrated via a multitude of studies. Garcia et al. (2019) also showed that the use of TeamSTEPPS® protocols were effective in combatting burnout. In addition to surveys designed to assist teams in identifying gaps within their communication process, there are a variety of protocols and tools designed to combat certain types of communication errors. Additional communication tools are also effective, and all are discussed briefly in this section.

Guttman et al. (2021) reviewed multiple sources and classified communication breakdowns within five areas while identifying TeamSTEPPS® tools designed to help mitigate those breakdowns. Eliminating distractions and interruptions, or forming a "sterile cockpit" is one method of improving the flow of data. Another option is to prioritize and communicate important information in an organized manner through use of the Situation, Background, Assessment, Recommendation (SBAR) technique. This is often utilized when a decision is needed quickly, and in healthcare is often used during handoffs or transition of care situations, as is "I PASS THE BATON", a more detailed level of information exchange.

Linguistic barriers occur due to the "components of speech known as style, tempo, tone, syntax, semantics," (Guttman et al., 2021). One of the most discussed tools to address this barrier is Closed Loop Communication (CLC) whereby the

receiver repeats back (or "checks back") the information to the sender to ensure complete understanding, a process which should occur with any verbal orders. Doorey et al. (2022) addressed its importance by noting in their research that, "in all cases of major errors, failure of complete CLC had occurred," and also indicated, "a 37% reduction in perinatal morbidity" among a team that implemented CLC. Other structured hand-off communication tools such as SBAR, and ways of escalating concern such as the 2-challenge rule and CUS (I am Concerned, Uncomfortable, Stop!) are designed to ensure accurate transmission of information and importance or urgency to ensure the message is received, with the ability to stop a procedure if necessary (Guttman et al., 2021).

Behavioral barriers include those due simply to ineffective or lack of communication (Guttman et al., 2021), and when concerning patient safety is addressed through "speak-up behavior" which the Institute for Healthcare Improvement indicates is a "critical behavior," (Guttman et al., 2021). Again, the 2-challenge rule and CUS may be used (Guttman et al., 2021), along with warm handoffs, where the transition of care is performed between team members, in front of the patient and family, to build trust and communication (Guide, 2018). Huddles also offer the opportunity to exchange information, and care team identification provides patients a chance to learn who are involved with their care.

PATIENT ENGAGEMENT AND EDUCATION

Patients, their families and/or guardians also bear a large portion of responsibility for ensuring communication is clear, thorough and effective, with the patient's health and outcomes being most at risk if communication does not meet these standards. The reviewed literature provided a variety of tools and processes shown to aid interactions and the exchange of information between patients and providers. As previously mentioned, the PMIC (Loo, Boot, Corral & Bassett, 2020) was a physical printed card, carried by 52 patients with a genetic condition called 22q11.2 deletion syndrome, in a Canadian study. The card contained critical health information, such as insurance data, familial contacts, medications, and major health concerns, which could be more easily and consistently conveyed to providers or others to help them better understand the health needs of the patient, who often has an intellectual disability. Challenges with the tool included the time and staff-intensive nature of the creation and disbursement of the cards, but interviews indicated the cards were consistently utilized not only during planned care visits but also emergencies, thereby quickly providing critical information that improved the care and safety of the patient.

The AHRQ's Guide to Improving Patient Safety in Primary Care Settings by Engaging Patients and Families (Guide, 2018) is an online resource that touted proactive preparation prior to health care visits, and suggested agenda preparation as a tool to ensure discussion of important questions and concerns. The Guide (2018) promoted the creation and use of a medication list, given that, "5-7% of

prescriptions result in a medication error," which equates to roughly 160 million prescription errors annually in the U.S. (Guide, 2018). Both the "teach-back" method, or repeating information back to the provider to confirm understanding, and warm handoffs are considered best practices and a way to build both communication and trust with the care team (Guide, 2018). The promotion of these recommendations throughout the healthcare industry could aid in improving both patient and team awareness, with more clarity in communication and resulting increases in patient safety.

Finally, Dalal and Schnipper (2016) discussed the lack of knowledge held by many patients and families regarding the actual identity and role of those caring for the patient. There can be a staggering number of care providers involved in the course of care for patients whose care or hospital stay could extend past days and into months, making it extremely challenging to recognize the care member and identify their role in the care of the patient. This creates a dual-deficit in the ability to communicate effectively and the potential for increased adverse events and errors, but also decreased patient satisfaction and confidence in care (Dalal & Schnipper, 2016). Hospitals must promote a safety culture that signals team identification as a necessity in Zero Harm efforts. EHRs have the ability to document assigned care members and roles, and both physicians and staff must be not only trained but required to utilize the functionality to do this consistently when recording notes and transition of care. The EHR must always reliably be the source of truth in documentation of care for the patient.

PROPOSED IMPLEMENTATION PLAN

Health systems and providers have taken a variety of approaches to improving patient safety, and the importance of effective communication between patients and teams in mitigating adverse events and medical errors cannot be overstated. Many of these tools that have historically been utilized within hospital settings can similarly be implemented in a physician clinic, although personnel and funding resources obviously are significantly reduced. However limited the resources, attention to the basics should never be viewed as a wasted effort.

Health systems must invest appropriately in the requisite technology and systems necessary for operations, training, data mining, interfacing, reporting, and trending. Event reporting systems and robust EHRs with decision support systems encourage strong collaboration between Information Systems and Risk Management departments, enabling the identification of trends and reduction of adverse events and medical errors. Such technology allows the identification of both clinically high-risk patients and those patients at increased risk of diagnostic error, while offering the ability to track and provide timely response to patient complaints and feedback. These root-cause investigations are invaluable in preventing further errors, while enhancing service recovery for those who suffered an adverse event. Prompt response and communication in such events may prevent

malpractice suits, while helping to repair relationships and protect the system reputation and brand.

Health systems must create and implement a solid curriculum of ongoing training regarding a variety of effective communication tools to improve care and collaboration among its care teams. TeamSTEPPS® processes and tools such as Closed Loop Communications, SBAR, and others listed earlier should not only be taught within the first few months of employment, but utilized regularly, with consistent refresher training. The importance of clear and effective communication must be visibly supported by leadership in efforts not only to continuously improve quality of care, but to combat the ever-present impacts of burnout upon its staff and physicians, and ultimately upon patient safety. Systems must commit to a Safety Culture and Zero Harm program, taught in the first few weeks of orientation, with annual competency training and visible adherence to those standards, cascading from every level of leadership down to all departments and every member of the staff. Staff must be encouraged that everyone is responsible for protecting patients from harm, while leadership demonstrates the critical nature of speaking up for safety. Similarly, systems must train staff on diversity and inclusion, and the needs of CALD and LEP populations. When possible, they should consider the use of patient navigators and relationship development with CHWs in disparate populations, to ensure effective communication and understanding of those populations in the communities they serve.

Care teams must be trained that patient complaints and feedback are to be respected, and always to be viewed as opportunities to locate and correct root causes of error. This feedback is critical to the improvement of patient care and safety, and senior leadership and department managers must both value and support effective ways to address and incorporate the feedback for operational improvement. Process improvement training for management will lead to the ability to increase efficiency, while reducing workloads and potential for burnout.

CONCLUSION

As in other high-risk industries such as aviation and nuclear energy, the safety of millions of people ultimately relies upon the efficacy and timeliness of communication between healthcare systems and teams, and between providers, teams, and those patients and families in the communities they serve. The U.S. still suffers from error rates that are significantly higher than these of other industries, and research shows that is often strongly correlated with ineffective communication. Hospitals and care providers must commit to taking decisive action to improve the integrity and efficacy of communication and information transmission between providers and patients by addressing the root cause of errors and building relational trust.

They must first implement and adhere to an organizational and safety culture that is supported at all levels, with the one goal of improving safety for the patients within their care. Health systems must prioritize the tools and systems necessary for diagnostic error prevention, while ensuring that patient feedback and complaints are treated as an invaluable insight and opportunity for error improvement and prevention. Leaders must encourage and enhance teamwork and collaboration, with the inclusion of communication tools and teamwork processes such as those provided through AHRQ's TeamSTEPPS® program. And finally, thorough analysis and financial commitment to the technological resources necessary to support these efforts must be prioritized by the hospital system and its board. Healthcare is a service industry and a "people business". The inability to effectively communicate within and between providers, care teams, and patients cannot and should not continue to stand as an ongoing and preventable cause of adverse events, medical errors, or patient harm.

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TECHNICAL INDICATOR PREDICTABILITY

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ABSTRACT

Technical analysis has been prevalent in literature for decades. However, as an academic study it has phased in and out of favor. We test whether the popular technical trading signals generate profitable returns in trend following portfolios and compare the performance among them. We test the Stochastic (PK) indicator, moving average (MA), and William's Percent R (PR). We test the research in security prices (CRSP) database from January 1, 1963, through December 31. 2019. We benchmark our performance on the portfolios sorted by volatility as measured by the last years standard deviation of returns. Out of the three indicators the Stochastic performs the best while the moving average and Percent R indicator perform well too. We benchmark our study on excess returns over the buy and hold and compare the excess return remaining when explained by the Fama and French 3 Factor model. We do this for portfolios sorted by both size and volatility. We see that different indicators pick up on different returns at different times although all three perform similarly. There is likely a more optimal strategy combining several indicators or using a combination of both technical indicators and macro fundamentals.

Keywords: Technical analysis, trend trading, Williams %R, stochastic, moving average.

Introduction

Investors who watch the market for buy and sell signals may use the moving average as one of their tools. Buying when prices cross above the moving average from below and selling when prices cross below the moving average from above.

The buy and sell signals are rooted in supply and demand. Traders believe that buyers are waiting to place orders where a buy signal occurs and there is a demand for the stock. The reverse is true for sell signals and traders believe

that sellers are waiting to distribute shares of the stock as there is excess supply at that price.

We form portfolios from the last years volatility, and size using the center for research in security prices (CRSP) database. We use NYSE, AMEX and NASDAQ stocks for our sample and run from 1963-2019.

Recent empirical evidence shows that technical indicators/rules do indeed beat buy-and-hold strategies. To test this on our volatility portfolios we choose three popular technical indicators. The stochastic, William's Percent R, and the moving average. We show that all three indicators beat the buy and hold strategy with high levels of accuracy.

The strategies are characterized by higher return and lower volatility (as opposed to the buy-and-hold). They have strong Sharpe ratios (some above 2.5) and accuracy above 55% (available on request).

Literature Review

Fama and Blume (1966) discuss market efficiency as weak form, strong form, or semi-strong form. As an academic study, technical analysis has gone in and out of vogue since the 1970s.

Fama and Blume (1970) found unfavorable results for technical analysis. Many studies since 1970 have found favor of technical analysis. For moving averages: Brock, Lakonishok, and LeBaron (1992), and Hsu, Hsu, and Kuan (2009), Han et al (2013), Zhou et al (2016), Arvamov et al (2021) have all found favorable results and later studies hold in the face of momentum.

To the best of our knowledge, Han, Yang, and Zhou (2013) is the first study that presented evidence of the cross-sectional profitability of technical signals. Cross sectional refers to many different stocks trading over a period. Profitability refers to the profit of trading them following a moving average rule. Although the authors find profitability, they are careful to note that does not necessarily negate market efficiency. They discuss that market participants may not act on the information when it is available to them causing profitable returns available to other investors.

Technical trading rules for investing strategies are discussed in Pring, (2002). Some of the strategies involve buying the oversold areas of oscillators such as relative strength, stochastic, commodity channel index, and William's percent r.

Trend following is discussed in Covel (2009). This discusses again buying stocks as they are showing consecutive higher highs and higher lows. Buying when stocks revert to their lows (or touch a moving average from above) are said to be buy signals.

Hayden (2004) and Bollinger (2002) have complete guides to using Relative Strength Index and Bollinger Bands. Both of the indicators can be used for trend following and are discussed in their books.

Original technical studies including nonlinear chart patterns are discussed in print literature from Edwards and Magee (1948) and tested empirically by Lo, Mamaysky and Wang (2000). These indicators are more difficult to compute than other technical indicators discussed in this paper.

Data and Methodology

Our sample runs from 1963 and ends in 2019. We first obtain daily prices and then we sort stocks based on the prior years size and volatility. We split each sort into deciles and record the high-low (small-big) decile. We use the stochastic oscillator, William's percent r, and the moving average to time the portfolios.

Practitioners wishing to implement the portfolios would select a basket of stocks either on an exchange or all available stocks using CRSP share code 10,11. The resultant stocks would be sorted by the prior year's standard deviation of stock returns and split into deciles. They would then create an equally weighted index of all of the stocks prices and form the technical indicators from that index. They would buy and hold long all positions in their portfolio when the index is above the moving average and sell all positions when it is below.

The moving average is the simple average of the stock over a set number of periods. It can be used for computing the average for any period, and is fractal to longer and shorter horizons (as with the other indicators). For example, a ten day moving average would be the average of the last 10 days in the market. A buy signal occurs when the price is above the moving average.

The formal statement of the investment strategy is:

$$\mathrm{MA}_n = \frac{P_{\text{close}} + P_{t-1} \ldots + P_{t-n-1}}{n} \tag{1}$$

The rule becomes: (2)

$$\begin{cases} 1 & P_{t-1} > \mathrm{MA10}_{t-1} \\ 0 & P_{t-1} < \mathrm{MA10}_{t-1} \end{cases}$$

The Stochastic Indicator %K, deemed (PK) is also tested. The indicator uses an oversold region typically below 20, a middle line (50), and an upper line

80. We earn the rate of return on the market when the indicator is reading a buy signal and we earn the t-bill rate when the indicator is reading a sell signal.

Stochastic Indicator

$$\text{Stochastic}\%k = 100 * (P_{\text{close}} - H_5)/(H_5 - L_5) \tag{3}$$

$$H_5 \approx \text{HighestPriceintheLast5Periods}$$

$$L_5 \approx \text{LowestPriceintheLast5Periods}$$

$$k = \text{Stochastic}\%k$$

Stochastic Indicator

The rule becomes: $\begin{cases} 1 & PK_{t-1} > 20 \\ 0 & PK_{t-1} < 20 \end{cases}$ (4)

The last strategy we test is Williams %R, deemed (PR). The indicator is the inverse of the stochastic indicator. For percent the oversold region is also used for a buy signal which has a value of 90. For buy signals we hold until the next sell signal occurs when the indicator falls below oversold. The middle line is 50 as with the stochastic and the overbought line is 10. We earn the risk free rate on days out of the market and the market rate for the portfolio on days in the market.

Percent R

$$\text{Williams } \%R = 100 * (H_5 - P_{\text{close}})/(H_5 - L_5) \tag{5}$$

$$H_5 \approx \text{HighestPriceintheLast5Periods}$$

$$L_5 \approx \text{LowestPriceintheLast5Periods}$$

Percent R

The rule becomes: $\begin{cases} 1 & \%R_{t-1} < 90 \\ 0 & \%R_{t-1} > 90 \end{cases}$ (6)

Results

In this section we report annualized returns and standard deviations for each indicator. We also report accuracy and Sharpe ratios. We report t statistics in parentheses and note significance at .10 (*), .05(**), and .01(***). We show three panels, one for the buy and hold (Table 1 panel a), one for the active strategy (panel b), and one for the excess returns (active – passive, panel c).

We show the average annualized returns, annualized standard deviation and Sharpe ratio for both the Buy and Hold and the Stochastic in Table 1. Table 2 shows the annualized excess returns for volatility sorted portfolios and Fama and French alphas for each of Stochastic, Moving Average and William's Percent R, and Table 3 shows the annualized average excess returns for size sorted portfolios and Fama and French alphas for all three indicators. We take on the risk-free rate of return when the indicator is not in the market. The results are shown in percentages for annul return, annual volatility, Sharpe ratio and accuracy.

Table 1.

	Panel A. Volatility Decile Portfolios			Panel B. PK (5) Timing Portfolios		
Rank	Avg Ret	Std Dev	Sratio	Avg Ret	Std Dev	Sratio
Low	10.10 **	6.73	79.69	16.39**	4.43	262.83
	(11.13)			(27.40)		
2	12.02 **	9.28	78.46	17.29**	6.69	187.71
	(9.60)			(19.16)		
3	13.45 **	11.34	76.85	20.73**	8.16	195.99
	(8.79)			(18.83)		
4	14.10 **	13.06	71.70	21.54**	9.53	176.22
	(8.00)			(16.74)		
5	14.45 **	14.66	66.22	23.79**	10.64	179.16
	(7.30)			(16.58)		
6	15.35 **	15.74	67.44	25.60**	11.69	178.50
	(7.23)			(16.23)		
7	14.87 **	17.14	59.09	26.78**	12.53	175.93
	(6.43)			(15.84)		
8	14.71 **	18.55	53.76	29.27**	13.65	179.73
	(5.88)			(15.89)		
9	16.49 **	19.54	60.11	32.29**	14.38	191.59
	(6.25)			(16.64)		
High	38.21 **	20.56	162.80	49.73**	15.59	288.70
	(13.78)			(23.65)		
High-Low	28.11 **	17.61	132.76	33.34**	14.50	197.24
	(11.83)			(17.04)		

Table 2.

	MAP(PK)		MAP(MA)		MAP(%R)	
Rank	Avg Ret	FF α	Avg Ret	FF α	Avg Ret	FFα
Low	6.29**	7.38**	4.10 **	5.41**	4.14**	5.09**
	(9.31)	(12.33)	(5.48)	(8.47)	(6.50)	(8.87)
2	5.27**	7.02**	3.39 **	5.71**	3.33**	4.75**
	(6.10)	(9.91)	(3.45)	(7.72)	(4.20)	(6.98)
3	7.28**	9.62**	4.07 **	7.21**	4.89**	6.71**
	(6.89)	(11.55)	(3.34)	(8.44)	(5.08)	(8.34)
4	7.44**	10.22**	4.80**	8.68**	5.05**	7.31**
	(6.21)	(10.97)	(3.44)	(9.21)	(4.62)	(8.10)
5	9.35**	12.71**	5.46 **	10.02**	6.82**	9.36**
	(6.91)	(12.43)	(3.50)	(9.78)	(5.65)	(9.54)
6	10.25**	13.68**	6.25 **	11.03**	6.53**	9.11
	(7.26)	(12.60)	(3.76)	(10.04)	(5.24)	(8.81)
7	11.91**	15.70**	6.84 **	12.03**	8.98**	11.83**
	(7.60)	(13.18)	(3.80)	(10.02)	(6.45)	(10.39)
8	14.56**	18.56**	11.19 **	16.61**	11.06**	14.20**
	(8.66)	(14.38)	(5.76)	(12.71)	(7.26)	(11.45)
9	15.81**	19.81**	11.62 **	17.12**	10.94**	14.08**
	(8.94)	(14.43)	(5.69)	(12.23)	(6.87)	(10.71)
High	11.52**	15.37**	8.80 **	13.89**	8.35**	11.35**
	(6.44)	(10.38)	(4.26)	(8.81)	(5.15)	(8.13)
High-Low	5.23**	7.99**	4.70 **	8.47**	4.22**	6.26**
	(3.32)	(5.69)	(2.62)	(5.64)	(2.93)	(4.75)

Table 3.

