

Diversity improves performance and outcomes

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Abstract: *Background:* Research on the effects of increasing workplace diversity has grown substantially. Unfortunately, little is focused on the healthcare industry, leaving organizations to make decisions based on conflicting findings regarding the association of diversity with quality and financial outcomes. To help improve the evidence-based research, this umbrella review summarizes diversity research specific to healthcare. We also look at studies focused on professional skills relevant to healthcare. The goal is to assess the association between diversity, innovation, patient health outcomes, and financial performance.

Methods: Medical and business research indices were searched for diversity studies published since 1999. Only meta-analyses and large-scale studies relating diversity to a financial or quality outcome were included. The research also had to include the healthcare industry or involve a related skill, such as innovation, communication and risk assessment.

Results: Most of the sixteen reviews matching inclusion criteria demonstrated positive associations between diversity, quality and financial performance. Healthcare studies showed patients generally fare better when care was provided by more diverse teams. Professional skills-focused studies generally find improvements to innovation, team communications and improved risk assessment. Financial performance also improved with increased diversity. A diversity-friendly environment was often identified as a key to avoiding frictions that come with change.

Conclusions: Diversity can help organizations improve both patient care quality and financial results. Return on investments in diversity can be maximized when guided deliberately by existing evidence. Future studies set in the healthcare industry, will help leaders better estimate diversity-related benefits in the context of improved health outcomes, productivity and revenue streams, as well as the most efficient paths to achieve these goals.

Keywords: Diversity ■ Outcomes ■ Profits ■ Innovation ■ Risk

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INTRODUCTION

Discussions about workforce diversity too often become distracted, revolving around hot-button, politically-charged language, missing opportunities to focus simply on making a clear case for the value of diversity that demonstrates clinical and financial improvements.¹ Both the IOM and NIH have long reported the potential value of diversity in maximizing health benefits of medical teams that bridge cultural and linguistic gaps.^{2,3}

Unfortunately, many patients are still managed by homogenous care teams, with outcomes reflecting large

disparities in clinical care efficacy. Blacks are 30% less likely to receive revascularization at coronary angioplasty and 40% less likely to receive coronary bypass surgery.⁴ Black women are 40% more likely to die from breast cancer,⁵ and their babies have a mortality rate 2.5 times greater than whites.⁶ Disparities even occur in the management of simple chronic conditions, with black and Hispanic youth much more likely to die from diabetes complications.⁷ Beyond the human cost lies a financial edge, as revenues decrease under pay-for-performance reimbursements that penalize quality shortcoming associated with such disparities.

Several studies specific to the healthcare setting support the growing disparities listed above. Studies find greater diversity improves the accuracy of clinical decision-making, leading to higher patient satisfaction and resulting in improved health outcomes.⁸ Yet many studies were unable to find significant association between diversity and clinical outcomes, even in simple concordance relations matching patient and physician characteristics.^{9,10}

The paucity of studies specifically focusing on diversity and medical outcomes is not necessarily a barrier to action; just a note of caution. Our strategy with this paper is to identify diversity research relating to the business side of healthcare because the ability to 'keep the doors open' is an essential precursor to improving healthcare delivery for all patients. We also include a look at studies focusing on other professions that use similar skill-sets to those needed in healthcare, including risk assessment and communication. Like much progress in medicine, several large sample population-specific studies would be generally preferred, but ignoring related research while waiting for that ideal study can be outright irresponsible.

To organize the business justifications for diversity, our study provides an objective review of recent research on diversity, testing the evidence for possible links to financial and quality outcomes. Our goal is to address the following four questions: Is there a correlation between diversity and patient health outcomes? Is there an association between workforce diversity and financial outcomes? Does that strength of association differ between worker-level diversity and that of top management? Are there associated corporate conditions that moderate those relationships?

Table 1. Summary of related research.