	MAP(PK)		MAP(MA)		MAP(%R)	
Rank	Avg Ret	FF α	Avg Ret	FF α	Avg Ret	FFα
Large	4.69**	3.04**	0.88	1.90**	2.64**	2.02**
	(3.31)	(7.18)	(0.47)	(4.39)	(2.06)	(4.94)
2	8.29**	4.58**	3.88**	3.34**	5.87**	3.32**
	(5.86)	(11.02)	(2.37)	(8.06)	(4.65)	(8.29)
3	9.93**	5.33**	6.27**	4.43**	7.73**	4.14**
	(6.83)	(12.46)	(3.71)	(10.40)	(5.94)	(10.04)
4	10.62**	5.65**	6.78**	4.63***	8.29**	4.36**
	(7.30)	(13.31)	(4.06)	(11.03)	(6.37)	(10.63)
5	10.53**	5.55**	7.77**	4.95**	8.87**	4.58**
	(7.47)	(13.31)	(4.82)	(11.89)	(6.98)	(11.34)
6	11.55**	5.90**	9.68**	5.60**	9.80**	4.91**
	(8.50)	(14.50)	(6.30)	(13.72)	(8.01)	(12.51)
7	12.86**	5.90**	10.80**	5.61**	10.92**	5.19**
	(10.67)	(16.17)	(7.94)	(14.51)	(9.75)	(14.17)
8	13.72**	6.10**	10.49**	5.24**	11.25**	5.17**
	(12.39)	(17.70)	(8.50)	(14.16)	(10.97)	(15.05)
9	12.50**	5.80**	9.96**	5.02**	10.53**	4.86**
	(11.50)	(16.33)	(8.22)	(13.43)	(10.50)	(14.29)
Small	11.97**	5.71**	9.10**	4.93**	8.38**	4.15**
	(9.11)	(13.15)	(6.09)	(10.66)	(6.84)	(9.93)
Small-Large	7.38**	2.64**	8.27**	2.95**	5.78**	2.08**
	(5.39)	(5.09)	(5.58)	(5.38)	(4.46)	(4.18)

Conclusion

Stochastic %k, William's Percent R can work along side the moving average indicator for timing the portfolios and the returns hold with the fama and French 3 factor model. The indicators show that the small size performs similar to high volatility and while they do not perform much different from the moving average, the indicators perform different at different deciles.

This could open the door to a more improved market timing model using a blend of macro fundamentals and technical indicators. A model that combines factors found in literature and using neural networks could be an improvement on the portfolios. Additional sorts such as book to market could be another line of work.

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THE IMPACT OF NON-URGENT EMERGENCY DEPARTMENT (ED) VISITS ON HEATHCARE ORGANIZATIONS AND PATIENT CARE

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ABSTRACT

This paper addresses the non-urgent use of the Emergency Department (ED) and the impact it has on both healthcare organizations and patient care. Emergency Departments are a vital part of the healthcare system seeing on average 27 million patients per year. Of those 27 million, 18 million visits are considered non-urgent. As costs associated with healthcare continue to rise, identifying ways to cut down on these non-urgent visits will benefit both healthcare systems and patients alike. This project seeks to offer solutions that can help healthcare organizations mitigate these factors in order to reduce inappropriate use of the emergency department as well as better serve the needs of their community. Overall, the goal of this project is to understand the needs of the patients within their community, reduce spending and offer solutions that are sustainable for generations to come.

Keywords: Emergency Department (ED), Non-urgent, Costs, Economic and Solutions

INTRODUCTION

On average, Emergency Departments (ED) have 130 million visits per year, according to researchers about 30% of them are avoidable (Centers for Disease Control and Prevention, 2018; Uscher-Pines et al., 2013). Non-urgent ED visits are visits for injuries or conditions that would not result in an adverse outcome if not treated for several hours (Uscher-Pines, Pines, Kellermann, Gillen & Mehrotra, 2013). One noted barrier to collecting accurate data on the use of ED for non-urgent issues is the lack of a consistent definition. Due to this inconsistency in

healthcare organization terminology, non-urgent visits can be classified under other terms such as preventable or unnecessary. While the wording may be inconsistent, the issue at hand is not. The inappropriate use of the ED is causing an increase in healthcare spending. Patients who frequently seek care in this manner risk receiving unnecessary tests, procedures, and treatments in addition to overall lower quality care.

According to researchers at the University of Pittsburgh, between 13.7 and 27.1 percent of patient issues could be treated at an urgent care rather than an ED, resulting in a savings $4.4 billion annually (Weinick, Burns, & Mehrotra, 2010). Research from the United Health Group (2019) estimates that the cost of covering a primary care treatable condition is 12 times higher in the ED as opposed to a physician's office and 10 times higher than the same treatment at an urgent care center. This paper will address a theoretical issue that could benefit any healthcare organization within the United States. This project will review what populations account for the most non-urgent ED visits, and the factors that cause them to seek care at the ED in addition to why this misuse of the ED is bad for healthcare organizations and patients alike.

Research shows that people with lower socioeconomic statuses are more likely to utilize the ED for non-urgent medical issues. Due to their lack of economic status, this group is also more likely to be uninsured or have Medicaid. Uninsured patients are more likely to lack the follow up care needed to properly address their issue and ED's are not equipped to provide patients with follow up care, a primary care provider is the most appropriate setting to ensure appropriate follow up of care. While Medicaid benefits more than 84 million individuals in the United States, Medicaid only reimburses healthcare organizations a fraction of the actual cost of care ("September 2021 Medicaid & CHIP Enrollment Data Highlights | Medicaid," 2022).

Previous interventions to discourage the use of ED's for non-urgent care have not had the intended effect and researchers believe this could be because those interventions did not adequately address the patients underlying issues (Uscher-Pines et al., 2013). Many healthcare organizations and insurance companies have attempted to thwart the number of non-urgent ED visits by offering incentives to visit your primary care physician annually as well as introducing higher copayments for visits to the ED (Uscher-Pines et al., 2013). Both of these tactics have had little to no effect on those who are uninsured or insured through

Medicaid, this paper will explore other strategies. For the uninsured in particular, ED's are the only place where they are guaranteed to receive a physical exam regardless of their ability to pay (Weinick et al., 2010).

Other factors that predict a patient's likelihood to visit an ED for a non-urgent reason are education, employment, health insurance coverage, transportation access and internet access (U.S. Census Bureau, 2022). Other barriers to seeking care with a primary care physician include long wait times for an appointment, and the lack of after-hours availability (Sieck, Hefner, Wexler, Taylor, & McAlearney, 2016). While healthcare organizations are powerless to change many of the factors that patients may be facing, they can help mitigate the barriers to accessing a primary care physician. Encouraging patients to build a relationship with a trusted physician can lead to better long-term outcomes for the patient.

Due to the increased use of the ED, many hospital systems face overcrowding in the ED causing long wait times for patients to be evaluated. This puts extra pressure on triage nurses to ensure the patients with the greatest need are evaluated first. Due to the 24-hour nature of the ED, the fixed costs to run the facility make the care given much more expensive than a physician's office (Weinick et al., 2010). Healthcare organizations are also concerned about the quality-of-care patients receive when they are not able to seek proper follow up care. Many chronic conditions require the oversight of a primary care physician, the ED is not equipped to provide that type of ongoing care.

While veterans only make up about seven percent of the population in the US, it may be worthwhile for states with a high active duty or veteran population to address the differences between military and civilian culture when seeking care. From my experience in the military, active-duty service members are taught to utilize the ED on base for any urgent issues. Once a member transitions, this can be a hard habit to break. Service members also face many of the issues that civilians face when seeking care. Issues such as long wait times for appointments and lack of transportation are issues that many veterans, especially those with a disability face on a continual basis.

Creating a plan to address the issues of all of these communities will benefit patients and hospital organizations as whole. Through more effective education, more effective placement of urgent cares and physician offices while partnering

working with community and government advocacy groups the issues caused by the of overuse of EDs can be addressed in a beneficial and sustainable manner.

LITERATURE REVIEW

The use of the emergency department (ED) and the costs associated with its usage have been a point of contention for decades. Many researchers have attempted to tackle the increasing costs of healthcare that seem to be exacerbated by the frequent overuse of the ED. Researchers have found that at least 30% of all ED visits are non-urgent or avoidable (Uscher-Pines et al., 2013). The Centers for Disease Control and Prevention estimate that as many as 130 million people visit the ED each year (2018). Considering that at least 30% of those visits were avoidable, it is easy to see the excess burden being place on the healthcare care system through the overuse of the ED. A 2010 study found that non-urgent ED visits cost more than four billion dollars annually (Weinick et al., 2010). While more recent research estimates the costs to be closer to 32 billion dollars annually (UnitedHealth Group, 2019). Even accounting for inflation during that time period, it is clear that the costs associated with non-urgent use of the ED is costing healthcare systems and taxpayers a lot of money. Researchers found that between 2012 and 2015 the average price for a hospital-based ED visit increased by 23%, from $1,842 to $2,259 (Ho et al., 2017). UnitedHealth Group estimates that these costs are 12 times higher than a physician's office visit 10 times higher than an urgent care (2019). This amount is also higher than the cost of visiting a freestanding ED, which has seen a 54% increase in cost between 2012 and 2015 averaging $2,199 per visit (Ho et al., 2017). Even though a large portion of ED visits are classified as non-urgent, most still had some type of diagnostic or therapeutic intervention performed, which continues to raise the cost of each visit (Honigman et al., 2013).

After reviewing the alarming numbers above, it is important to understand who is most likely to use the ED for a non-urgent visit and to understand why that is the case. While ED use is high across all socioeconomic classes, it is highest among those of lower socioeconomic status, specifically the uninsured or those who were on Medicaid (Ushcer-Pines et al., 2013). Another study agreed with these findings stating that "non-urgent visits were more likely to be younger, non-Hispanic black race, have Medicaid or no insurance" (Honingman et al., 2013). This correlates to other research that shows that minorities are up to twice as likely to develop a major chronic disease and those who are poor are more likely

to develop chronic illness (Price et al., 2013). Uscher-Pines et al. (2013) found that those with poor health were more like to have non-urgent visits. Together this body of research shows that not only are minorities and other people of low socioeconomic status are most likely to be in poor health or suffering from chronic illnesses that require ongoing care, but also that they are more like to visit the ER for a non-urgent issue because of it. Another study wraps it up well with the statement "High ED utilization is often seen as a marker of unmet healthcare needs" (Moulin et al., 2018). Other groups that have been identified as frequent users of the ED include those who struggle with substance use, homelessness, and mental illness (Moulin, 2018). By using research to identify the groups most likely to overuse the ED, plans can be implemented that put the most effort into targeting these specific groups. Targeting these underserved populations will allow healthcare systems to better serve the most vulnerable in their community.

One of the most frequently cited reasons for using the ED for non-urgent care is the lack of access to a primary care physician (PCP) in a timely manner (Sieck et al., 2016). This lack of access includes limited hours at their PCP's office and long waits for an available appointment (Sieck et al., 2016). Other issues within the primary care system that leads to the overuse of the ED is that PCPs often refer patients to the ED without clear instruction regarding what constitutes the need for emergency care (NEHI, 2013). Research in the previous section stated that low socioeconomic status was an indicator of frequent ED usage and those with lower incomes face many barriers when seeking access to healthcare. These barriers include a lack of health insurance coverage, transportation or even internet access (U.S. Census Bureau, 2022). Another factor is that healthcare systems are obligated to fully examine and provide stabilizing treatment for all patients regardless of their ability to pay (NEHI, 2013). For patients struggling financially, this makes the ED the ideal place to seek treatment as opposed to a physician's office where insurance is often verified before a visit and payment is required prior to being seen by a provider. Other factors that drive high ED utilization are cultural, studies have shown that patients who grew up frequently utilizing the ED tend to continue the practice into adulthood (Seick et al., 2016). And still, other people simply do not know which type of issues are considered emergencies, correlating to patients with a lower health literacy seeking emergent care more frequently (Seick et al., 2016). Research shows plenty of reasons why the ED is overused and while all these issues are not within a healthcare organizations power to solve, a number of issues are. By simply

addressing these issues that drive people to the ED, healthcare organizations can reduce spending while providing better and often more convenient care to their patients.

Outside of the astronomical costs associated with overuse of the ED, other issues have been identified in the literature. Two of the most concerning issues are overcrowding and a decrease in the quality of patient care. Research shows that it is vitally important for patients to build a relationship with their PCP especially when managing chronic health issues to avoid receiving fragmented care (NEHI, 2013). Seeking care at the ED instead of through a PCP does not allow chronically ill patients to properly manage their ongoing issues. Seeking help at the ED instead of with a PCP can cause continuity of care issues, due to a lack of efficiency when communicating between the ED and the physician's office (NEHI, 2013). Another issue is that most patients do not completely understand what care they received in the ED or their discharge instructions, these issues can lead to a decrease in patient outcomes (NEHI, 2013). Overcrowding in ED's is another issue that should be addressed. Urban communities in particular, suffer from long wait times that have a negative impact on access and quality of care (Langabeer et al., 2017). Many patients report needing to be seen in the ED but avoiding it because of the long wait time. While triage often allows those with more urgent needs to be seen more quickly, it is not a perfect process and can leave those with critical issues waiting in the hallways for rooms to become available. Recent studies have classified ED overcrowding as a public health problem because of the negative affect it has on clinical outcomes (Patel et al., 2018).

Over the years, healthcare systems have taken many different approaches to curb the number of non-urgent patients in the ED. Both researchers and providers are split over the best way to handle the issues within the ED. Some believe that if ED physicians provide patient education after treating a patient about when they should use the ED versus when they should make an appointment with their PCP or visit an urgent care, that it will slow down the number of non-urgent visits (Sieck et al., 2016). Other researchers have agreed with this approach stating that ED visits decreased by about 25% when patients were given a brief education intervention by the ED physician (Patel et al., 2018). This study concluded that contacted patients either by phone or by mail within two weeks of their visit and explaining alternate avenues of care was the most effective route to reduce low-acuity ED visits (Patel et al., 2018). Other physicians think that since there is not a proven method to significantly reduce the number of non-urgent ED visits, that

hospitals should prepare for these patients through fast-track systems or hospital run urgent cares (Sieck et al., 2016). Another intervention that has been tried are financial disincentives, creating higher co-payments for using the ED (Uscher-Pines et al., 2013). This method has had no impact on the uninsured and those on Medicaid and may have had patients who truly needed to be seen in the ED avoid it due to the prohibitive cost (Uscher-Pines et al., 2013). Newer research suggests that integrating telehealth into the prehospital setting can create a six percent decrease in unnecessary ED visits (Langabeer et al., 2017). The authors of that study found that the average cost of a telehealth visit was $167 compared to the more than $2000 cost of an ED visit (Langabeer et al., 2017).

POTENTIAL SOLUTIONS

The misuse of the ED is an issue of such significant magnitude that there is not one single approach that can make meaningful impact. In order to reduce the number of non-emergent ED visits this healthcare organization is going to need to take a multi-step approach, that will eventually lead to long-term change. The proposed solutions are to increase patient education, introduce telehealth into the pre-hospital setting, relocate or open additional urgent care centers (UCC) and physicians' offices as well as work with pre-established community groups and local government to ensure that the needs of the community are being met. Access to adequate and affordable healthcare is not simply one healthcare systems issue, it is a human rights issue that has an impact on public health and the community as a whole.

Patients are the cornerstone of every healthcare system and properly educating them is the first step to reducing the misuse of the ED for non-urgent issues. This makes them the perfect place to start when it comes to creating solutions that are beneficial for both patients and the healthcare organizations that serve them. Educating patients on the appropriate use of the ED is step one, many people have no idea what constitutes an emergency, believing that any illness or injury after regular business hours requires a trip to the ED. Patients can be educated in a myriad of ways, for younger demographics using social media to outline the different levels of care with examples of which type of illness or injuries require which level of care. For example, placing advertisements on social media that remind patients that chronic issues such as knee or back pain are best seen by their PCP, while issues like urinary tract infections or minor cuts that may need stitches can be treated at an urgent care, whereas issues such as chest pain or

injuries that include broken bones or excessive bleeding should be treated at an ED. Patients can also be educated by using these advertisements on the screens in the waiting areas as well as providing these guidelines with their discharge paperwork. Another way to increase patient awareness is through educating a patient verbally prior to leaving the ED as well as providing follow up education within two weeks of their visit to the ED. A recent study has shown that ED use decreased by 22% in patients 65 or older who received a follow up phone call from an ED physician about the when to use the ED and when to utilize other treatment centers (Patel et al., 2018). This same study also showed that patients under 65 who received the same education by mail utilized the ED for non-urgent issues 27% less after the intervention (Patel et al., 2018). By providing the education again after some time has passed, it reinforces the information and allows them time to really digest what they are being told and ask questions if necessary. When leaving the ED, many patients are distracted by the illness or injury that brought them in and are focused on the discharge instructions that will make them feel better. Providing patient education at a later date allows the patient to be fully present to understand what is being said to them. Studies suggests that follow up education may be the key to making lasting changes in patient behaviors in relation to their utilization of the ED.

Many healthcare organizations and even some insurance companies have already opted for some sort of telehealth in the prehospital setting. The introduction of telehealth in pre-hospital services in the next step in lowering the ED utilization rate. Many insurance companies are just as interested in lowering the number of non-urgent ED visits as hospital systems are. Because of that, some companies have launched their own online telemedicine portals for those they insure. Blue Cross Blue Shield (BCBS) has an interactive portal for patients to access care prior to physically going to a UCC or ED. Those insured by BCBS have the option of a telephone or video visit for less than half the cost of their copay at an UCC and a mere fraction of the cost of an ED visit (BlueCross BlueShield of Texas, 2022). On the heels of the Covid-19 pandemic, now may be the best time to introduce telehealth in the prehospital setting as over the last two years more healthcare systems and patients have gotten used to these systems and learned to utilize them when in-person visits were not always an option. Not only that, but healthcare organizations already have the support staff necessary to handle larger amounts of telehealth inquiries. Another insurance company, Tricare, that serves active-duty military service members, veterans, and their families has a

hotline that those who are insured can call. This hotline works as a triage service and directs the patient to the appropriate level of care whether that be scheduling a regular appointment with their PCP, going to a UCC or proceeding to the nearest ED (TRICARE, 2022). This type of prehospital triage can help greatly reduce the number of non-urgent patients in the ED. In a recent study, researchers utilized prehospital telehealth services for patients who called 911 requesting an ambulance and instead were placed in contact with an emergency physician who triaged these patients (Langabeer et al., 2017). In the first year of this service, there was a 6.7% reduction in ED visits that were medically unnecessary (Langabeer et al., 2017). It is time that healthcare organizations get on board with the power of prehospital triage and how it can save money for everyone involved.

Regardless of all the changes made within a hospital system, we must bear in my mind that healthcare systems serve people. And because people are human, things will never be perfect. This realization creates the next step in the overall plan to reduce the use of the ED for avoidable visits. Many patients come to the ED because they truly believe they have a life-threatening illness or injury. Healthcare systems should prepare for that by creating a fast-track within the ED or opening UCCs that are adjacent to the ED that allow patients to utilize those services after being appropriately evaluated during triage. Many physicians agree that it will be more beneficial to adapt to patients than it will be to get patients to adapt to the system (Sieck et al., 2016). A fast-track or adjacent UCC will cut down on wait time, be less expensive for both the patient and the hospital all while providing the patient with peace of mind about their condition. A 2010 study found that fast tracks improved the overall flow of the ED and had a significant positive impact on overcrowding in the ED (NEHI, 2010). Researchers also found that patients who had previously utilized the ED were 48% less likely to use it again after having been treated at a hospital-run UCC (NEHI, 2010). Another solution is to have PCPs associated with the healthcare system have extended hours, preferably those whose office are located within the hospital or close to it. This allows patients to see their actual PCP after regular business hours when patients are less likely to need to miss work in order to seek care. Studies show that assisting patients in reaching out to their PCP or informing their PCP of their recent ED visit can result in the less frequent use of the ED for non-urgent issues (NEHI, 2010).

The final solution proposed is for healthcare systems to work with pre-established groups working to better the health of the community. Many groups such as Healthcare for the Homeless and The American Legion are already in tune with and working with some of the most vulnerable in the population. As studies have shown that those who are uninsured are some of the most likely to visit the ED for non-urgent issues, working with agencies that have a large population of uninsured members can benefit everyone. Through working with these groups, healthcare organizations can collaborate with advocacy groups on the best way to provide care to those who need it, while keeping cost lower than they are through unchecked ED usage. Working with these advocacy groups can inform healthcare organizations of where UCCs and primary care offices are most needed. By partnering with these community groups, vulnerable populations can get connected with the services they need most and in turn reduce their utilization of the ED (NEHI, 2010). Healthcare organization can also benefit from lobbying and speaking out against the rising number of freestanding EDs. These EDs often operate as an urgent care yet charge prices that are comparable to the ED. Studies show that freestanding ED diagnosis overlap with UCC diagnoses 75% of the time, suggesting that these issues could have been handled at a lower level of care at a more affordable price (Ho et al., 2017). As of now, there are no regulations in place for these freestanding EDs, so they are not being properly monitored or governed (Ho et al., 2017). Freestanding EDs often confuse patients when they are trying to seek the appropriate level of care. By working with local government officials, lasting changes can be made that can impact patient outcomes and the quality and cost of healthcare for generations to come.

IMPLEMENTATION PLAN

Due to the complicated nature of the issue surrounding the use of the ED for non-urgent issues, there will be a multi-step approach to solving those issues. Multiple plans will need to be implemented in order to thoroughly address this multibillion-dollar issue. The timeline for change could be as little as three to six months for in house educational changes to take place and as long as three to five years for the community outreach changes to take place. This multi-tiered approach allows for not only semi-immediate relief but sustainable changes for both the healthcare organization and the community they serve as well.

In order to implement the patient education program, the ED and the marketing department would need to be briefed as to the issue and how education can have

a positive impact. The marketing director would be in charge of assigning a team to increase the educational aspects of the healthcare organizations social media approach. This would include evaluating patient experiences with the website, ensuring the website is responsive and easily navigated by patients. As more advertisements about the proper use of the ED are placed on social media sites, the marketing team should be tracking how much traffic these advertisements are getting, making adjustments to ensure that more people see and interact with these adds. The marketing team will also need to collect information from ED patients about how effective these ads are to ensure that they are hitting their target audience. The cost of implementing this project should be minimal, as marketing department is already fully staffed, and this implementation phase should only last about three to six months. The marketing director will continue to meet with ED management to ensure that this campaign is reaching the right group of people and that non-urgent ED use lowers. These department leaders will meet at least once a quarter to keep tabs on the progress of this initiative.

Implementing the education plan for the ED itself will also be a project that takes about three to six months and involves the ED staff and the human resources department. The human resources department will be in charge of providing the ED physicians and nurses with training on the appropriate ways to educate patients. ED support staff will be in charge of collecting the information of patients that will need follow up education either in the form of a phone call or a letter. Upon checkout, support staff should begin asking patients how they prefer to be contacted for follow up. This allows patients to be reached in the way that makes the most sense to them. At this point hospital administrators will build education time into the physicians and nurses schedules that allow them to make follow up phone calls with patients, spend a few extra minutes with patients at discharge or sign-off on scripted letters that are to be sent to previous patients. Over the next six to twelve months, ED support staff will collect patient information for hospital administrators to analyze how many repeat non-urgent ED visits a patient has and what type of education they received. If one type of education proves to be less effective than another, it will be modified or discontinued in favor of the methods that work best.

Expanding telehealth into the ED or the prehospital setting will be a little more difficult than increasing patient education, requiring more time, money, and other resources. The departments involved in this implementation plan will be marketing, human resources (HR), information technology (IT) and the

emergency departments. All department heads will need to meet to agree on an action plan going forward. Due to the ongoing Covid-19 pandemic, the IT department has already massively expanded the hospitals telemedicine capabilities and HR has required training for hospital staff on how to use this new technology and how to treat patients in a remote setting. HR will also train staff to know when a situation does require an in person visit to the ED as well as when to involve mental health or police services. The marketing department will be in charge of letting patients know that these services are available through advertising in and outside of the hospital, as well as on social media and the hospitals website. Implementing this plan will require extra physicians, nurse practitioners and physicians' assistants initially in order to properly man the ED as well as treat telehealth patients. Due to the nature of most non-urgent ED visits, the staff does not necessarily need to be ED staff, it can be staff from primary care offices within the hospital, helping patients to understand which issues can be seen in their primary care physicians' office instead of the ED. Over time, the number of patients in the ED should decrease and the manning levels can be lowered. Once the program is running, ED providers can even treat patients from home creating more remote positions. Hospital administrators will continue to collect data on non-urgent ED use, and patient feedback on the effectiveness of the telemedicine services.

Implementing a fast track or on-site urgent care is something that many healthcare systems have already invested in. This implementation can be as simple as blocking off a few ED rooms and staff that treat patients with non-urgent issues as quickly as possible. This plan can be introduced in as little as three months and have a near immediate impact. Hospital administrators along with ED leadership will create a list of conditions that are suitable for the fast track and triage nurses will direct the patients that meet the criteria to this section of the ED. Data will continue to be collected about the number of patients seen and a list of conditions treated. This will be evaluated every quarter to see if the fast-track has alleviated any of the issues with ED such as over-crowding and long wait times. Depending on how those numbers look, the fast track can be expanded, or a more long-term solution can be put in place. Long-term plans can include a separate onsite urgent care with the Board of Directors leading the charge on the investment and construction of a new structure. One to two years of data should be collected before investing in a permanent structure.

The Community Relations and Outreach department would be in charge of strengthening and creating new bonds with the community and local organizations tasked with improving the health of the most vulnerable populations. Implementing this plan would have a timeline of about three to five years before any significant changes are seen. This long timeline is due to the fact that the hospital will rely on external organizations to do most of the heavy lifting such as gathering information on what works and implementing projects to improve the health of vulnerable communities. The marketing department will be instrumental in lobbying against the use of freestanding EDs and increasing public awareness surrounding the issue.

Hospital administrators and the human resources department will continually monitor the effectiveness of these initiatives, continuing to make adjustments as necessary. While many of these plans require some sort of financial commitment, this commitment is minor compared to the billions spent each year on non-urgent ED visits. Through the EDs willingness to collaborate with other departments, the healthcare organization as a whole can become more efficient at serving the long-term health goals of their patients.

CONCLUSION

The purpose of this research was to understand the detrimental impact of non-urgent ED visits and identify strategies that would allow a healthcare organization to lessen their impact. Non-urgent ED visits create issues such as overcrowding, long wait times, decreased quality in patient care and increased costs for everyone involved. Implementing programs aimed at educating patients, expanding telemedicine services, increasing the use of urgent care centers, and partnering with the community to provide lasting change we can stop the misuse of the ED. While this issue may never be completely eliminated, this proposal can significantly improve the issue, creating a better and more sustainable healthcare system for all.

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BATTERIES: A FRANCHISE NICHE FOR ENTREPRENEURS

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ABSTRACT

One of the major reasons small business entrepreneurs choose to become franchisees or licensees is because the small business models allow individuals to operate as if they were a larger enterprise or corporation with better profit margins and lower risks than those who start a business from scratch (Dittfurth, Gerhardt, & Joiner, 2019). In this paper, franchise fees, royalty fees, advertising fees, purchase prices, expected monthly revenues, and potential bottom line profits in the battery industry are analyzed in the battery industry. In the battery franchise category, only three free franchise programs came to the forefront: Interstate, Batteries Plus, and Giant Battery.

Key words: battery franchise, marketing niche, entrepreneur, small business

INTRODUCTION

From December 2020 to December 2021 consumer prices for all items rose by 7 percent (U. S. Bureau of Labor Statistics, 2022). An inflation increase of this magnitude has not occurred for the last forty years. The wage increases that many workers received were diluted and many times completely dissolved by this record high inflation. Fuel prices increased 29.3 percent and meat prices increased 12.5 percent causing the devaluation of the dollar in 2022 (U. S. Bureau of Labor Statistics, 2022). As in the pandemic, this economic climate drives the types of purchases the average American makes. Because the average worker does not have the same purchasing power as they did a year ago, this consideration should steer potential entrepreneurs to types of businesses that keep Americans working.

The pandemic changed the working environment from the traditional brick and mortar building to the home office. Many businesses had employees working from home which created a new reality. One product that employees relied on was batteries. In order to work from home, people needed to stay "charged" or "connected" in order to complete their tasks. The average home today uses over 20 battery-operated devices according to Interstate All Battery Center (2020). Cellphones, laptops, iPads, automobiles, and pacemakers are just a few devices that require a battery. Batteries will be a basic necessity of the average American consumer for years to come. A franchise that can meet this need will continue to be a solid investment.

Starting a business in this economic climate is a difficult undertaking. Rising costs due to inflation have to be navigated. Additionally, it is a workers' environment. Businesses are struggling to get and keep employees. Many fast food businesses have resorted to offering incentives to work. Some of the incentives are hiring bonuses with a follow-up bonus to be given at the end of a set number of months. Higher wages are offered to lure people back to work or from other industries. Pay for working nights or evenings is also adjusted in order to encourage employees to take on the less desirable shifts. Some businesses have closed parts of their operation because of a lack of personnel to run normal operations. A battery franchise creates a vast business opportunity for someone wanting to start their own business.

Brandon Boozer stated in *Franchising World* (2017), that one of the advantages to franchising is "you don't have to be the one that comes up with the big idea. Everyone wants to get into business for themselves, but franchising allows you to reduce the risk associated with hanging that one big idea that makes it." Risk will continue to be an issue for the small business owner. Even before the pandemic, the United States Small Business Administration (2018) reports that small business entrepreneurs continue to experience a high failure rate regardless of the specific industry pursued. Their research reflects that a dismal 50% of small businesses will continue to be in operation after five years of operation (USSBA, 2016).

Roger David (2021) states that finding your niche is "like being a specialist in a field where your expertise makes you stand out from the general pack" (para. 7). The battery franchise has found a way to stand out from other franchises by offering various types of batteries to consumers. As reported by Grand View Research (2020), the global battery market size was valued at USD $108.4 billion in 2019 with expected growth of 14.1% from 2020 to 2027. Much of the demand is due to the automotive application which includes rechargeable batteries used in non-rechargeable batteries and electric vehicles. In addition to automobile batteries, the increase of consumers using portable electronics has increased the need for various batteries. Consumers using smartphones, tablets, and computers is just a few of the electronic devices driving the market growth. Grand View Research (2020), identified decreasing fossil fuel reserves are expected to drive market growth in the coming years.

Batteries are an $86 billion industry according to Interstate All Battery Center (2022). According to Startupback (2021), a battery franchise allows the franchisee an opportunity to operate under a popular battery brand and you have the guidance of the franchisor. The community wants products that they rely on in their everyday life and a battery franchise would provide that product.

Many industries are unable to continue business as usual because of supply chain issues. The current administration has worked to establish polices to shore up the America's battery supply chain (Wang, 2021). The battery industry should realize opportunities because of the increase in demand making it a wise choice for the entrepreneur who is desiring to make a sustainable profit. According to *Consumer*

Behavior (2020), the battery franchise has grown during the Covid-19 pandemic due to homeowners staying home and practicing social distancing but still needing essential products such as batteries and battery-operated devices. Scott Williams, Batteries Plus CEO, stated that their performance "remained stable with double-digit growth in e-commerce" (para. 4). Families relied on batteries to operate their thermometers, laptops, cars, boats, and more.

Table I lists key researched financial data for Interstate All Battery Center, Batteries Plus, and Battery Giant. This table will identify different monthly fees, royalty fees, advertising fees, purchase price, franchise fee, security fee, projected annual revenues, and lease agreements.

TABLE I
BASE-LINE FEES & EXPENSES

	Interstate All Battery Center	**Batteries Plus**	**Battery Giant**
Monthly Fees			
Royalty % Fee	**5% of sales**	**5% of sales**	**5% of sales**
Advertising Fee (Marketing)	**1.5% of sales**	**2% of sales**	**1%**
Purchasing Expenses			
Purchase Price	**Between $177,600 - $411,000 (varies)**	**Between $200,000 - $286,000 (varies)**	**Between $221,720 – $334,255 (varies)**
% Down of Purchase Price	**20%**	**25%**	**20%**
Franchise Fee	**$37,500**	**$20,000 – $30,000**	**$29,900**
Projected Annual (Revenues)	**$500,000 (estimated)**	**$825,000 (estimated)**	**$800,000 (estimated)**
Lease Agreement Term	**N/A**	**10 years**	**10 years**

Table I shows a summary of three battery franchises in the marketplace. This table presents different monthly fees, projected annual revenues, and initial purchase expenses. In order to review bottom line profits, the fees and expenses are used in the comparison analysis. In this paper, traditional big-box stores were not considered (such as Lowe's, Home Depot, Wal-Mart, etc.). Researched data will be used on the three selected battery franchises (Table I) to define generic profit and loss (P&L) statements which allow projected bottom line profits.

Franchising literature searches and reviews have not given extensive data for entrepreneurs to compare bottom line monthly profits. Future franchisees will be

able to review the information provided and determine if a battery franchise is the business they desire.

INTERSTATE ALL BATTERY CENTER – TRADITIONAL FRANCHISE-FEES AND MONTHLY BOTTOM LINE

Interstate All Battery Center was founded in 1999 and began franchising the following year. This franchise sells over 16,000 types of batteries with over 200,000 distributors in the United States. The batteries are used for electronics, automobiles, cameras, etc.

The Interstate All Battery Center franchise offers excellent support. Training both onsite and at corporate headquarters is provided. Other support includes online support, a grand opening ceremony, a toll-free line, newsletter releases, field operations as well as safety and security measures.

In order to own this battery franchise, the financial requirements include the initial investment, startup expenses, licenses, supplies, working capital, and the franchise fee. The total estimated initial investment of Interstate All Battery Center varies from $177,600 - $411,000 according to their website. The initial franchise fee is $37,500 without a legally binding franchise agreement. In addition to the purchase cost and franchise fee, Interstate All Battery Center must also pay ongoing monthly fees. A monthly royalty fee of 5% of the monthly sales/revenues for that particular store is required. In addition, an ongoing advertising/marketing fee of 1.5% of monthly sales/revenues per store is paid to Interstate All Battery Center. This money is used for promotion and marketing efforts. The average annual revenue for Interstate All Battery Center is $500,000 as reported by their website. Table I outlines the expenses and fees for Interstate All Battery Center. These fees, expenses, and revenues are used to predict monthly bottom line profits. This analysis shows the monthly profits an entrepreneur could possibly make if they decide to franchise.

BATTERIES PLUS - FRANCHISE-FEES AND BOTTOM LINE

Batteries Plus was founded in 1988 and began franchising in 1992. Headquartered in Hartland, Wisconsin with an estimated 700 units, Batteries Plus is the "nation's largest and fastest-growing battery, light bulb, key fob, and phone/tablet repair franchise" (Franchising Gives Back, 2021).

In addition to benefits, the Batteries Plus franchise includes other services such as automotive key cutting, phone repair, just to name a few. This franchisor supports the franchisee through training, resources, and more.

Using the same approach that was used in analyzing Interstate All Battery Center, Batteries Plus reviews the fees and expenses of franchising (Table I). The purchase price of Batteries Plus varies from $200,000 - $286,000 per store. The franchisee must pay an initial franchise fee of $20,000 - $30,000 to Batteries Plus for a 10 year legally binding franchise agreement with an optional renewal term of 10

years. In addition to the purchase cost and franchise fee, Batteries Plus must also pay ongoing monthly fees. A monthly royalty fee of 5% of the monthly sales/revenues for that particular store is payable to corporate Batteries Plus. In addition, an ongoing advertising/marketing fee of 2% of monthly sales/revenues per store is paid to corporate Batteries Plus. This money is used to support advertising and marketing efforts. The average annual revenue for Batteries Plus L.L.C., as reported by Batteries Plus is $825,000. Table I outlines the expenses and fees for Batteries Plus. These fees, expenses, and revenues is used to predict monthly bottom line profits for Batteries Plus. This analysis shows the monthly profits and entrepreneur could possibly make if they decide to franchise.

BATTERY GIANT - FRANCHISE-FEES AND BOTTOM LINE

Battery Giant is headquartered in Michigan and currently has 20 retail locations throughout the United States, Puerto Rico, Panama, and Mexico. Unlike Interstate All Battery Center and Batteries Plus, Battery Giant is more of a web-based franchise. Battery Giant is a franchise opportunity from Franchise Genius.

Using the same approach as All Battery Center and Batteries Plus, fees and expenses of franchising batteries was used to determine potential bottom line profits for Battery Giant (Table I). The purchase price of Battery Giant varies between $221,720 - $334,255. The franchisee must pay an initial franchise fee of $29,900 to Battery Giant for a 10 year legally binding franchise agreement with the option of renewing an additional 10-year term.

In addition to the purchase cost and franchise fee, the Battery Giant franchise must also pay ongoing monthly fees. A monthly royalty fee of 5% of the monthly sales/revenues for that particular store is payable to corporate Battery Giant. In addition, an ongoing advertising/marketing fee of 1% of monthly sales/revenues per store is paid to corporate Battery Giant. This money is used for promotion and marketing efforts for Battery Giant. The average annual revenue for Battery Giant, as reported by Battery Giant, is $800,000. Table I outlines the expenses and fees for Battery Giant. These fees, expenses, and revenues are used to predict monthly bottom line profits for Battery Giant. This analysis shows the monthly profits an entrepreneur could possibly make if they decide to franchise.

SUMMARY AND CONCLUSIONS

Interstate All Battery Center follows along the typical franchise guidelines. They charge a royalty fee approximately 5% of monthly revenue. However, they charge a low 1.5% for advertising or marketing of their products.

Batteries Plus follows the set-up of a typical franchise in regards to expenses and fees. Like Interstate All Battery Center, Batteries Plus charges a royalty fee approximately 5% of monthly revenue but a 2% of sales for advertising or marketing. In 2021, Batteries Plus donated 60,000 AA batteries to the Toys for Tots campaign for the upcoming holiday season. Franchising Gives Back reported

this donation allowed Toys for Tots to purchase more toys instead of additional batteries for toys.

Battery Giant, similar to Interstate All Battery Center and Batteries Plus, also follows the guidelines of a typical franchise. They charge a royalty fee approximately 5% of monthly revenue but a low 1% of sales for advertising or marketing.

Once the various percentages of revenue required to be paid in a monthly franchise (royalty fee and advertising fee), combined with the projected annual revenues that a normal franchise can expect to make (as shown in Table I), have been determined, you can formulate a simplified profit and loss statement to estimate the monthly bottom line profits for the franchise. A potential franchisee can examine franchise fees and revenue estimates from the corporation's Uniform Franchise Offering Circular (usually made only available to pre-qualified potential franchisees) and/or the franchise corporate website. This information will benefit any potential franchisee in determining monthly profit for any type of battery franchise.

The three battery franchises chosen for analysis can be profitable in varying degrees. Note that this model does not always reflect true bottom line due to the amount of effort and time the franchisee/licensee put in which impacts bottom line success.

Batteries have a wide range of uses in today's society from cellphones, automobiles, watches, generators, and solar systems among many others. The demand for these various power storage systems creates a great opportunity in the battery franchise business. Although it may take a few more years before the average wage-earning citizen to invest to purchase an electric car, it will take place. With foresight, planning, and preparation any of these battery franchises could be positioned to have trained employees to replace batteries in electric cars. Until then, the demand will continue to grow at a steady rate. A battery business that gets established now can be prepared for a future that includes servicing electric cars. Batteries are the most vulnerable commodity in an electric car having to be replaced every five to ten years (Gardner, 2022). While the fully electric car has no oil to change, no spark plugs to replace, or general maintenance to perform, their power source has an expiration. The result of changing attitudes toward power will result in more electric cars with batteries that have a lifecycle and the replacement of them is guaranteed to be a profitable service for these businesses in the near future (Hamilton, 2012).