Review	Methods and setting	Diversity dimension	Findings
Outcomes studies			
LaVeist, Pierre, 2014. ⁸	This meta-analysis cites 25 studies of diversity and cultural competence in the healthcare industry.	Workforce diversity in: Race, Ethnicity. Outcomes: Patient compliance, Consumer satisfaction	<ul style="list-style-type: none"> • More diverse medical teams gave more accurate diagnoses, had higher patient satisfaction, and saw greater compliance. • This study also hints at lower long-term costs as another possible benefit.
Jerant et al.2011 ⁹ <i>Healthcare Focus</i>	Measures patient-physician concordance, care management process measures.	Concordance between physician and patient race and/or gender.	<ul style="list-style-type: none"> • Three of 24 measures showed positive findings, such as a higher likelihood of mammography adherence for female patients with female doctors. All other measures showed no association with concordance.
Schnittker, Liang, 2006. ¹⁰ <i>Healthcare Focus</i>	1999 survey of 4000 patients about concordance and encounter impressions.	Concordance between physician and patient race and/or gender.	<ul style="list-style-type: none"> • No significant association between concordance and impressions, such as, whether the patient felt the doctor "knew enough or asked enough questions about your health".
Pitts, 2005. ¹¹	<p>Longitudinal study of 2500 Texas public school districts 1995–1999, measuring:</p> <ul style="list-style-type: none"> • outcomes/performance <ul style="list-style-type: none"> ◦Standardized sufficiency exams ◦Drop-out rates ◦High-SAT performance • company characteristics: <ul style="list-style-type: none"> ◦Racial diversity ◦Representation (The match between race-ethnic-gender diversity of the company and that of the community they serve.) 	<p>Workforce and management: Race, Representation.</p> <p>Outcomes: Sufficiency exams, Drop-out rates, SAT performance</p>	<ul style="list-style-type: none"> • Teacher-level diversity: <ul style="list-style-type: none"> ◦improved standardized sufficiency exams worsened Drop-out rates worsened High-SAT performance • Administrator-level diversity: <ul style="list-style-type: none"> ◦no impact on standardized sufficiency exams no impact on Drop-out rates worsened High-SAT performance • Teacher-level representation: <ul style="list-style-type: none"> ◦no impact on standardized sufficiency exams no impact on Drop-out rates worsened High-SAT performance • Administrator-level representation: <ul style="list-style-type: none"> ◦improved standardized sufficiency exams improved Drop-out rates improved High-SAT performance
Levine et al., 2014. ¹²	Representative samples of financial traders from several markets buy and sell in simulated markets based on real world data.	Market-level diversity in Ethnicity Outcome: Price prediction accuracy	<ul style="list-style-type: none"> • The diversity of the entire pool of traders impacts the accuracy of the market price established by that pool. • Given that each trader works in isolation, the effect is

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Review	Methods and setting	Diversity dimension	Findings
			<p>purely due to conflicting assessments of valuation (implicit in buy-sell decisions of others).</p> <ul style="list-style-type: none"> Viewed another way, ethnic homogeneity induces confidence in the decisions of other group members, whether warranted or not.
Risk assessment skills studies			
Muller Lewellyn, 1997–2005 longitudinal study of 74 US banking industry companies; half of which specialized in subprime lending. Measured excessive risk-taking behavior based on participation in subprime lending. ¹³		Board-level diversity in: Gender. Outcome: Risk assessment	<ul style="list-style-type: none"> Boards with higher gender diversity were much less likely to engage in excessive risk taking (subprime lending).
Chapple, Humphrey, 2014. ¹⁴ <i>Includes Healthcare Companies</i>	Industry-level assessment of Australia S&P 300 companies, measuring the impact of portfolio-average board gender diversity on the financial performance the entire portfolio of industry companies.	Board diversity in: Gender Outcomes: Portfolio returns.	<ul style="list-style-type: none"> Board gender diversity showed no significant impact on overall industry average returns.
Post, Byron, 2015. ¹⁵ <i>Includes Healthcare Companies</i>	Meta-analysis of 140 separate studies on board gender diversity and corporate performance. Outcomes measured: <ul style="list-style-type: none"> Profit (accounting profit) Market performance (Tobin's q, for long-term market expectations), Monitoring (oversight of managerial activities) Strategy involvement (board influences strategic decision making) 	Board-level diversity in: Gender. Outcomes: Profit, Market performance, Monitoring oversight, Strategy involvement	<ul style="list-style-type: none"> Profit was higher with greater gender diversity Monitoring oversight was higher with greater gender diversity Market performance was unaffected by gender diversity Strategy involvement was unaffected by gender diversity
Productivity studies			
Kunze, Boehm, Bruch, 2013. ¹⁶	Study of 147 German companies measuring the impact of age-diversity on <ul style="list-style-type: none"> Operational performance (employee productivity and employee retention) Organizational performance (current profits and expected growth) 	Workforce diversity in: Age. Outcomes: Operational, Organizational.	<ul style="list-style-type: none"> Age diversity is associated with improved Operation and Organizational performance. Age diversity was also associated with greater group conflict, but this effect disappeared with diversity-friendly company climate and policies.