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DIVIDEND INCREASES: A TEST OF MARKET EFFICIENCY

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ABSTRACT

The purpose of this study is to test the Dividend Signaling Theory by testing a sample of thirty firms' increased dividend announcements and firms' stock price. More specifically, does an announcement of a firm's increase in dividends affect a firm's stock price and position in the market? Past research has shown that an increase of dividends signals investors that a firm is expecting increased profit. This drives up demand for the firm and causes higher investment. However, recent research has suggested that firms' managers may wait on the announcement of increased dividends to make up for lower profit aiding the firm to gain shareholders who would not have previously invested. Dividend Signaling Theory indicates firms increase dividends when expecting increased return, but do firms increase dividends to catch the eye of investors rather than actually expecting higher future returns? This research tests if a direct announcement of increased dividends proves the Dividend Signaling Hypothesis based on timing of dividend announcements and future stock price. Evidence here supports the Dividend Signaling Hypothesis.

Keywords: Dividends; Market Efficiency; Dividend Signaling Theory

INTRODUCTION AND BACKGROUND

Dividends have previously been known to indicate an increase in firms' profit. They are paid to investors as compensation for buying stock within the company. Companies decide to increase dividends for numerous reasons including a possible increase in expected future earnings or cash flows, a new shift in strategy for a firm, or the allocation of excess cash to shareholders to artificially raise shareholder expectation of profits. Typically, when firms increase dividends, it signals positive future growth and sustainability of the firm, causing the demand for the company to increase and stock price to rise. However, firms can artificially increase dividends to cause an uptick of demand and further investment, going against market efficiency.

Dividend Signaling Theory suggests that increased dividends assume positive growth in the future, and firms that have higher dividend payouts will have more profit than firms with a smaller increase in dividends. This theory is commonly used by investors who feel this is an accurate indicator of potential growth. Conversely, stocks that decrease dividends tend to be less profitable in the future with higher decreases showing less sustainable companies for the future.

Market efficiency is described as how fast the stock market reacts to information and is divided into three levels: weak form, semi-strong form, and strong form, all of which center around public and private information. In weak form efficiency, a firm's stock price reacts so quickly to past information that investors can earn above normal return, greater than the market when acted upon this information. In semi-strong form efficiency, investors are unable to make above market returns based on all public information due to the quickness of the stock price reacting. On the other end of the spectrum is strong form efficiency which includes all public and private information that causes stock price to respond so rapidly that investors are unable to outperform the market. Dividend announcements are considered to be a form of semi-strong market efficiency because investors can act on public information and still not incur returns above the market. However, recent studies suggest that managers will prolong the amount of time before the announcement is declared. This acts as a form of strong market efficiency indicating that investors could earn above average return before the official declaration date.

The purpose of this study is to test the stock market response to new, public information about the firm and how the stock price is affected. This research looks at thirty different firms' announcements of increased dividends to analyze if the stock price is affected and the type of market efficiency observed. More specifically, how the announcement of increased dividends affects stock price based on a linear regression of each firm against the S&P 500 market return?

LITERATURE REVIEW AND SAMPLE

Dividend change announcements have been studied for quite some time. Fama (1965) was one of the first to propose three types of Efficient Market Hypothesis, being (I) weak, (II) semi-strong, and (III) strong. Each relating to past, public, and nonpublic information, respectively, Anjali and Raju (2017) believe that one of the most important corporate issues is arguably the importance of studying the underlying effects of dividend announcements and the impact on stock returns. Many studies suggest that the announcement of a change in dividends of a firm will positively affect the company's standing in

investors and stockholder's eyes. However, Yoon and Starks of the University of Texas at Austin studied the potential explanations for the wealth effects around the time of the announcement (1995). Managers tend to keep information about the firm within their inner circle, creating the potential for insider information to surface, creating artificial rises in stock price. Moreover, some firms intentionally announce an increase in dividends to give the impression of fluid cash flows and growth while simply trying to make up for the lack thereof. Yoon and Starks point out how Lang and Litzenberger (1989) studied how significant stock price response from an announcement ought to only entice shareholders to purchase shares if the company actually has prospectus growth, not simply from an increase in dividends. Further research from John and Lang (1991) state that insider trading stems from a firm's own trading activity and is possibly one of the most direct signals available to insiders. This being said, the announcement effect from dividend initiations is actually from the prior quarter. This gives the potential for firms themselves to hold information or act on it to give a false impression (1991). This also occurs outside of the U.S. in which Cheng and Leung (2008) found that insider-buying activities occur more often than we think. In Hong Kong, there are strong interactive effects between the mixed signals of insider information prior to the announcement date causing asymmetry between inside traders and stockholders. In Europe, Del Brio and de Miguel (2010) study the multiple-signal theory of dividends from John and Lang (1991) within the European market. They write that even within the European market, investors seem to be more sensitive to insider trading than actual signals from adjusting dividends, displaying overall bad news from an outsider's standpoint. This study includes 30 randomly selected firms that announced an increase in dividends from September 22, 2011, through August 12, 2021. All firms are traded on the NYSE or the NASDAQ exchange. Table I displays the randomly selected firms.

TICKER	FIRM	ANNOUNCEMENT DATE	TRADED INDEX
AAPL	APPLE	APRIL 28 2021	NASDAQ
AEO	AMERICAN EAGLE OUTFITTERS CO.	JUNE 3 2021	NASDAQ
F	FORD MOTOR CO.	JANUARY 1 2013	NYSE
IBM	INTERNATIONAL BUSINESS MACHINES	APRIL 28 2018	NASDAQ
CAT	CATERPILLAR INC	MAY 5 2019	NYSE
MSFT	MICROSOFT	JUNE 17 2021	NASDAQ
TXN	TEXAS INSTRUMENTS	OCTOBER 26 2016	NASDAQ
LEA	LEAR CORP.	AUGUST 12 2021	NYSE
MRO	MARATHON OIL CORP.	APRIL 29 2021	NYSE
MS	MORGAN STANLEY	APRIL17 2014	NYSE
MMM	3 M CO.	DECEMBER 17 2013	NYSE
BAC	BANK OF AMERICA INC.	AUGUST 6 2014	NYSE
V	VISA INC.	OCTOBER 24 2012	NYSE
NVDA	NVIDIA CORP.	NOVEMBER 10 2016	NASDAQ
JNJ	JOHNSON AND JOHNSON	APRIL 25 2013	NYSE
PG	PROCTOR AND GAMBLE	APRIL 13 2021	NYSE
JPM	JP MORGAN CHASE AND CO.	SEPTEMBER 18 2018	NYSE
UNH	UNITED HEALTHCARE	JUNE 6 2014	NYSE
DIS	WALT DISNEY CO.	NOVEMBER 30 2011	NYSE
NKE	NIKE INC.	NOVEMBER 20 2014	NYSE
PFE	PFIZER INC.	DECEMBER 12 2011	NYSE
MA	MASTERCARD INC.	FEBRUARY 5 2013	NYSE
CSCO	CISCO SYSTEMS INC.	AUGUST 15 2012	NASDAQ
CMCSA	COMCAST CORP.	FEBRUARY 15 2012	NASDAQ
COST	COSTCO WHOLESALE CORP.	APRIL 29 2014	NASDAQ
PEP	PEPSICO INC.	MAY 6 2014	NASDAQ
LLY	ELI LILY AND CO.	DECEMBER 14 2020	NYSE
LMT	LOCKHEAD MARTIN CORp.	SEPTEMBER 22 2011	NYSE
GS	GOLDMAN SACHS GROUP	APRIL 17 2012	NYSE
CVS	CVS HEALTH CORP.	DECEMBER 13 2012	NYSE

Table I

METHODOLOGY

In order to test the market efficiency as strong or semi-strong to see if increased dividend announcements do in fact raise stock price and the position of firms in the market, a linear regression was completed. The null and alternate hypotheses of the singular linear regression of the data include:

$H1_0$: There is not a statistical relationship between increased dividend announcement and stock price. $\beta=0$

$H1_1$: There is a positive statistical relationship between increased dividend announcements and stock price. $\beta\neq0$

$H2_0$: There is not a statistical relationship between increased dividend announcement and stock price during the event period of -30 days and +30. $\beta=0$

$H2_1$: There is a positive statistical relationship between increased dividend announcement and stock price during the event period of -30 days and +30. $\beta\neq0$. This study uses a linear regression to see the correlation between increased dividend announcements and stock prices. All stock prices, historical dates, and data were observed from http://marketwatch.com/. The time period used includes 180 days prior to the announcement (-180), thirty days after the announcement (+30), and the announcement date (day 0), found on http://marketwatch.com/. The event period is defined as days -30 to +30, including announcement date 0. The daily holding period returns of each company (R) were compared with the corresponding S&P500 Index (R_m) market returns were calculated accordingly: **Daily Holding Period Return = (Current Day Close Price – Previous Day Close Price) / Previous Day Close Price.** Using a regression analysis, the dependent variable included each firm's daily holding period return and the independent variable included the corresponding S&P500 daily holding period returns. Each were similarly calculated with the daily holding period return formula. The variables were studied over the pre-event period (day -180 to -31) and the event period (days +30 to -30). Using this these periods and the daily returns of the companies against the daily returns on the market, the intercept, alpha, and standardized slope, beta, were obtained to draw results of the announcement. **Table 2** below shows the alphas and betas for each firm:

TICKER	FIRM	ALPHA	BETA
AAPL	APPLE	-0.001320649	1.359386686
AEO	AMERICAN EAGLE OUTFITTERS CO.	0.003565023	1.147578567
F	FORD MOTOR CO.	0.001735614	0.986185759
IBM	INTERNATIONAL BUSINESS MACHINES	-0.000840449	0.994460151
CAT	CATERPILLAR INC	-0.000299222	1.556517871
MSFT	MICROSOFT	0.000979677	0.82246579
TXN	TEXAS INSTRUMENTS	0.001309537	1.181662943
LEA	LEAR CORP.	-0.001338943	1.350376152
MRO	MARATHON OIL CORP.	0.00593953	1.46210548
MS	MORGAN STANLEY	-0.000467007	1.384382089
MMM	3 M CO.	0.000639542	0.992463611
BAC	BANK OF AMERICA INC.	-0.0013042	1.35987635
V	VISA INC.	0.00128924	0.997588777
NVDA	NVIDIA CORP.	0.00494334	1.33575639
JNJ	JOHNSON AND JOHNSON	0.0011177	0.31659168
PG	PROCTOR AND GAMBLE	-0.000793967	0.456917531
JPM	JP MORGAN CHASE AND CO.	-0.00039281	1.016016608
UNH	UNITED HEALTHCARE	0.000314961	0.914435216
DIS	WALT DISNEY CO.	2.51148E-06	1.119824294
NKE	NIKE INC.	0.000997264	0.995386306
PFE	PFIZER INC.	0.000458216	0.80956298
MA	MASTERCARD INC.	0.001036152	0.731119546
CSCO	CISCO SYSTEMS INC.	-0.00007601	1.20629355
CMCSA	COMCAST CORP.	0.001315329	0.94235984
COST	COSTCO WHOLESALE CORP.	-0.000638357	0.698942465
PEP	PEPSICO INC.	-0.0002256	0.6039373
LLY	ELI LILY AND CO.	0.000416952	0.587774538
LMT	LOCKHEAD MARTIN CORP.	3.22184E-05	0.671708815
GS	GOLDMAN SACHS GROUP	-0.00095647	1.823710284
CVS	CVS HEALTH CORP.	0.00050337	0.55440999

Table 2

1. In order to get the expected returns for each firm, the risk-adjusted method (market model) was used. The time period used to calculate the expected returns was each day during the event period (days -30 to +30) before and after the announcement was made. The Expected Return for each stock was calculated using the formula:

   E(R) = alpha + Beta (R_m), where **R_m** is the return on the market from the S&P500 Index.

2. Next, the Excess Return **(ER)** was calculated as:
   ER = the Actual Return **(R)** – Expected Return **E(R)**

3. Then, Average Excess Returns **(AER)** were calculated for the event period (days -30 to +30) by averaging all excess returns for all companies in the given days.
   AER = Sum of all Excess Returns for the given time / n, where

   n= number of firms in the sample (30 firms)

4. Lastly, to find the Cumulative AER **(CAER),** the calculation included adding each of the AERs for each given day of the event period (days -30 to +30).
5. The AER and CAER are plotted on a graph for the event period (day -30 to +30) of the study. Chart 1 shows the **AER** graph against time from day -30 to +30 and Chart 2 shows the CAER for the event period day -30 to +30.

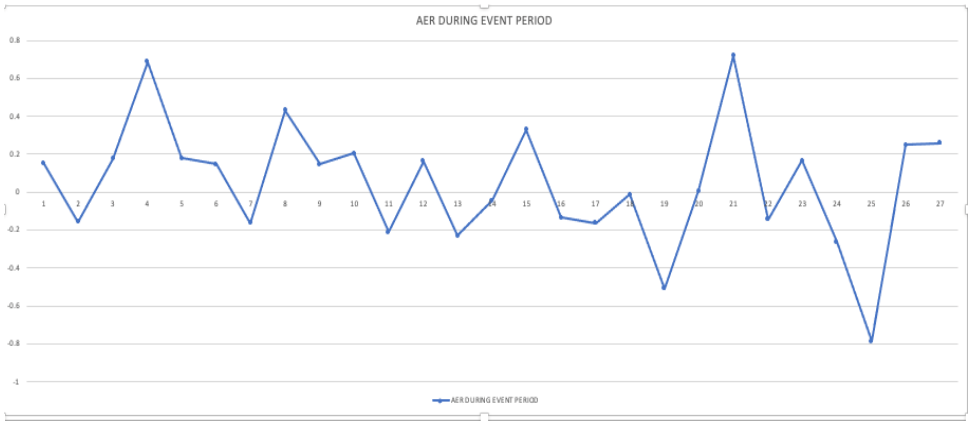

Chart I.: Average Excess Return During Event Period

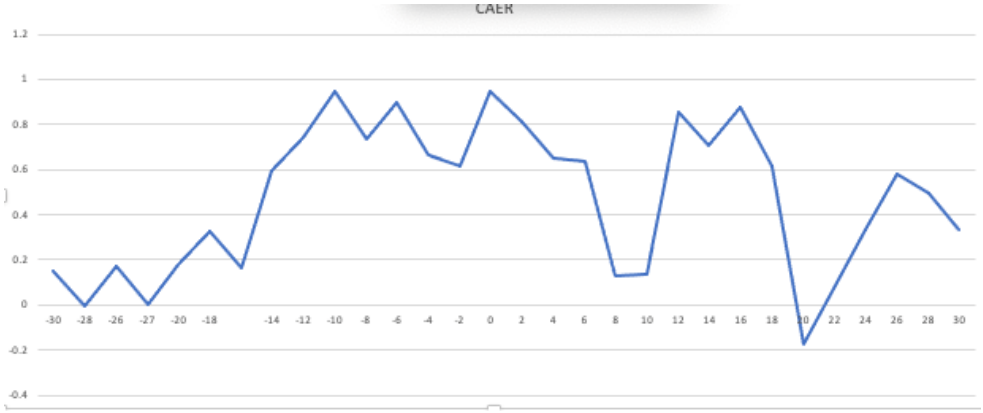

Chart II.: Cumulative Average Excess Return

QUANTITATIVE RESULTS

So, was stock price affected by the announcement of firms' increased dividends? Was the information significant enough to make a difference? Did the firm's stock price change before the official declaration date of the announcement? Looking at Actual Daily Returns compared with Expected Daily Returns during the event period (days -30 to +30), one would believe that an increase in dividends would significantly impact the firm's stock price. The AER graph below (Chart 1) displays the reaction to the new information from days 0 to +30. Based on our null and alternate hypotheses, the data show stock price was significantly affected by the announcement of increased dividends. From this, the hypothesis is supported in which the announcement positively affected stock price during the depicted event period.

Did the market prove to be semi-strong efficient as one would expect with the announcement of a change in dividends? Did the announcement of increased dividends cause investors to act immediately? Starks and Yoon believe managers keep investment policies to themselves, creating a strong form of market efficiency. Managers are thought to possess more information creating a bubble in the market. The Dividend Signaling Theory displays how the creation of new information on the market could halt market efficiency if CEOs keep information to themselves. The second set of null and alternate hypotheses indicated that there was not a significant amount of action prior to the announcement of the firm, proving these to be valid. Using the AERs and the CAER, there are some differences as to the amount of change on the new information before the declared date; however, the harboring of information is not significant enough to make a difference.

CONCLUSION

The purpose of this study was to test the influence of increased dividend announcements and stock price. The sample was made up of thirty, randomly selected firms traded on the NYSE or NASDAQ exchange. The sample included studying increased dividend announcements from September 22, 2011, through August 12, 2021, to test semi-strong or strong form market efficiency. Findings show a positive market reaction through the announcement of increased dividends. Results also point to semi-strong form efficiency rather than strong efficiency of the market. Many view this signal as good news for the firm and chose to invest in the growing firm based on announcements and cash flows. Based on the market's reaction, investors and stockholders should have faith in the market to react positively to increased dividends.

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IMPROVING READMISSION RATES IN ACUTE CARE

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ABSTRACT

The association between high rates of readmission and detrimental outcomes for an organization's finances and a patient's health outcome has caused it to be a leading cause of concern for healthcare organizations. Research suggests that lack of patient engagement has a significant impact on rates of readmission. Various studies prove that enhancing factors that influence patient engagement successfully decreases readmission rates. Multiple hospitals have reached success in reducing readmission rates by implementing plans to improve these factors. This paper analyzes the factors that influence patient engagement and aims to recognize solutions that are known to be effective so that an approach can be developed to improve readmission rates in an acute care setting. Effective solutions were identified to be advertising health information technology systems such as patient portal, communication via telephonically or printed infographic sheets, and use of the teach back method.

Keywords: Readmission Rates, Acute Care, Fiscal, Insurance Reimbursements

INTRODUCTION

A readmission is defined as an instance in which a patient previously cleared for discharge from a hospital stay is admitted again into the hospital within a 30-day time frame. This organization identifies as an acute care center in San Antonio, Texas who seeks to lower rates of readmission. The Agency for Healthcare Research and Quality reported a national readmission rate of 14 percent with 3.8 million adult hospital readmissions within 30 days of discharge for the year 2018 (Weiss & Jiang, 2021). In Texas, the state in which this organization is based, the readmission rate was calculated to be 16.1 percent for the year 2016 (Deam, 2016). These statistics are troubling for a number of reasons; it is less than optimal for both the readmitted patients and the financially challenged healthcare organizations that must make room for these patients a second time. Moreover,

high rates of readmission can insinuate low quality of care which does not align with an organization's goals. The factors that contribute to higher numbers of hospital readmission can be difficult to pinpoint. Lack of patient engagement is among the most prevalent contributing factors for high readmission rates (Kemp at al., 2017). The purpose of this paper is to explain how an acute care organization will identify, evaluate, and implement strategies that increase patient engagement in order to lower its rates of readmission. This organization's ultimate goal is to lower its readmission rate to 15 percent so that it can be below the Texas readmission rate average. The goal will be achieved by encouraging patients to be more active and engaged with their healthcare.

DESCRIPTION OF ISSUE

As previously mentioned, high readmission rates can lead to financial consequences for a healthcare organization. Hospital readmissions are very costly. In 2018, it was reported that the average cost of readmission was calculated out to be $15,200 (Weiss & Jiang, 2021). In addition to increased operational costs, healthcare organizations may also be financially penalized by the Hospital Readmission and Reduction Program (HRRP). In conjunction with supporting the Centers for Medicare & Medicaid Services (CMS) goal of improving American health care, the HRRP is a nationwide program charged with reducing avoidable readmissions (Center for Medicare & Medicaid Services, n.d). CMS can promptly reduce payments for hospitals that do not satisfy the readmission standards of HRRP (CMS, n.d). In these two ways, an organization can face significant financial consequences for their high readmission rates. If there are enough financial setbacks, a formerly stable organization can quickly be confronted by sharp decreases in revenue or even bankruptcy.

Unfortunately, rising readmission rates do not only cause concern for the organization; high readmissions can also have detrimental repercussions for patients. For example, when compared to non-readmitted patients, readmitted patients have a higher rate of in-hospital mortality (Upadhyay et al., 2019). Further, readmissions are also linked to hospital-acquired infections and predisposing patients to medical errors (Felix et al., 2015). These statistics suggest that readmissions and poor health outcomes positively correspond. It goes without saying that a poor health outcome is not a desirable metric for this organization; it should therefore be addressed using all available resources.

The repercussions high readmission rates can bring to a hospital and its patients makes resolving the issue a priority. To do this, hospitals must first identify the causes of high readmission rates. There are a variety of reasons for high rates of readmission to hospitals; these include health status, demographics,

socioeconomic status, and low patient engagement (Weiss & Jiang, 2021). Since hospitals do not have direct control of a patient's demographics, socio-economic status, or health status before arrival, its staff should focus on improving patient engagement as an actionable way to reduce readmission rates. Patient engagement is a patient's desire to become more cooperative with their healthcare (Higgins et al., 2017). Patient engagement has been found to be frequently associated with a range of health outcomes. Literature suggests that low engagement can lead to undesired health outcomes (Greene & Hibbard, 2012). Indeed, the opposite is also true. Patients that exhibit higher levels of engagement tend to experience more positive outcomes. Though there are rare exceptions, it can be determined that the less a patient engages in their own healthcare, the more likely that patient is to experience undesired health outcomes and quite possibly be readmitted. This is supported by a study that concluded that a hospital's functionalities when engaging patients is related to lower rates of readmission for a range of health issues (Asagbra et al., 2019). When taking this positive correlation into account it is quite clear that increased levels of patient engagement have a significant impact in lowering readmission rates. Hospitals should therefore examine this relationship further by observing trends, the benefits of improving the relationship between patient engagement and readmissions, and by identifying the factors that influence patient engagement.

LITERATURE REVIEW

To begin understanding the relationship between readmission rates and patient engagement, trends regarding the two should be observed. The association between patient engagement and readmission has been analyzed in various studies. Kemp et al. (2017) determined that patient involvement in healthcare decisions was one aspect leading to unplanned readmissions. In fact, patients who expressed that they were not involved with their healthcare decisions were 34% more likely to be readmitted (Kemp et al., 2017). A second study exhibits how patient activation can affect readmission. The study concluded that patients most active in their healthcare decisions yielded the best health outcomes 30 days post discharge compared to those who were not active in their healthcare decisions (Mitchell et al., 2014). This suggests that patients who displayed the most activation in their healthcare were less likely to be readmitted due to their better health outcomes. In addition to these studies, a cross-sectional study involving over 25,000 patients found that patient activation was related to 10 out of 13 patient health outcomes (Greene & Hibbard, 2012). For example, patients with high levels of activation were 9% more likely to have systolic blood pressure levels within the normal range (Greene & Hibbard, 2012). While patient engagement and activation are not the same, they are related. Patient activation is a component of patient engagement that pertains to the knowledge and skills necessary in order to become engaged in

one's health (Center for Disease Control, n.d). Since patient activation is a required component for patient engagement this study further proves that patients who engage in their healthcare are more likely to have desired health outcomes across a range of health-related outcomes and are therefore less likely to be readmitted. Taking the presented literature into account it can be determined that patient engagement has a strong influence on readmissions. Improving patient engagement should therefore be of focus in order to lower rates of readmission.

The observed trends regarding the relationship between readmission rates and patient engagement prove that improving the relationship between the two variables will be of benefit. For instance, improving patient engagement in order to reduce readmission can be financially advantageous for hospitals. Numerous studies exhibit how readmissions can cause financial burden for hospitals. For instance, patients who were discharged with heart failure and hyponatremia increased hospital costs by up to $569.00 as a result of their readmission when compared to patients who were discharged with corrected heart failure and hyponatremia (Amin et al., 2019). This is because patients who were discharged without corrected heart failure and hyponatremia needed to seek additional treatment for sodium correction shortly after their original discharge which can cost up to $569.00 per discharge (Amin et al., 2019). While $569.00 may seem like a miniscule amount it is important to consider that the readmission rate for patients in this study was 27.5%. This implies that hospitals incurred an unexpected additional cost of $569.00 per discharge for almost 28.0% of their patients with heart failure and hyponatremia. Another study demonstrates the same trend of increased hospital costs due to readmission. Researchers gathered data pertaining to continent diversion patients and readmission rates. It was determined that patients undergoing continent diversion procedures were readmitted more frequently causing an increase in hospital costs (Joice et al., 2018). An additional study further solidifies the fact that hospital readmissions create financial strain for hospitals. Reeves et al. (2018), found that patients with periprosthetic fractures undergoing open reduction internal fixation treatment had readmission rates of 20.5% with associated readmission costing $15,269.00. These examples perfectly demonstrate how readmission can cause additional unexpected costs for hospitals across a range of various health conditions. The presented literature suggests that readmission undoubtedly leads to additional costs and is very prevalent in numerous health conditions. Furthermore, it should be noted that hospitals with high rates of preventable readmission can incur penalties by the Hospital Readmissions Reduction Program (HRRP) with up to 3% of reimbursements being withheld for preventable readmission (Banerjee et al., 2022). Taking everything into account, it can be concluded that readmission can potentially put a hospital in financial jeopardy and should therefore be a serious cause of concern.

Apart from creating financial issues for a hospital, readmission is associated with causing complications for patients. Various studies show that patients who are readmitted have higher rates of adverse health outcomes. For example, one study determined the mortality rate for readmitted patients to be 21.3% (Kramer et al., 2013). This is significant considering that the mortality rate for non-admitted patients in the same study was only 3.1 % (Kramer et al., 2013). This a clear indication that the health outcomes for a readmitted patient tends to be undesirable when compared to patients who were not readmitted. Moreover, the average length of hospital stay was 13.1 days for readmitted patients and 4.5 days for patients who were not readmitted (Kramer et al., 2013). The increased length of stay further suggests that a readmitted patient's health outcome is likely to suffer resulting in an increased length of stay. Another study regarding patients with diabetic ketoacidosis (DKA) found that mortality rates were almost for readmitted patients during their second hospitalization when compared to DKA patients who were not readmitted (Horvath, 2021). This study further validates the fact that a patient becomes predisposed to experiencing undesirable health outcomes as a result of being readmitted. The research regarding readmission rates and patient health outcomes highlights the importance of improving rates of readmission. By improving rates of readmission hospitals can expect to find lower rates of adverse health outcomes for patients.

In order to improve patient engagement, organizations must first understand what factors influence patient engagement. Findings from various studies show that there are several factors that affect patient involvement. Information technology systems such as patient portals and EHRs have been found to be one factor strongly associated with patient engagement (Sawesi et al., 2016). A second study found that health information technology increases access for patients and has been found helpful in readmission performance (Elysee, 2021). Together these two studies implicate that technology is a powerful tool in engaging patients and reducing rates of admission. Another study listed the factors that influence patient engagement to be relationship-driven involvement, disease impact-driven involvement, and cognition-driven involvement (Buljac-Samardzic et al., 2022). Webb and Gearing (2020), also identified provider-patient relationship as an influence for patient engagement. Morisky and Cheng (2020) findings validate the findings of Buljac-Samardzic et al., as they too determined that cognition factors play a role in patient engagement. Finding multiple factors that influence patient involvement insinuates that strategies to improve patient engagement must be diverse, as the factors that influence patient engagement are diverse themselves.

CURRENT SOLUTION

As previously stated, technology was found to play a huge role in patient engagement. Health information technology systems such as electronic health records (EHRs), and patient portals have the greatest potential in increasing patient engagement and reducing readmission. A study regarding hospitalization of patients with chronic diseases concluded that patient portals were an effective platform in engaging patients as it allowed patients to access their EHRs and engage with their healthcare providers (Chenzhang Bao et al., 2020). The results showed that patients who actively use the patient portal system had lower frequencies of hospital readmission and hospital stay times (Chenzhang Bao et al., 2020). Many hospitals have considered the significant association between patient portal and patient engagement. Strategies regarding increasing interaction between patients and patient portals can be found throughout various literature. Larger hospitals typically choose to use costly promotional advertising strategies in order to increase patient portal use by patients, but there are other options (Krist et al., 2014). One study focused on implementing different strategies across 8 mid-size primary care practices to boost patient portal engagement. The strategies used across the 8 practices included both websites, telephone hold messages, kiosks, distributing cards, and brochures. It was concluded that mailed invitations for patient portal use and integrating patient portal into care, resulted in 25.6% of patients using the portal (Krist et al. 2014). Hospitals should undoubtedly consider implementing promotional strategies to boost patient use of patient portal systems as it has been found to be an effective way to increase engagement. By doing so hospitals can find themselves having lower rates of readmission as health information technology has been proven to increase patient engagement and decrease rates of readmission.

From the literature one of the recurring influences associated with patient engagement was relationship-driven involvement. Relationship-driven involvement pertains to the interaction between a patient and a healthcare provider (Buljac-Samardzic, 2022). This phenomenon is commonly referred to as provider-patient relationship. Communication was found to be a promising tactic in building and maintaining a good provider-patient relationship. This was found in the Ruben et al. (2020) study, where it was implicated, that patient centered-communication fosters provider patient-relationships and is key in optimizing patient engagement. Knowing that provider-patient relationship is an important factor in patient involvement, many organizations have come up with strategies to improve the relationship between healthcare providers and patients. Kincaid (2020) explained how one hospice organization utilizes the power of the telephone in order to improve communication between providers and patients. The organization made follow-up phone calls post-discharge to establish rapport and establish health

goals. Further, patients were given additional time for questions and a 24-hour phone service was implemented. After implementing this communication project reports showed that there were improved communication scores on the Consumer Assessment of Healthcare Providers & Systems (CAHPS) survey from 85% to 87% (Kincaid, 2020). While this may not seem like a significant change other metrics validate the claim that communication was improved. For instance, the same communication project enabled the team manager to contact 66% of all new patients within two weeks (Kincaid, 2020). Clark et al. (2019), explains that another organization focused on boosting communication between providers and patients on the autism spectrum. Since some patients on the autism spectrum may have communication impairments, the intervention this organization implemented had a unique approach. They used electronic mail to send family members and patients, fliers and videos regarding the patient. Those who did not have electronic mail access were given the flier at registration. The flier contained information regarding questions that may be asked, and what can be expected during the appointment time (Clark et al., 2019). In addition, questions about the patient regarding signs of comfortability, and best method of communication were asked prior to appointment on a separate flier for the provider to gain knowledge about how to interact with their new patient (Clark et al., 2019). After implementing this project hospital staff found that communicating and satisfying the needs of their patients and families to be more effective. These examples demonstrate how there are diverse ways a hospital can improve communication strategies, and although strategies may be very different, they are each found to be effective.

Another factor found to affect patient engagement that was consistently seen in the literature was cognition-driven involvement. This factor pertains to a patient's knowledge and understanding of their own health status and the choices they make regarding their health (Buljac-Samardzic, 2022). It is suggested in literature that education and patient engagement are related as it was found that patients who do not have a clear understanding of the importance of managing their health were less likely to engage in their health (Buljac-Samardzic, 2022). Many hospitals and organizations have come to recognize that education is necessary in order to improve patient engagement and decrease readmission. To address lack of education concerns, hospitals and organizations have implemented various strategies to better educate their patients. Peter et al. (2015), identified teach-back as an important method in improving patient education. To integrate the teach-back method into the magnet facility, a group of 12 healthcare professionals came into collaboration. They evaluated the discharge process and determined it needed to be improved. The team then assessed patient education within their facility. After deriving a plan to implement the teach-back method a 12 percent decrease in readmissions for heart failure patients was observed. Additionally, heart failure patients were assessed on their education after using the teach-back method and

had 94 percent of correct responses on knowledge-based questions (Peter et al., 2015). The teach back method is commonly used in the healthcare setting in order to ensure a patient is adequately educated about their health status and maintenance of their health. various studies, such as one involving cardiac failure patients prove its effectiveness. The study found that patients that underwent teach back training were less likely to be readmitted (Mesbahi et al., 2020). Furthermore, 75% of patients reported a positive effect after having undergone teach back training (Mesbahi et al., 2020). The five-step plan suggested from the literature is proven to be an effective strategy to increase patient education as proven by other literature. Its effectiveness should make patient education a high priority for hospitals as education is key in getting patients to engage in their care and therefore reduce rates of readmission.

IMPLEMENTATION PLAN

Rates of readmission have been proven to be a significant issue that should be resolved in a timely manner. Literature proves that there are various strategies that can serve as solutions if implemented correctly. Low patient engagement has been found to be a main cause of high readmission rates. Since there are a variety of factors that influence patient engagement there should be multiple solutions to address each factor accordingly.

The first factor of concern was identified to be technology. Technology has a strong association with patient engagement and has been found to lower rates of readmission. For these reasons healthcare organizations should focus on strategies that will help increase a patient's engagement with forms of health information technology such as EHRs and patient portals. Based on the findings of previous solutions it is in the best interest of this organization to implement advertising strategies that will promote the patient portal and EHR systems. First, organization leaders will have to instruct the data analysis staff to extract data pertaining to usage of patient portal and EHR systems before the strategic plan is implemented. The data should consist of percentage of inactive patient portal and EHR users, percentage of active patient portal and EHRs users, and percentage of non-users. This data will be important as it will be used later to compare usage percentages after the strategic plan is implemented. Next, the organization must determine a budget for advertising. Once the budget is determined by the finance department organization leaders must then consult with marketing staff as they will oversee creating advertising for patient portal and EHR systems. The marketing staff will have to evaluate the best method of advertising based on the given budget. The given budget for this solution plan is expected to be small as the organization is an independent acute care hospital. The previously discussed literature explains that mailed promotions such as distributing cards and brochures were successful in

increasing patients' engagement with patient portals. The marketing team will be tasked with constructing these promotional cards and brochures that can be physically or electronically mailed out to patients. Further, staff with web design responsibilities can be instructed to create a link that has information regarding how to use and access patient portal and EHRs systems. In addition to websites as a strategy to engage patients to use patient portals, tablets that can be used in hospitals to sign up for patient portals were also integrated. The IT staff will be tasked with setting up tablet devices that will allow patients to sign up in the hospital. Hospital miscellaneous clerks and assistants will be responsible for approaching patients with these devices and help them sign up for the patient portal. Moreover, the hospital can encourage providers to make patient portals a part of patient treatment by including it in the discharge instructions. Once this action plan is implemented, the data analysis staff will extract the same target data they did before implementing the plan. This will be used to compare and determine whether the number of active patients after discharge has increased. If the organization finds an increase in this statistic, they can classify the solution as successful.

In continuation, the second factor that influences patient engagement was provider patient relationship, which was found to be heavily affected by communication between patients and healthcare staff. There are multiple strategies that an organization can implement to improve communication between both the hospital staff and the patient. The organization can improve their communication with patients by implementing a communication system that will allow them to contact patients telephonically. Each department's front desk administrative assistant staff will be responsible for making follow-up calls to patients' post-discharge to establish rapport. The same department will oversee running a 24-hour phone service which will allow patients to contact hospital staff and address any questions. Patients will be notified of this service during check-in and a flier advertising this service will be sent out through electronic mail. The information technology department will be tasked with connecting telephones to the computer system so that patient information can come up with each incoming phone call. This will allow staff to take brief notes about the phone conversation. The data analysis department will be responsible for tracing the frequency of phone calls for patients post discharge so that the efficiency of the new program can be evaluated.

In conjunction with telephone communication services, communication accommodations for patients with communication impairments shall also be considered. Knowing that not all patients communicate best through written or verbal words, administrative assistants for each department should offer infographic sheets that use pictures and minimal words to communicate with patients who struggle to understand information written or spoken. The

infographic will contain basic information regarding the patient's health condition. Previous literature found this to be effective for patients on the autism spectrum and their families. The printing department will ensure that physical and digital copies will be available for patients and their families. To offer more options, short videos can be constructed regarding basic information about a patient's condition. Patients and family members can be referred to a website link to access the videos.

The last factor that was discussed to influence patient engagement was cognition driven which was found to be affected by knowledge. Since knowledge about one's health situation and health maintenance is an important aspect of health outcome, a solution plan should be implemented immediately. Literature suggests that the teach back method is the best method to ensure patients are knowledgeable about their own health situation. Organization leaders should come into collaboration with other healthcare professionals to assess the organization's discharge process. After completing this step, the group of professionals should evaluate the educational process during discharge. From here, a meeting can be set to introduce the teach back method, and the process and steps needed to implement the method. Department leaders will then be responsible for sharing the information with human resources who will oversee training the providers to utilize the teach back method in their visits. Further, staff will be trained to be able to determine a patient's level of competency regarding the information they were taught. Patients can be assessed after discharge and be asked knowledge-based questions in order to determine whether the implementation of the teach back method was successful. To measure the success of this plan patients will be assessed on their competency of discharge instructions prior to plan implementation. These results will be compared to the results of the assessment post plan implementation. If a statistically significant increase in competency is examined, the plan will be deemed successful.

To determine the success of the implementation plan, top administrative professionals will observe the data collected throughout the process. As explained, data will be collected before and after the implementation of each strategy. The data analysis staff will provide administrative professionals with statistical data relevant to each strategy prior to and post implementation. If a statistically significant increase in patient portal use, communication, and competency is examined the implementation plan will be considered successful.

CONCLUSION

High rates of readmission pose a financial threat for healthcare organizations and are linked to reduced health outcomes for patients. Patient engagement has been identified as a controllable factor that influences readmission rates. Various

research studies link lack of patient engagement to high rates of readmission. Evidence suggests that boosting factors pertaining to patient engagement will likely improve rates of readmission as it will result in better health outcomes for patients. The three factors identified to affect patient engagement were technology, communication, and education. Previous research exhibits that increasing a patient's engagement with technology increases their engagement with their healthcare and therefore reduces rates of readmission. Other pieces of literature explain how enhancing communication with patients telephonically or making accommodations for patients with communication impairments can significantly improve readmission as it establishes a strong provider-patient relationship. Various studies prove that patient education is essential to improve patient health outcomes as a more educated patient is more likely to be more involved in their care which will result in a lowered rate of readmission. It is concluded that implementing strategic plans that will improve aspects of patient engagement will be in the best interest of an organization with goals to lower readmission rates.

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CARE GIVING YOUTH: A DIRECTION FOR ADVOCACY

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Caregivers, Youth, Social Determinants of Health, CMS Support, Advocacy

Abstract
The presence of youth caregivers is a prominent reality within our society. Their responsibilities range from performing standard household tasks to overseeing the medical treatment of loved ones. Little is publicly researched and discussed regarding these responsibilities. As a result, the potential benefits of cultural intergenerational bonding and shared giving are not understood, and neither are the unique hardships nor the potential harm to the cared and the caregiver. Several key elements are needed to support this subset of caregivers and to better serve patients: research that better addresses the scope and scale of youth caregiving; advocacy that links youth caregivers into the health care provider system; community support systems for the caregivers on the institutional and personal levels; and health policy that speaks to the public concerns facing youth caregiving.

Background
The expanding cost of health care evokes concern in our society, raising risks for health care recipients in general and risks for health care's most vulnerable individuals. The cost of health care as a percentage of gross domestic product in the United States is projected to increase from 17.9% in 2017 to 19.7% in 2027. The CMS.Gov records its 2017 national health expenditure as $4.1 trillion or $10,739 per person. The breakdown per enrollee is Medicare, $12,530; Medicaid, $8,013; and private health insurance, $6,001. Innovations are necessary for addressing better community health and its public costs. While the health care system has been advancing care through innovations ranging from artificial intelligence diagnoses, remote monitoring, best practice determination, and transparency in pricing and service, costs remain on the rise and innovations are not yet sufficient to cover the health care needs of the entire society. Cost demands

are being shifted to those using the health care system as individuals, and their caregivers are nevertheless expected to become more and more responsible for their own personal health and well-being. This demanding responsibility of providing health care support has become a significant role for over 43.5 million caregivers in the United States (National Alliance for Care Giving). Additionally, as an unintended consequence of the demographic shift in family structure, a population of youth serving as caregivers has emerged. This group has not been accounted for in the National Alliance for Care Giving Report demographics. However, the Home Care Assistance website reports the following: "For every 100 households that have a child between the ages of eight and 18 years old, three will include a child caregiver, of which: 31% are 8 to 11 years old; 38% are 12 to 15 years old; and 31% are 16 to 18 years old" (Jo, 2017). They for adults, as well as siblings.