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Review	Methods and setting	Diversity dimension	Findings
McKay, Avery, Morris, 2008. ¹⁷	Study of salesperson performance in 743 US retailer stores in 2005. Measured worker perceptions of the company's diversity climate.	Workforce diversity in: Race, Gender. Outcomes: Sales	<ul style="list-style-type: none"> • Pro-diversity work climate was associated with significantly higher sales production for black and Hispanic employees. Specifically, blacks in low-diversity climates made \$8.90 per hour less than whites, but 7.41 more in pro-diversity climates. The improvement was even greater for Hispanics. • Gender differences in sales performance were not impacted by the diversity climate. • Diversity climate had no significant effect on white productivity, making the net effect of a pro-diversity climate on overall company sales was strongly positive.
Dreachslin, Portia, Sprainer, 2000. ¹⁸ <i>Healthcare Focus</i>	Focus groups of Nursing Care Teams at large US hospitals evaluated factors impacting performance.	Team-level diversity in: Race, role. Outcome: communication effectiveness	<ul style="list-style-type: none"> • The alternate perspectives within racially diverse groups are a source of potential conflict. • This can be mediated through leadership that acknowledges alternate perspectives
Innovation studies			
Lorenzo et al., 2017. ¹⁹ <i>Includes Healthcare Companies</i>	Survey of 171 German, Swiss and Austrian companies of all sizes, representing many industries (chemicals, technology, manufacturing, finance and healthcare). Measured diversity and financial performance, identifying the share of revenue drawn from new products and services in the most recent 3 years.	Management-level diversity in: Age, Gender, Immigrant status, Experience variety: -Industry -Company -Academic Outcomes: Revenue from new products	<ul style="list-style-type: none"> • Revenue from new products and services is higher in companies with higher diversity in 4 dimensions: Immigrant status (1st or 2nd generation), gender, multi-industry and multi-company experience). Specifically, companies with above-average levels of these diversity measures earned 38% more revenue from new products and services. • Gender diversity only pays off beyond tokenism (20%) • Age diversity had a negative impact on revenues from innovation and diversity in academic backgrounds had no impact.. • Co-variate: Large and complex companies benefit more from higher levels of diversity (in all dimensions). • Co-variate: Openness in work environments and

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Review	Methods and setting	Diversity dimension	Findings
			encouragement of different perspectives amplify the positive impact of diversity.
Crisp, Turner, 2011. ²⁰	An extremely broad meta-analysis of over 100 studies of diversity in the workplace.	Team diversity in Race Gender. Outcomes: Various measures of Productivity and Creativity.	<ul style="list-style-type: none"> • Finds the process of adapting to greater diversity stretches 'cognitive flexibilities', making everyone on the team more creative and improving collective and individual judgement
Miller, Triana, 2009. ²¹ <i>Includes Healthcare Companies</i>	Compare Fortune 500 companies using 2003 data. Measured: <ul style="list-style-type: none"> • Board racial and gender diversity • Innovation (proxied by the proportion of sales invested in Research & Development). • Reputation (Fortune's reputation measure based on opinion of peer executives in the same industry) 	Board-level diversity in: Race, Gender. Outcomes: Reputation, Innovation	<ul style="list-style-type: none"> • Board racial diversity associated with higher reputation • Board racial diversity associated with higher innovation. • Board gender diversity associated with higher innovation • Hints that diversity improves innovation via more accurate risk assessment. A new opportunity that feels unfamiliar (thus riskier) to a homogeneous group may be better recognized (thus less risky) to a more diverse group (with broader experience)
Financial studies			
Erhardt, Werbel, Shrader, 2003. ²²	Compare 1993 and 1998 financial performance for 127 large US companies representing many industries (manufacturing, finance and transportation-utilities).	Board-level diversity in: Race, Gender. Outcomes: Return on Investment Return on Assets.	<ul style="list-style-type: none"> • Return on assets increases associated with racial and gender board diversity increases. • Return on investments increases associated with racial and gender board diversity increases
Richard, Murthi, Ismail, 2008. ²³ <i>Includes Healthcare Companies</i>	6-year longitudinal study of Fortune 1000 firms (representative sample), estimating the impact of racial diversity (entire staff) on short-term outcomes (revenue per employee) and long-term profitability (Tobin's q, based on market valuation).	Workforce diversity in: Race. Outcomes: Short-term productivity and Long-term profitability	Short-run productivity: <ul style="list-style-type: none"> • Increases with diversity up to a point, then decreases. • Co-variate: Service industries gain the most from diversity. • Co-variate: Unstable environments hurt the most from diversity. Long-run productivity: <ul style="list-style-type: none"> • Increases with diversity.