Youth caregivers aid in the care of grandparents, parents, or even siblings with health conditions. Their caregiving represents two categories: The first is activities of daily living (ADLs), such as bathing, dressing, toileting, feeding, incontinence care, and assisting with mobility. The second is instrumental activities of daily living (IADLs), which include handling finances and appointments, housework, transportation, translating, keeping company, meal preparation, using medical equipment, and managing medications (Nickels, 2018). Each of these tasks properly executed demands a certain level of diligence, expertise, and empathy. Attending to the ADLs and IADLs of another person can be overwhelming for any individual. Handling medication for a family member alone demands a great deal of knowledge and responsibility. Youth caregivers are shouldering this responsibility with unknown needs and with consequences that may be damaging to their own well-being. On the positive side, youth caregivers can learn to apply creative ways of handling this responsibility with loving service.

Families are the largest providers of informal care in this country. Despite the extensive caregiving literature about the characteristics of care providers and beneficiaries, there is a significant risk related to youth caregivers under the age of 18 years (Kavanaugh, 2016) who have been largely excluded from caregiving research, programs, and policies. Youth caregivers represent an isolated and understudied adolescent population (Nickels, 2018). The American Association of Caregiving Youth (AACY) estimates the presence of 1.3 to 1.4 million youth caregivers in the United States, last formally measured in 2005. A 2021 study by the Society of Research in Child Development (SRCD) roughly estimates that in the United States more than 5.4 million children and adolescents under age 18 provide care for family members who are aging or have chronic illness, disability, or other health conditions that require assistance. The American Association of Retired Persons (AARP) Public Policy Institute has calculated that the estimated annual value of youth caregivers in the United States is $8.5 billion.

The American Psychological Association reports that the primary responsibility of children and teens is to achieve their educational potential. The dual role of being a student and a family caregiver may compromise a young person's school performance because of the inherent demands and stressors of providing care for a family member with a chronic illness or disability. This strain may produce negative effects for the youth caregiver at school. Such signs include decrease in school performance; changes in social behavior, such as isolation; disruptive behavior; fatigue; and inability to participate in extra-curricular activities. At the same time, many families are engaged in creating a balanced life for the youth caregiver. Families need to be polled to define what is best for all parties.

Even when care is conducted under the auspices of the public child welfare system, child protection workers have difficulty in identifying who is giving and receiving care, especially where there are changes in family relationships (Gibson, 2009). These relationships affect the welfare of each member of the family and the boundaries of the relationships are not easily drawn, making social service support more troublesome to apply.

Youth Caregivers and Social Determinants of Health

Youth caregivers are important to their families, even as their own well-being is threatened. They can be very influential in the health outcomes of those under their informal care. This care fits into the rubric of social determinants of health. It is widely recognized that social determinants of health can influence health outcomes, especially for vulnerable populations. The focus of social determinants of health has been on issues such as housing, nutrition, and transportation. The debatable position of the Affordable Care Act, the 2017 tax cut, and continued increased health care spending warn of a coming push for entitlement reform designed to lower health care costs (Nichols & Taylor, 2018). Among the calls for more effective cost reduction, investments in social determinants of health may be victims of potential cost-saving that can reduce the health of many low-income Americans (McWilliams, 2016). At the same time, it has been recognized that current levels of funding for interventions related to social determinants of health have long been inadequate and leave our communities with a questionable social safety net (Bradley, et al., 2013). Youth caregivers appear to be a vital part of that safety net. While they do not fall into a category that is the target of cost cutting, they deserve placement in a category that would benefit from support. With the proper support, youth caregivers influence the social determinants of health within their family structures. Support systems need to focus on the social determinants of health of the youth caregiver as well.

Investing in social determinants of health has its challenges. Its scope cuts through a wide range of conditions in our culture at large. Most of these determinants, nonemergency in nature, seem to leave youth caregivers irrelevant or insignificant to policy makers. They may be in support categories not generally covered by

federal programs in the past. Yet quality and cost intersect where youth caregivers become a valuable force in supporting social determinants of health.

Support for Youth Caregivers

Escalation of care often reflects a health care transition that is determined to be a barrier to health. Patient and family engagement is vital in the transition of care. Transitions of care take place as a patient moves from the home to an acute care or emergency setting and returns home; additional transfers to or between sub-acute or post-acute care facilities may also occur.

The Center for Advancing Health (CFAH) examines advances in health care and the importance of engagement. It has noted that advances in medicine and health care services require increasing reliance on patient and caregiver energy, knowledge, and skills. A successful transition of care depends on the ability of both patients and caregivers to manage a care plan. Youth caregivers need personal support to learn and administer a care plan. The American Board of Quality Assurance and Utilization Review (ABQAURP) notes that health care consumers frequently move from one episode of care to the next without a care coordination champion which triggers a downward trajectory of health status that effects the caregiver's quality of life. The caregiver must then be adaptable to changes in their care recipient, both physical and emotional. This makes for an additional challenge for the support of youth caregivers.

As mentioned above, youth caregivers can and do play an increasingly significant part in the overall health of our communities. The American Associate of Caregiving Youth (AACY) has undertaken an effort to bring together partners to find better ways to address issues for the support of youth caregivers.

Support for youth caregivers is now being developed in several economies. The Children's Society in the UK is supported by the National Health Service and has a range of programs that sustain youth caregivers financially and emotionally. Personal and educational develop are key offerings. This is program is considered a global leader in the field. The United States is categorized as "emerging" in terms of policy support. Ireland, Italy, and sub-Saharan Africa would also fall into this category (Levin, 2017). For Example, the U.S. RAISE Family Caregivers Act of 2018, noted by Health Care First, identifies the ways government, communities, health care providers, employers and others can support family caregivers. Yet is offers no provisions that address the specific needs of the youth caregiver. This group needs focused support.

This specific concern is spelled out by a number of professionals in the field. Youth caregivers experience a unique level of stress associated with balancing multiple conflicting responsibilities, including both caregiving and schoolwork (Siskowski, 2006). Conflicting responsibilities may also be particularly challenging during social transactions with peers, (Armstrong-Carter et al, 2021).

In particular, children in families of low socioeconomic status are likely to be negatively impacted by the emotional difficulties of caregiving (Cohen,et al, 2012).

Discussion

Youth caregivers are an integral part of the social health care structure of communities where Medicare beneficiaries are most vulnerable. There are areas of consideration for learning more and designing adequate support.

1. Engagement with the Health Care System

   It is evident that caregiving generally requires some medical skills. Dealing with a chronic disease, administering medication, or even determining what to do when someone is in distress can be challenging and overwhelming, especially for a young caregiver who has not been medically trained. Therefore, it becomes extremely important for youth caregivers to engage with the formal health care provider system. Hospitals, clinics, and other care providing entities can adjust their own outreach programs to offer training and general information publications for youth caregivers. Doctors can ask children about the health status of other family members. The practical understanding that teens possess regarding technology can be leveraged as a means of guiding their work as caregivers. As digital health care delivery continues to grow, guiding platforms and electronic tools can be linked from the health care provider to the youth caregiver for innovative and creative solutions.

2. Personal Support for Youth Caregivers

   The AACY notes that not every child gets 18 years of childhood. Some must become responsible adults well before their bodies grow to maturity. Churches, schools, community groups, and youth sports and recreation associations can provide timely and positive support by acknowledging and addressing the position of youth caregivers in society. These groups are ideally positioned to provide a hub of well-being support and understanding for the youth caregivers. They are suited to assist the well-rounded development of the teenager. Youth caregivers need access to programs that can provide emotional, logistical, and financial help to them personally. They need to find a balance that allows them the time and social conditions to develop into adulthood, while fulfilling their caregiver responsibilities. Adult members of the caregivers' social networks need to help them. The main reason children undertake caregiving roles is a lack of adequate traditional support services for their ill or disabled relatives. Social investments in youth caregiving, teamed with input from families, can determine the appropriate nature of support.

3. Community Building

   Regularly scheduled symposia in strategic community settings will help the health care community understand and support the nuances of youth caregiving. Service

organizations can share resources and ideas to create a variety of ways to support the youth caregiver. In isolation, it is difficult to imagine an overall solution to the consequences of youth caregiving. Various groups can observe, listen, problem-solve, and impact youth caregiving with solutions that relate to their missions and can share their successes and failures with a wider range of concerned organizations. Today, the American Association of Caregiving Youth is a valuable resource to be consulted as a coordinator of these community initiatives. Paths to public and private partnerships can also be explored. Health insurers can be participants in community building by developing products that support the social determinants of health as well.

4. Research

   Academic research is a means of developing and communicating information about the concerns of youth caregivers. Knowledge about the issue and its consequences is foundational. At the same time, academic institutions can develop training and educational programs to be shared nationally. Further research around the work of Nickels and Kavanaugh is essential in identifying steps toward improvement. Learning more about the constructs of youth caregivers within their social structures and about the challenges to their well-being opens doors for meeting the needs and improving outcomes for the remarkable youth and the loved ones for whom they care.

5. Policy Making

   With a clearer understanding of what is needed in this area of society, policy organizations can better understand the types of programs to fund and to support. While funds and energy are applied to aging programs, attention is needed to alleviate youth-based stressors of families caring for their aged and impaired members. As awareness is turned to social determinants of health, greater emphasis on overcoming inequities in care is accomplished. Youth caregivers merit the attention of health care advocates in terms of making the necessary social investments in this area.

Conclusion

The paper is a narrative about an issue that has not received extensive attention in the process of health care reform in the United States. Support for youth caregivers seems to be buried quietly beneath the magnitude of concern over health care costs. Youth caregiving is an important element in the assessment of social determinants of health and plays an important role in care transitions, health outcomes, and population well-being. What it most important is not its scale, but rather the importance of garnering a good understanding of the needs of those it affects. On one hand, youth caregiving is very important to a sector of our vulnerable population. On the other hand, it has unintended consequences for the education and general well-being of the youth who take on the responsibility of caring for their family members. It is now time to act with determination and strategy that matches the stamina and dedication of our nation's youth caregivers. Health care

systems, community organizations, community networks, researchers, and policy makers have a vital role in lauding and helping these brave young souls. continued.

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FINANCIAL SUCCESS OF COMMUNITY HOSPITALS: THE ROLE OF THE EMERGENCY DEPARTMENT

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ABSTRACT

Admissions are critical for the financial survival of community, acute care hospitals. Through the review of multiple peer-reviewed articles, research is conducted on the critical role of an Emergency Department ("ED") for the success of a hospital. The review of literature supports the monitoring and continuous improvement of ED quality measures, and it finds the common belief that the ED is a loss leader to be false. Next, potential solutions to the problem are discussed, including the need for increased volume and prevention of patients leaving without being seen. To conclude, a proposed plan to implement the solutions is discussed in detail.

Keywords: Emergency Department, hospital finances

INTRODUCTION

Emergency Departments ("ED") have had a heightened role in hospital admissions for most conditions since 1993, due to increased reliance on the ED as a surrogate for primary care and greater access to convenient diagnostic services (Schuur & Venkatesh, 2012). Understanding this trend is important for any hospital, but especially important for the financial success of rural hospitals, Critical Access Hospitals (CAH), and community hospitals who do not have the resources to offer elective outpatient procedures that generally offer greater collected revenues (Khullar, et al., 2020). This work will review ED data of a community hospital with a licensed bed capacity of 154 beds. The hospital was formerly a stand-alone community hospital prior to joining a healthcare system (how long ago?), and still functions as such. For this and other similar hospital

facilities, admissions from the ED can be critical to the financial health of the hospital.

After performing a financial and operational analysis of ED performance across fiscal years spanning 2019 to 2022, a decline in admission rates resulting from the ED was noted. A review of the ED volume, acuity levels of the patients being treated, and discharge dispositions of those patients will help to better understand if this observed trend is truly problematic and leading to a decline in high paying emergency admissions. Furthermore, a complete analysis of ED patient data will determine if admission rates are declining or if there are fewer patients presenting to the ED. Pre-COVID data from Fiscal Years 2019 and 2020 will be utilized as well as Fiscal Year 2021 data from the height of the COVID Pandemic. Finally, current, post-pandemic data from Fiscal Year 2022 will be utilized for comparison. The review of the four different fiscal years' data will allow the facility to possibly understand the impact on ED admissions from the COVID Pandemic. As with many aspects of healthcare, it is difficult to return to the hospital's baseline it knew in the years prior to the COVID-19 pandemic. Most likely, the conclusion of this evaluation will lead to a need to address how to change and succeed in the new, post-pandemic healthcare atmosphere.

This review will also include an analysis of the transfer data from the ED. For example, did the transferred patient truly require a higher level of care? If the hospital was able to provide more appropriate staffing, would the facility be able to admit more patients as opposed to transferring the patients? After the review of the transfer data opportunities, would the admission rate increase?

Analysis of these variables from the ED operation can inform a plan to address the observed decline in ED volumes and admission rates. This analysis will use the DMAIC (define, measure, analyze, improve, and control) framework from Six Sigma. In order for the implementation of change to be successful, there will need to be support from executive leadership, an ability to change, development of mapping processes, and small improvements that will sustain over time (Souza et al., 2021).

LITERATURE REVIEW

EDs have a growing role in hospital admissions, proving the department plays a critical role in the healthcare system overall (Schuur & Venkatesh, 2012). Rask et al. (1998) followed 351 random, adult patients for two years after being seen in an ED. The study found that many of these patients relied heavily on the ED for non-emergent, ambulatory care. Therefore, one can assume that ED volumes will show to be high but are diluted with patients who did not require emergent care

and consequently will not require admission to the hospital. For this reason, it is important for executives to evaluate ED admission rates and not just the simple volume of patients seen when evaluating the impact of ED admissions on the financial performance of a hospital.

Although the cost to care for patients presenting to the ED are higher than other ambulatory care sites in a hospital, Brown and Kuo (2004) still found that patients who were admitted through the ED to be profitable, and those patients accounted for 27% of the hospital's total profits generated from admissions. Brown and Kuo (2004) find the generally accepted notion that the ED is a loss leader to be erroneous. Henneman et al. (2009) also discuss the misconception of most hospitals to believe that a surgical, or elective, admission is more profitable than an admission from the ED. This belief led the team to conduct a study to decipher which patients should receive bed priority based on their profitability. All ED and non-ED admissions for three consecutive fiscal years were reviewed to determine each individual contribution margin per day. For ED admissions, the median contribution margin per day was determined to be $769 as opposed to $595 for non-ED admissions (Henneman et al., 2009). Although this study was conducted at a single hospital and evaluating multiple healthcare facilities would provide a more accurate picture, it was also the conclusion of the study by Brown and Kuo (2004) that ED admissions are more profitable than non-ED admissions.

While researching the financial impact from ED admissions, it is important to understand what types of patients, are admitted to inpatient care through the ED. Khaliq and Broyles (2006) found that uninsured patients and those covered by Medicaid are more likely to be admitted through the ED than those who are commercially insured. That study noted patients with commercial coverage were more likely to be admitted electively or directly by a primary care physician. Additionally, the 2006 study conducted by Khaliq and Broyles found that African Americans, Native Americans and males of all races/ethnicities were more likely to be admitted through the ED. ED admissions also tend to include high proportions of trauma patients and patients who arrive through an Emergency Medical Service. Additionally, Venkatesh, et al. (2015) found that ED admission rates vary according to the clinical conditions. This study found the five clinical conditions most likely to result in hospital admissions were mood disorders, unspecified chest pain, skin or soft tissue infections, urinary tract infections (UTI), and chronic obstructive pulmonary disease (COPD). Of all ED visits reviewed, it was noted that 20% of ED visits were admitted, with pneumonia being the most common condition among admitted patients.

Another important factor to review is what occurs when the ED physician deems the patient ill enough for admission. Not all hospitals can provide the specialties required for all conditions presenting to the ED. For this reason, the disposition of some patients requiring acute care will be a transfer to another facility for a higher level of care. Kindermann, and colleagues (2015) found that of the 97,021 transfers reviewed, circulatory conditions accounted for half of those transfers. Additionally, the study found that the hospitals receiving transfers from another ED offered a greater number of specialties, more beds, more advanced technology for diagnostics and therapy, and were designated trauma centers. However, transfers can put a strain on the patient or the patient's family by adding time to receive treatment, and moving them from their community, potentially resulting in extra costs for travel, food, and hotels (Kindermann, et al., 2015). For this reason, it is important to review the appropriateness of transfers from one hospital's ED to another. If quality treatment is available at the current hospital, it is usually in the best interest of the patient and family to admit versus transfer to another facility.

The COVID-19 pandemic has affected hospitals and healthcare in ways that are still not fully understood. Even if an understanding of the effect has been found, a solution might not be available. Specifically, the COVID-19 pandemic has influenced hospital admissions and ED visits. Rennert-May, et al. (2021) found there was a significant reduction in ED admissions and the number of ED visits. Supporting this finding, Nourazari et al. (2021) noted a 42% decrease in ED visits across the United States during the height of the pandemic in 2020-21. It is implied that some attribute the decrease to the arrival of various telehealth options, but the study also concluded that this could not possibly account for all of that decrease. Instead, the fear of contracting or spreading COVID-19 was believed the largest influence on that observed decrease in ED volumes. The group emphasized that the diminished admissions must be addressed by finding a way to reach patients who may be ill due to their fear of contracting or spreading COVID-19 over their need for medical attention.

POTENTIAL SOLUTIONS TO IMPROVE THIS ISSUE

Table 1 below summarizes the observed patient volumes, transfers, and admissions.

Table 1: Summary of ED Visit, Admission, and Transfer Data

	2022	2021	2020	2019
Patient visits	27,126	25,985	30,646	34,919
Admissions	4,340	4,417	4,290	5,238
Admission Rate	16%	17%	14%	15%
Transfers	1,356	1,299	1,532	1,746
Transfer Rate	5%	5%	5%	5%

Source: Hospital ED Visit Logs

A review of this hospital's ED data found that the admission rates and transfer rates have remained essentially the same over the last four fiscal years (July 1 through June 30) while there was a decrease in volumes since the pre-pandemic Fiscal Year 2019. However, the rate of admissions fluctuated across this time span, decreasing from pre-pandemic levels during the height of the pandemic in 2020, but rebounded the following two years as care moved away from acute management of COVID-19 cases. The uptick since the 2020 pandemic appears a combination of continuing COVID-19 morbidity along with more typical patient visits requiring inpatient care. Considering that the pandemic limited patient willingness to visit the ED, this observation makes sense. However, transfer rates have remained stable. This suggests that the hospital capacity to manage more complex cases remains unchanged overall and may represent a strategic opportunity for management.

It would be easy to say that the simple solution to address this trend is to increase ED volumes, which will lead to more admissions, and to decrease the number of transfers, which will also lead to more local admissions. However, these are not simple tasks. How can a hospital increase their ED volumes and decrease the number of patients transferred out to other facilities?

To find a solution to increase the ED volumes, the hospital must consider the local urgent and emergency care market. There is a freestanding Emergency Room across the street from the hospital, numerous urgent care facilities within the same community, and a competing acute-care hospital with ED 15 miles away in a neighboring town. Increasing this hospital's ED volumes will require solutions that draw patients from the competition.

Common data to monitor within an ED include the patients who did not receive treatment or complete treatment. The hospital monitors the number of patients who "Left Without Being Seen", who "Left Before Treatment Complete", and who left "Against Medical Advice". Considering these types of patients, it is difficult

to decipher who needed emergency care or who needed to be admitted for acute care. For this reason, a hospital's ED must try their best to prevent patients from leaving without receiving their complete care within the ED.

One proposed solution is to offer an online check-in system for incoming ED patients. Allowing the patient an option to "schedule" their visit and know they will not wait in the waiting area will be a great selling point for this hospital. Considering the COVID-19 pandemic, and the decrease in patients who sought emergency care for fear of contracting the virus, the solution to avoid the waiting areas and potential exposures should positively increase the ED volume!

Next, the hospital should work with the freestanding Emergency Room to become a facility that will receive their transfers and even offer solutions for direct admissions. Similarly, the hospital should create relationships with the local urgent care clinics to offer solutions for patients who require hospital treatment not available at the urgent care facility. As far as the competing acute care hospital, there is not a likely relationship to be built. Therefore, patient satisfaction, word of mouth, and marketing are all solutions to keep local patients coming to this hospital's ED, as opposed to the competing facility.

There are several Emergency Medical Services companies within the area of the hospital. It is also important to build a working relationship with each of these organizations, and to continue to work together over time. The hospital should provide education to these EMS companies to help them understand the capabilities and types of emergencies the hospital can treat. For example, the hospital is a Level III trauma center and offers a stroke program that recently received "Gold" rating! Positive, working relationships with local EMS companies will also aid in increasing the volume of patients seen in the hospital's ED.

A deep dive into the ED's transfer data is also warranted. It is imperative that the hospital gain an understanding of which diagnoses are being transferred to a higher level of care, and to decide if the hospital has the capability to treat those patients within their own facility. If the hospital is not currently able to treat those diagnosis, is it financially warranted to recruit specialists who could care for those patients and obtain the technology needed to support those specialists? A capital investment analysis would help inform such a decision. Not only should the diagnoses be considered, but the time of day, day of the week when transfers occur may give insight to potential staffing needs. Analysis of transfers by physician may identify needs for physician education or support to optimize the flow of patient transfers.

PROPOSED IMPLEMENTATION PLAN

To begin an implementation plan, a team should first be established. There should be an executive sponsor, a project manager, and 2-3 members who could be considered subject matter experts. For the implementation of this plan, the executive sponsor will be the Chief Nursing Officer, the project manager will be the administrative project coordinator, and the other members of the team will be the ED's Medical Director, the Director of the ED, and a charge nurse from the ED. As different issues, concerns, or needs arise, the team will bring in other subject matter experts. For example, when discussing marketing needs, the Marketing Director will be brought into the team meeting. The core group will meet every two weeks for three months. Once plans have been implemented, the core group will meet once per month to ensure there are no changes required.

The project manager will collect ED data pertaining to "Door to Doc" times, Left Without Being Seen, Left Before Treatment Complete, and patients who left Against Medical Advice. The team will then meet to review the findings and offer solutions to the patients' wait times and throughput issues. A patient tracking tool such as "InQuicker" (cite the source for this tool) can be utilized to address wait time issues in the ED. The project manager should work with the Patient Access Manager to ensure a smooth implementation of the tracking system. A patient tracking system should allow patients to schedule their time to be seen in the ED. The Patient Access staff on duty could then receive notifications of the patients who schedule appointment times within the system. At the same time, the CNO, ED Medical Director, and the ED Director will discuss the benefits and implantation of a tracking system with all ED staff, including doctors and mid-levels who provide care in the department. Once implemented, the team will work with the hospital's Marketing Director to begin marketing patient tracking and scheduling system availability as a solution to "wait from home" and to be seen quicker than in a freestanding emergency facility.

The Medical Director, CNO, and CEO should next meet with the leaders of local freestanding emergency facilities, urgent care facilities, and EMS providers. The discussions should offer solutions for the freestanding emergency facility to have direct admission privileges, as well as a partnership for the hospital to offer laboratory testing and imaging that the freestanding and urgent care facilities cannot provide. Engaging in a supportive partnership will create a positive environment that further encourages the potential admissions from the outside facilities. The CNO and Medical director will meet with the Medical Directors of the EMS providers to offer continuing education on the hospital's capabilities and offerings for patients, along with professional education credits for EMS staff. Ultimately, the goal is to be able to provide quality care for the patients, closer to

home. It is imperative that the EMS providers understand the hospital's capabilities and limitations. Furthermore, an understanding of the treatment options that come with those designations will allow the EMS members to bring more patients to this hospital as opposed to transfer options to a larger medical center outside of the area. Conversations with the local EMS medical director and dispatch staff can also be critical to success in this phase of the correction plan.

Finally, the project manager should collect and analyze the transfer data from this ED for the last 4 years. The data will be trended and analyzed to determine what time of day is most popular for transfers, what day of the week is most popular for transfers, and if any physicians transfer more patients than other physicians. In addition, the data will be analyzed to determine if any diagnoses are transferred more than any others. Additionally, the project manager should create a real-time transfer log that can be accessed by members of the team at any given time. The log will provide specific information for each transfer, similar to the Memorandum of Transportation (MOT) document. The log will provide the transferring doctor, accepting doctor, reason for transfer (specialty not available, specialty not on call, specialty on call but did not accept, trauma, patient request, etc.), facility's transfer center contact, and the accepting facility's name. This log will be reviewed daily by the project manager to watch for trends of avoidable transfers. If the project manager identifies an avoidable transfer, the ED Director will review the transfer to confirm whether the transferred patient could have been handled locally. Such a logging process can allow teams to address many of the noted trends/issues in real time.

CONCLUSION

Although the ED has often been regarded as a department that loses money for a healthcare facility, research has found that the department's patients accounted for 27% of the hospital's total profits generated from admissions (Brown & Kuo, 2004). This supports the idea that the successful management of the ED, including admissions and transfers, is essential to the financial success of a community healthcare facility. Despite admission rates remaining relatively the same, a review of this facility's ED data showed a decrease in volumes during the beginning of the COVID-19 pandemic and for each following year. Therefore, this facility needs to find a way to increase its volumes to gain more admissions and remain financially viable. This can be done by implementing and marketing an online check-in system, working with neighboring freestanding Emergency Rooms and urgent care centers to accept patients they need to admit, and improving/monitoring quality measures and appropriateness of transfers out. This proposed combination of work will not only lead to increased volumes, but also a cost-effective, higher quality of care for the patients.

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(DIS)ORGANIZATION AND SUCCESS IN A BLENDED ONLINE COURSE

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ABSTRACT

Banerjee and Duflo (2014) hypothesize that students with less self-discipline experience lower learning outcomes in online courses. We test this hypothesis using a novel sample of students in a blended online course who have a multiple-day window to take a quiz or exam. Our results show a consistently negative relation between when a student completes the test and his or her test performance. In other words, students who procrastinate—i.e., have less self-discipline—and take the exam later during the examination period perform worse on the test. These findings highlight an important offsetting cost to the benefit of flexibility that online courses provide and underscore the importance of additional research on how to minimize the tendency of some students to procrastinate.

Key words: Blended online, student learning outcomes

INTRODUCTION

Courses that allow students to attend class online clearly provide significantly more flexibility to students on where they are located during class than do traditional onsite courses, and blended online courses that substitute asynchronous materials (e.g., recorded lectures) for required live classes provide additional flexibility on *when* students study. Massive Open Online Courses (MOOCs) offer the greatest flexibility because they contain no required live classes (i.e., they are fully asynchronous). Students may have the opportunity to consult with teaching assistants, or possibly even the course professor, during office hours or other voluntary live sessions but they can otherwise learn the course material whenever and wherever they are located.

MOOCs are typically offered free of charge to anyone who chooses to enroll. Students who complete a course may opt to pay for a certificate of completion of the course if they pass an exam administered online.

Banerjee and Duflo (2014) argue that the greater flexibility of online courses, especially MOOCs, creates an important offsetting cost because it places students at a "disadvantage with respect to a classroom participant: the need for self-discipline and focus without the benefit of a peer group or a structured study time" (p. 515). Moreover, Reich (2020) reviews the evidence showing that EdTech innovations, including those designed to democratize education such as MOOCs, often exacerbate inequalities in educational outcomes.

Indeed, many studies report that their enhanced flexibility is associated with a significant reduction in student learning outcomes. For example, Perna and Ruiz (2013) find that only five percent of students who sign up for the MOOCs in their sample complete the course.

Even when fully asynchronous online courses are offered in a traditional university where the students had to satisfy admission requirements, there is widespread evidence of lower student learning outcomes for these courses. For example, Figlio, Rush, and Yin (2013) examine a sample of 327 students who were randomly assigned to a group in a traditional, onsite Principles of Microeconomics course or to a group who watched recorded lecture videos of the course (i.e., fully asynchronous group). Both groups were given the same set of multiple-choice exams, and the students in the traditional course performed significantly better than the fully asynchronous group.

In a comprehensive review of the studies analyzing online education, Protopsaltis and Baum (2019) offered the following summary of the state of online education:

> [M]ore than a decade after Congress allowed online colleges full access to federal student aid programs, and despite a subsequent explosion in their enrollment, a growing and powerful body of evidence suggests that online learning is far from the hoped-for silver bullet. (p. 1)

Propopsaltis and Baum's assessment is primarily a reference to fully asynchronous courses such as MOOCs. For example, they assert, "A review of the relevant evidence certainly confirms that interaction is essential for ensuring quality and student success in online education" (p. 17). Protopsaltis and Baum (2019) further state, "Instructor presence is integral for achieving interpersonal interaction and activities that emulate those of a 'real person.' Personal interaction increases student satisfaction, and by extension, motivation to learn and succeed" (p. 18).

In this paper, we test the Banerjee and Duflo (2014) hypothesis that students with less self-discipline experience lower learning outcomes using a novel sample of

students in a blended online course who have a multiple-day window to take a quiz or exam. We conduct multiple tests and find that students who take the exam later in the examination period perform worse on the exam, later, consistent with Banerjee and Duflo's (2014) hypothesis that students who procrastinate have lower performance in an online course.

SAMPLE AND DESCRIPTION OF TESTING PROCEDURES

We collected data from a blended online course offered during the fall 2020 semester at a graduate business program in a private, nonprofit research university. Table 1 shows the admission statistics for the incoming class. The average GMAT of 689 (median = 700) suggests that these are high aptitude students while the average and median age (29.23 and 26) and work experience (62.72 and 34.52 months) shows that most of the students have reasonable work experience. Moreover, a significant majority of the students (63%) were business majors as undergraduates and 11% already held a master's degree. The degree of diversity is noted by gender (23% female) and underrepresented minorities (30%).

Table 1. Descriptive Statistics of Admissions Profile for Students

Variable	Ave.	Med.	Std Dev.
GMAT	689	700	25.32
GRE	301	303	13.25
Undergraduate GPA	3.24	3.30	0.43
Age (years)	29.23	26.00	7.84
Work Experience (Years)	62.72	34.52	75.81
Undergraduate Business Major? (1=Yes,0=No)	63%		
% Females (1=Yes,0=No)	23%		
Underrepresented Minorities* (1=Yes,0=No)	30%		
Already hold a master's degree (1=Yes,0=No)	11%		

*African-Americans, Hispanic Americans, and Native Americans.

There were 152 students enrolled in the course that completed three different tests consisting of a multiple-choice quiz graded electronically, a midterm exam consisting of multi-step essay problems graded by hand, and a comprehensive final exam also consisting of multi-step essay problems with hand grading.

The students accessed the quiz or exam through the course site and could take it at any time during a specified a multi-day period. For the quiz, students were given a five-day window, and they were provided a four-day period to take each exam. All the students were required to sign an academic integrity document, which included a clause requiring the students to notify the course professor of any academic integrity violations they heard of involving other students. The quiz and exams were also proctored through the *Examity* proctoring service, which required each test taker to confirm their identity with a photo ID before he or she could begin their quiz or exam. The students were also required to scan their room with a camera to confirm that no one else was in the room, nor were there any resources available to the students. The quiz and exams were all closed book and closed notes with the only exception being that one side of an 8 ½ by 11-inch sheet of paper was allowed on which the student could write anything. The students had up to two (five) hours to complete the quiz (exam) once they began.

The proctoring service made two recordings of each student's quiz and exam. The first was from a camera facing the student the entire time and the second from the student's screen. Both recordings were subsequently reviewed by the proctoring service for any academic integrity policy violations. Any possible violations were forwarded to the course professor and program's administration for further review. If the professor and program office agree that there is enough evidence of academic integrity violation, then the program's dean assigns the case to the program's academic integrity board, which examines the evidence—including an interview with the accused student and other relevant persons—and renders a verdict. If most of the board affirms that an academic integrity violation occurred, the board has the authority to assign a variety of penalties, including the possibility of dismissing the student from the program with a permanent notation on the student's transcript describing the reason for dismissal. In the case of the quiz and exams in this course, no academic integrity violation cases were presented to the board, but the students were clearly aware of this possible sanction.

As a final check, different versions of the quiz and exam were administered each day to minimize the risk of leakage of the exam's contents. In short, there were strict policies and procedures for ensuring academic integrity. To the extent that these policies and procedures fell short in preventing leakage, we would expect the students taking the exam later during the four-day window to perform better, a result that biases against finding our primary empirical result.

EMPIRICAL TESTS AND RESULTS

We conducted two tests of the Banerjee and Duflo (2014) hypothesis that students with less self-discipline experience lower learning outcomes. The first is a simple

comparison of the mean and median score for quizzes/exams submitted on the last day the exam was open compared to the first two days it was open. The difference in means test is a two-tailed t-test, where the Satterthwaite (1946) approximation of the standard errors accounts for any difference in the samples' standard deviations. The difference in median test is a Wilcoxon signed-rank test.

The second test is a simple regression test as shown in the following equation:

$$\boldsymbol{Quiz/ExamScore_i = \alpha + \beta SubmissionDate_i + \epsilon_i}$$

where,

$Quiz/ExamScore_i$ = student i's score (on a 100-point scale) on the quiz or exam,

$SubmissionDate_i$ = student i's quiz or exam submission date, defined as one for the first date, two for the second date and so on.

Table 2 provides the empirical results for the quiz scores with the average and median tests shown in Panel A. For the 18 quizzes submitted during the first two days—11.85% of all quizzes—the average score of 93.9 and median score of 100 is the highest across all of the submission dates. These scores generally fall monotonically until the fifth day when the average score is 73.7 and the median is 80. Nearly 60% of the students (89 out of 152) waited until the last day to submit their final exam, and their scores are significantly lower than the scores on the first two days at the one percent level.

The regression test results shown in Panel B of Table 2 bolster these results with a negative coefficient estimate of -0.14—significant at the one percent level—for beta and an R-square of nine percent.

Table 2. Quiz Results

Panel A: Average, Median, Minimum and Maximum Quiz Scores (maximum = 100) Across Exam Submission Dates

Date Quiz was Submitted	Number of Quizzes Submitted	Ave.	Med.	Min.	Max.
First Two Days	18	93.9	100.0	70.0	100.0
Third Day	15	78.7	90.0	40.0	100.0
Fourth Day	30	80.3	80.0	30.0	100.0
Fifth Day	89	73.7[1]	80.0[2]	10.0	100.0

[1]Significantly different from the average (or median) score during the first two days at the one percent level.

[2]Significantly different from the average score (or median) during the first two days at the one percent level.

Panel B: Regression Test
Parameter Estimates (P-values) and R-Square

α	88.92[1] (0.00)
β	-0.14[1] (0.00)
R-square	0.09

[1]Significantly different from zero at the one percent level.

The empirical results for the midterm scores are displayed in Table 3. For the 22 exams submitted during the first two days, the average score of 87.5 and median score of 91.5 is again the highest across all of the submission dates. These scores decline monotonically until the final day (day four) when the average score is 80.5 and the median is 83. These scores are significantly lower than the scores on the first two days at the one percent level. With one less day to turn in the exam, it is unsurprising that a greater percentage of the students waited until the last day (72.79% compared to 58.55% for the quiz). Panel B of Table 3 provides the results of the regression test, which once again show a significantly negative slope coefficient estimate of -0.07.

Table 3. Midterm Exam Results
Panel A: Average, Median, Minimum and Maximum Quiz Scores (maximum = 100) Across Exam Submission Dates

Date Exam was Submitted	Number of Exams Submitted	Ave.	Med.	Min.	Max.
First Two Days	22	87.5	91.5	44.0	97.0
Third Day	18	86.3	89.5	60.0	99.0
Fourth Day	107	80.5	83.0[1]	44.0[2]	100.0

[1]Significantly different from the average (or median) score during the first two days at the one percent level.
[2]Significantly different from the average score (or median) during the first two days at the one percent level.

Panel B: Regression Test
Parameter Estimates (P-values) and R-Square

α	87.06[1] (0.00)
β	-0.07[1] (0.00)
R-square	0.04

[1]Significantly different from zero at the one percent level.

Table 4 shows the empirical results for the final exam scores, and they follow a very similar trend to the quiz and midterm exams, with the highest scores for the first two days (average of 81.1 and median of 81.9) and a consistent decline in scores through the fifth day, with the 68.4 average score significantly lower than the average score for the first two days. Moreover, while approximately half the students turned in their exam the first couple of days compared to the quiz (6% vs. 11.85%), nearly the same percentage turned it in the last couple of days (60% for the final exam vs. 58.85% for the quiz). The median score of 67.8 on the fifth day is also significantly lower than the median score for the first two days. The beta coefficient estimate in the regression tests is also negative and significant at the one percent level.

Table 4. Final Exam Results
Panel A: Average, Median, Minimum and Maximum Quiz Scores Across Final Exam Submission Dates

Date Exam was Submitted	Number of Exams Submitted	Ave.	Med.	Min.	Max.
First Two Days	9	81.1	81.9	65.2	93.2
Third Day	20	77.5	81.7	51.2	100.0
Fourth Day	31	74.6	69.2	35.1	99.4
Fifth Day	90	68.4[1]	67.8[2]	24.0	99.4

[1]Significantly different from the average (or median) score during the first two days at the one percent level.
[2]Significantly different from the average score (or median) during the first two days at the one percent level.

Panel B: Regression Test

$$ExamScore_i = \alpha + \beta SubmissionDate_i + \epsilon_i$$

Parameter Estimates (P-values) and R-Square

α	79.05[1] (0.00)
β	-0.10[1] (0.00)
R-square	0.08

[1]Significantly different from zero at the one percent level.

CONCLUSION

Technology-intensive education offers many potential benefits to students but as Banerjee and Duflo (2014) posit, it also requires more self-discipline for students to succeed than traditional onsite education. We report evidence consistent with their hypothesis using a sample of students in a blended online course who were required to take a quiz and two subsequent exams at their discretion over multiple-day windows. The students who delayed taking the exam did consistently worse than the students who proactively completed the exam earlier. Our results underscore the importance of recognizing the cost of student procrastination and the need for more research on how to reduce procrastination. Recent work by Hardt et al. (2022)—who explore the use of mentors and mentees to help students with study habits—Lu et al. (2022)—who analyze the relation between student engagement and progress—and Dash et al. (2022)—who examine the use of communication methods in reducing course dropout rates—are just a few examples of potentially promising avenues for future research.

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ANTEPARTUM IRON DEFICIENCY ANEMIA: IMPLEMENTATION AND TREATMENT METHODOLOGIES

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ABSTRACT

In pregnancy, the daily requirements of iron increases from 0.8 mg in the first trimester to over 7.5 mg near the end of gestation, despite the average Western diet only ranging from 1-5 mg daily. (Achebe & Gafter-Gvili, 2017) The depleted iron status of a woman is a well-known fact, and there are several physiological insults before and throughout pregnancy which increases the iron demand including monthly menstruation, increased nutritional needs of a developing fetus, and blood loss related to delivery. Managing the iron status for a woman is an increasingly important thing to do, especially during pregnancy. However, guidelines are conflicting. The lack of standardization stems from the underrepresentation of women's health in research. Despite this, there have been several articles published that have shown a clinical benefit from both intravenous and oral iron supplementation, with little to no adverse outcomes. Implementation of these treatment protocols in practice is ideal. Barriers to sustaining oral iron treatment include gastrointestinal side effects that prevent medication adherence. Expensive treatment costs, insurance denials and the complexity of health insurance coverage are some of the main barriers with intravenous iron. Overcoming these obstacles includes implementation of Patient Blood Management concepts. This paper will review the current research on many of the safe and effective iron treatments in obstetrics, as well as lay out key implementation guidelines to be successful in achieving a more standardized approach to care in antenatal anemia patients.

Keywords: Antepartum Anemia, Iron Deficiency, Women's Health, Blood Management, Nutrition

Introduction

Anemia affects nearly 32% of the world's population, with the most common cause being iron deficiency which disproportionately affects women in pregnancy, at a rate of 38% (Butwick and McDonnell, 2021). Antepartum anemia can cause many clinical adverse outcomes in neonates including low birth weight, preterm delivery, perinatal and neonatal mortality, and early childhood iron deficiency (Westrom, 2020). Auerbach noted that neonatal anemia can further cause cognitive and behavioral disturbances that can persist even after repletion (2018). This clearly shows the necessity to treat iron deficiency anemia. However, as noted by Masters and Skinner, when reflecting upon their own practices in New Zealand, less than half (46%) of their patient population had a hemoglobin on file but no ferritin level tested, with ferritin being a marker for iron storage. In addition, only 22.8% had a hemoglobin tested postpartum (2017). Similarly in Ontario, Canada, just under 60% of patients in pregnancy were tested and screened for anemia with a ferritin level (Teichman, 2021). Although there is not any current literature on anemia screening rates in the United States, it is likely to be similar to the above listed countries.

Many of the premier medical organizations give conflicting recommendations regarding the definition, screening and management of iron deficiency anemia in pregnancy. The United States Preventative Services Task Forces (USPSTF) notes that there is little to no supportive evidence or clinical research to support the screening or treatment of antepartum anemia ("*Iron Deficiency Anemia in Pregnant Women*", 2015). The Centers for Disease Control (CDC) "recommends universal iron supplementation to meet the iron requirements of pregnancy" ("*Recommendations to Prevent and Control …*", 1998, para. 6) while recognizing the contradiction to the USPSTF recommendations. Similarly, the American College of Obstetricians and Gynecologists (ACOG) recommends that all pregnant women should be screened for anemia with a CBC and encourages further investigation into those with a hemoglobin less than 11 g/dL ("*Anemia in Pregnancy*", 2021). ACOG further supports low dosed oral iron supplementation in the first trimester and parenteral iron "for those who cannot tolerate or do not respond to oral iron or for those with severe iron deficiency later in pregnancy" and has also highlighted a "critical gap in evidence" in regards to the USPSTF contradictory recommendations ("*Anemia in Pregnancy*", 2021, p. 60). The lack of standardization of care represents a major limitation in properly treating iron deficiency anemia. This paper will explore the reasons behind the lack of perinatal anemia treatment, which includes insufficient research on the safety and efficacy of oral and intravenous iron treatment, hesitancy to prescribe intravenous iron, and

the difficulty in coordinating/obtaining treatments. It will further outline ways to overcome some of the listed obstacles.

Irrespective of the beneficial evidence of IV iron use in pregnancy, still many clinicians are hesitant to prescribe due to the lack of evidence. Caritis and Venkataramanan discussed the absence of fetal research in the obstetric population due to regulatory constraints in such a vulnerable class, disincentives to study this population, medico-legal risks, and limited financial gain to be of several reasons (2021). However, the safety and efficacy of both oral and intravenous iron treatments have flourished over the years. Although the treatment of anemia in pregnancy with intravenous iron is a widely accepted clinical practice today, many institutions and small practices do not have the ability, resources, and/or interest to participate in research. Many physicians that are actively treating anemia in pregnancy may not have the resources to share their patient care experiences. Rahman et al. delineated some of the physician support barriers to research to include a lack of administrative support, excessive paperwork, inadequate staffing/training, and lack of appropriate data management (2011). It is also likely that the further the clinician is out from his or her education, the less likely they are to conduct clinical studies. Lloyd et al. described clinical investigators as endangered species with only 34% of physicians in a graduating class remaining active in research post their educational careers (2004). This investigational lag has contributed significantly to the lack of evidence. Further into this paper, I will outline detailed literature on several different intravenous iron formulations used to safely and effectively treat anemia in pregnancy.

Despite misplaced treatment hesitancy and lack of alignment in clinical guidelines, there is also an inability to access to IV iron. Unfortunately, intravenous iron can be fairly expensive. In a patient experience reported by an Advisory Board Daily Briefing, a patient reported being charged $14,000 per vial of Injectafer and receiving a bill, after negotiations and insurance coverage, of $2,733 *("Why your infusion could costs…"* , 2019). This is unfortunately a situation that many clinicians see in practice quite often. Insurance companies have developed regional guidelines and step edits to prevent paying for higher dosed, newer formulated, more expensive and more effective intravenous iron treatments. As a result of this, Holcombe discussed how physicians have pushed back against these medical insurance stipulations noting that it isn't taking into account the patient's quality of life or effectiveness of treatment (2022). Many times insurance companies fail to calculate the full financial impacts and risks of anemia including emergency room visits, blood transfusions, or more complicated/longer hospital stays. Nissenson et al. attempted to assess the financial impacts of an anemic patient,

noting that anemic patients utilize more than double in costs (average annualized per patient costs of $14,535) versus a non-anemic patient (average annualized per patient costs of $9,451) (2005). Ordering intravenous iron infusion therapies does take quite a bit of familiarity with medical insurance coverage policies as well as a broad knowledge of supportive literature to combat denials. The nuances of what formulations of iron insurance companies will cover and how to contest insurance is not common knowledge. In addition to costs, coordinating iron infusions can also be a lengthy process for providers and requires a fair amount of additional resources/staff to manage. Oftentimes the complications that can arise with ordering intravenous iron for a patient are not feasible with the current resources of a typical Obstetric practice. Physicians and staff are often already overwhelmed with the many other conditions that they are managing during pregnancy. It is true that in practice more pressing, urgent matters can take precedence, and can supersede issues in regards to anemia. However, when resources are limited, as they are now, proper antepartum anemia treatment can be hard to obtain.

In summation, all of the aforementioned challenges with inconsistent guidelines, lack of supportive research, insufficient resources to participate in research, treatment hesitancy, and treatment inaccessibility (variable insurance coverage) in antepartum anemia can lead to less than optimal patient outcomes. Several costly complications can arise when bringing a pre-existing anemic perinatal patient to the operating room. Complications of this caliber can include blood transfusions, preterm delivery, maternal morbidity, maternal death, infection, and extended hospital stays (Butwick & McDonnell, 2021). The culmination of these added risks of anemia can often extend to be more expensive than treating preventatively. If able to break through some of these obstacles, an improvement to antepartum anemia care can be obtained.

LITERATURE REVIEW

Physicians and care clinicians have the ability to correct antepartum anemia. Oftentimes, a clinician can provide simple treatment by introducing the patient to a low dosed oral iron therapy. Despite the use of iron treatments in this patient population, there is still a need to compile clinically documented evidence of the efficacy and safety. There are several independent studies that have reviewed the use, safety, and efficacy of intravenous/oral iron formulations. Due to regional restrictions of iron formulations, It is important that we investigate both oral and intravenous iron. In an international, open label, randomized controlled trial of 252 pregnancy patients at gestational ages from 16- 33 weeks, ferric carboxymaltose (FCM) was compared in safety and efficacy against ferrous sulfate (FS). The oral iron/ferrous sulfate (FS) group received 12 weeks of ferrous sulfate 100 mg, twice

daily and the FCM group received 15 mg/kg intravenous infusions within a 3 week period. Improvement in both groups were comparable, but there was an 84% rate of correction of anemia in the FCM group versus only 70% in the FS group (Breymann et al., 2016). Patients who received intravenous iron also responded at a much faster rate, at 3.4 weeks versus 4.3 weeks (Breymann et al., 2016). In this study, FCM was also more effective at replenishing iron stores. There was also a higher risk of adverse reactions in the FS (14%) group versus FCM (11%), with adverse reactions remaining fairly minor and including events such as nausea, headache, and gastrointestinal (GI) side effects (Breymann et al., 2016). More serious adverse events mentioned included one example of preterm labor in a patient treated with ferrous sulfate; However in cases similar to this, there is a loose causal relationship which is hard to adopt into practice. Although both are noted to be comparable treatments in second and third trimesters, use of intravenous iron is supported in this study due to (short) time to delivery or when there is an adverse reactions to oral iron. This study and its recommendations are very indicative of real life management of anemia, where we are often using intravenous iron for patients that are unable to tolerate the gastrointestinal side effects of oral iron or are too far along in gestational age. A study, such as this, is very beneficial in formulating effective treatment recommendations. In another article, also by Breymann, he did recommend as a first choice of intravenous iron therapy, due to its safety profile in the pregnancy population, to be ferric carboxymaltose, and suggested another dextran free formula, iron sucrose, as a second choice when FCM is not attainable (2017). This information may be helpful when determining alternative intravenous iron treatments when FCM is not available.

The majority of research on intravenous iron used antepartum usually focuses heavily on ferric carboxymaltose (FCM) and iron sucrose (IS), so it would be wise to include a comparison of the two. In a retrospective study of 209 participants, ferric carboxymaltose and iron sucrose were compared in efficacy and safety. Christoph et al. noted no statistical significance in neonatal risks in both groups, but he did report a mean hemoglobin rise that was significantly higher in the FCM group at 1.54 g/dL vs. 1.17 g/dL in the IS group (2012). This shows the degree to which the type and dose of intravenous iron can pose in reaching target hemoglobin levels. Guinn et al. commented on the different formulations of intravenous iron, noting iron sucrose is a “short infusion time but requires multiple doses” (Table 1, 2020). When considering the higher dosage of FCM, it more effectively achieves a much higher target hemoglobin level at fewer doses. Froessler took another approach to their study and focused primarily on ferric carboxymaltose by observing 863 pregnant participants who all received FCM at 20 mg per kilogram

body weight. Labs were measured at 3 and 6 weeks post infusion with no serious adverse events. They were able to show that FCM safely corrects anemia in this patient population. At 3 weeks post infusion, the hemoglobin rise was 1.53 g/dL (+/- .12 g/dL) in women with moderate anemia, and 2.15 g/dL (+/- .15 g/dL) in women with severe anemia (2018). At 6 weeks follow up, hemoglobin levels were above the recommended adequate levels. Adverse reactions were also followed in these groups and found to be at a rate of 31 (3.5%), and reactions were all mild with the most common complaint being local injection site irritation. Many physicians still fear the risk of adverse drug reactions, which in reality, are extremely low with newer formulations of iron that are better formulated, stabilized carbohydrate complexes which prevent labile iron from causing reactions (Auerbach, 2018). As stated by Auerbach, "[I]ntravenous iron is safe, effective and should be considered early in the treatment paradigm for iron deficient gravidas, irrespective of the presence or absence of anemia" (2018, p. 3).

In another study conducted at Duke University, they implemented their own referral program to treat antepartum anemia. Over a 2 year period they treated 239 out of 290 patients with intravenous iron (Guinn et al., 2020). They used many different intravenous iron formulations with majority of participants receiving low molecular weight iron dextran, n = 220, 92% (Guinn et al., 2020). Additionally, six patient were treated with iron sucrose, five patients received ferumoxytol, eight patients received ferric gluconate, and eleven patients were treated with both iron dextran and a different iron formulation (Guinn et al., 2020). Despite the variance in treatment formulas and dosages given, there was still a median hemoglobin increase of 1.2 g/dL compared with only 0.4 g/dL increase with oral iron therapy (Guinn et al., 2020). Lastly, Duke University was able to show some of the beneficial outcomes of correcting anemia in an obstetric population. Patients treated with intravenous iron more than 10 days prior to delivery had a reduction in blood transfusion rates from 10.87% down to 5.08% (Guinn et al., 2020). Another well-established fact is that a reduction or avoidance of blood transfusions alone reduces the risks of other clinical complications and costs of care.

POTENTIAL SOLUTIONS

After reviewing the substantial helpful impacts of intravenous iron and oral iron therapy in the obstetric population, understanding how to overcome obstacles to treatment is critical in being able to successful. Some of these solutions were well discussed and developed by Guinn et al. successfully implemented anemia treatment as a part of their Perioperative Enhancement Team (POET) (2020). In doing this, Guinn et al. implemented treatment protocols that were built into the

order sets of their electronic medical record for easy physician ordering and more automated generation of a referral to the perioperative treatment team's physician assistant or nurse practitioner. The advanced practice clinician would then coordinate proper intravenous outpatient treatment and follow up in patient care (2020). In this study, they were able to dedicate/reallocate the proper resources to the coordination of care to obtain intravenous iron treatments in their obstetric population. If there is inadequate staffing support in the perioperative clinic, implementing a Patient Blood Management practice is another way some of these efforts can be maintained and supported. Patient Blood Management (PBM) is a separate specialty and resource used to treat anemic patients prior to surgery. Their efforts are used to order and manage a patient's intravenous iron treatments in order to prevent the unnecessary use of blood products and overutilization of precious resources. Historically PBM's efforts stemmed for the need to provide inclusive care for blood refusal patients, but has now extended the benefits of blood health practices to the general population. The Society for the Advancement of Blood Management is the International, nonprofit organization that helps encourage implementation of blood health promoting and blood conserving modalities prior to elective surgeries such as pre-surgery iron/nutrient therapy, the reduction in unneeded laboratory testing, decreasing unnecessary blood administration, and using proper intraoperative techniques to prevent operative blood loss (Burns et al., 2019). Many PBM programs are set up in a similar fashion as the perioperative anemia management team described at Duke University.

Although resources are scarce, there are several other beneficial efforts such as computerized physician order entry which can help to engrain antepartum anemia treatment into a physicians practice. At John's Hopkin's University, computerized order entry coupled with adequate education caused a 14% reduction in red cell utilization (Zuckerberg et al., 2015). One of the easiest ways to address anemia is to implement earlier identification/testing. Ferritin is a laboratory value that indicates the true value of iron storage, and is one of the more reliable iron laboratory indicators. Although it is not recommended to use this laboratory value alone, oftentimes it can be the simplest way to provide valuable insight into a patient's iron status. Ferritin is highly sensitive and specific for anemia. "A level of 30 μg/L has been identified as the most sensitive (92%) and specific (98%) cutoff level to indicate iron deficiency …" (Dignass, et al., 2018, p. 5). Implementing automated reflex ferritin screening earlier in gestation in every patient with identified anemia confirmed by hematological indices (Hemoglobin, Hematocrit, Mean Corpuscular Volume, Red Cell Distribution Width, etc.) may be a simple solution to detecting and treating anemic patients sooner. There are no studies depicting this automation in testing today, but remains a capability with

current technology. By implementing automated features, such as this, it increases the ability to identify anemia, which is the first step in being able to treat.

Once additional obstetric patients are able to be identified and treated, increasing research efforts in obstetrics is necessary. Townsend et al. highlights the gaps in women represented research with the Ebola crisis by discussing the lack of treatment for women in pregnancy, despite their elevated risks (2019). Townsend et al. further discusses the rights of women by stated "the blanket exclusion of women from studies that offer them, and their future families, important clinical benefits arises from a paternalistic determination that women are unable to assess risk for themselves, and fails to take into account the fact that acceptable risk is contextual and individual" (2019, "*Ethical imperative for high-value research in obstetrics*"). The continued lack of treatments for common patient conditions in pregnancy is inherently outdated. This hesitancy to treat ultimately stems from the fear of harm, which is a true ethical conundrum. However, participation in research comes with an element of risk that is well understood by the patient. The American College of Obstetricians and Gynecologists has also published recommendations on how to include more women in research by noting that pregnant women should not be considered a "vulnerable population" but instead "scientifically complex" participants and offered more efforts to support diversity in this patient population that should be considered including adequate childcare and contraception support when necessary ("*Ethical Considerations for Including Women as Research Participants*", 2015). There are many aspects to the proper inclusion of this patient group. By keeping this topic at the forefront of discussion, it will eventually create the change we need to see, an increased representation of women's health in research.

Proposed Implementation Plan

Flores et al. describes an Australian Institution that devised a plan to create a multidisciplinary team to plan and develop implementation strategies using the quality improvement methodology plan, study, do, act (PDSA) cycles (2017). Their goal was to optimize an anemic patient's hemoglobin prior to surgery with proper anemia management. By doing this, they were able to map antenatal care processes, identify knowledge gaps, and consult with providers on issues that needed to be addressed (Flores et al., 2017). As a result, they educated on ways to better identify and improve antepartum anemia practices by putting a primary focus on an increase in both ferritin testing and use of intravenous iron. This indicated that patients were both being screened and subsequently treated for iron deficiency anemia, making the connection that earlier identification of anemia typically leads to treatment. They also implemented educational handouts for

patients on oral iron supplementation, and as a result noticed a reduction in anemia on admission from 12.2% falling down to a mere 3.6% and an increase in one unit transfusions from 35.4% to 50%, also indicating a lesser need for blood products (Flores et al., 2017). There is a need for better education on both a patient and a provider level. Patients need more educational materials to help them in being successful with first line anemia treatments, such as GI sensitive formulas of oral iron or ways to prevent GI upset. Additionally, providers also need further education and awareness of the importance of screening for and treatment of iron deficiency anemia.

Once education and awareness are both addressed, mitigation of costs to obtain infusions deserves additional attention. Expensive intravenous iron infusion costs was reiterated by Govindappagari et al., when they expressed costs to the patient for intravenous iron up to over $4000 (2021). Insurance companies are particular about covering certain intravenous iron formulations. Newer, higher dosed intravenous iron therapies tend to be more expensive and effective than older, lower dosed options. The asymmetry of information on treatment costs is something that needs to be expressed to both the patient and physician. Oftentimes infusion centers that are connected to hospitals have hospital billing codes and administrative fees that can increase treatment costs up to four times as much (Johnson, 2019). The best alternative option to this is referring patients to an outside, stand-alone infusion centers. There is usually a 50% or more reduction in costs by receiving infusions at these alternative locations (Johnson, 2019). However, staffing and resources are needed to coordinate and direct care to outpatient facilities, which leads me to the necessary point of developing resources to support these efforts. Utilizing existing resources is important to do when possible. Using existing infusion centers or perioperative testing centers/staffing to coordinate infusion treatments is an important factor in ordering and administering intravenous iron treatments successfully. However, as another option, developing a good Patient Blood Management program could also be very beneficial. In which case, hiring 1-2 full time equivalents (FTEs) to establish and sustain a Patient Blood Management program/perioperative anemia clinic may be sufficient to build a thriving and successful perioperative anemia program. Other additional resources and support can be found within the Obstetrics specialty, Anesthesia, Pathology, and Hematology Departments. Gathering proper support is crucial in a quality improvement project such as this.

CONCLUSION

Overall, the topic of iron deficiency anemia disproportionately impacts the obstetric patient population, and can cause significant harms to both the mother

and the fetus. After reviewing the literature, correcting anemia seems to be the obvious choice. Despite hesitancy to treat, research does show that both intravenous and oral iron treatments are safe and effective in this patient population. Application of these treatments can be approached in several different ways in order to improve upon both anemia management and treatment in an antepartum patient. Institutions that dedicate themselves to redefining how they want to treat anemia in obstetric care will need to allocate resources. In some instances, Patient Blood Management programs, can be very beneficial in a large iron deficiency anemia project of this nature. Iron deficiency anemia management is an excellent way to improve a patient's overall quality of care by preventing longer term, irreversible affects to the fetus. However, inclusive clinical documentation of the far reaching impacts of this improvement in practice is still growing in the literature. Increasing obstetric representation in therapeutic research is necessary to further support these initiatives and remains crucial to the conversation in the importance of antepartum anemia management. Research is what will ultimately drive the necessary changes in national guidelines which will lead to better health insurance coverage, increased treatment accessibility and improved physician practices. These are the modifications required that will eventually translate into improved antepartum iron deficiency anemia management.

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