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Review	Methods and setting	Diversity dimension	Findings
Carter, Simkins, Simpson, 2010. ²⁴ Includes Healthcare Companies	Meta-analysis of 7 studies of publicly traded companies, all of which looked at the impacts of gender and race diversity on outcomes: <ul style="list-style-type: none"> Return on assets Market performance (Tobin's q, for long-term market expectations). 	Board diversity in: Race Gender Outcomes: Return on Assets Market Performance	<ul style="list-style-type: none"> Co-variate: Gains stronger in munificent industries (with multiple strategic options enabled by ample resource availability). Board diversity showed no significant impact on return on assets, or on market performance. Nor was it associated with decreasing returns or performance. Diversity was also associated with greater group conflict.
Herring, 2009. ²⁵ Includes Healthcare Companies	Representative sample of 1002 US for-profit businesses, measuring 1997 sales revenue, number of customers, market share, and profit.	Workforce diversity in: Race, Gender. Outcomes: Profits, sales revenue, customer base, market share	<ul style="list-style-type: none"> Racial diversity associated with higher sales revenue, customer base size, market share and profits. Gender diversity associated with higher sales revenue, customer base size and profits. Both racial and gender diversity may also be associated with greater group conflict, though that appears to be healthy for the organization (perhaps because conflict also breeds innovation).

MATERIALS AND METHODS

Our analysis begins with an umbrella review of studies focused on the impact of diversity in the workplace. For the purposes of our research, 'diversity' is broadly defined to recognize differences in race, age, ethnicity, educational background and gender of workers, managers, customers or teams, including nurses, technicians and physicians.

Inclusion criteria

Studies published in English after 2000 were eligible for inclusion if they assess clinical or business outcomes associated with workforce diversity. US-based studies were preferred, but international studies were included if carried out in a similar business environment. Studies set in the healthcare industry were preferred, and studies of professionals using healthcare-related skills, such as risk assessment, were also included. Studies must focus on diversity of a group of people. Meta-analyses or large sample size studies were preferred, but integrative research was included if analysis was based on a broad collection of related research. Studies focused exclusively on a single clinical condition were excluded, as those would limit the generalizability of findings. Additionally, studies must link workforce diversity to either a clinical or business outcome. That outcome can be the ultimate outcome, such as business profit or patient health, interim outcomes, such as employee productivity, or quality measures, such as clinical protocol adherence.

The MEDLINE and Web of Science indices were searched for studies using the term 'diversity' in combination with any of the following terms: outcomes, disparities, profits, returns, revenues, costs, compliance, mentoring, and leadership.

Evaluation process

The initial catalogue of studies was built by merging the independent searches of two investigators, both of whom independently reviewed, summarized and coded each. Information collected included industry setting, sample size, research methods, type of diversity, outcome measures, and findings. We also documented author suggestions on causal linkages or underlying mechanisms associating outcomes to workforce diversity.

RESULTS

The literature search grossed 675 papers as possibly eligible for inclusion. Many of these were excluded from consideration because their focus was a single medical condition rather than a global effect. Concordance studies, of which there are many, were also excluded due to a narrow focus on the characteristics of only physicians

rather than the entire medical team. The 16 reviews that met inclusion criteria are incorporated into the umbrella review. The characteristics, populations, methods and findings are summarized in [Table 1](#).

These papers look at diversity in multiple dimensions. One subset focuses on diversity of Board leadership, while others drill down to the shop floor. Some measure changes in skills or efficiency, while others measure interim outcomes such as patents or investment decisions, and still others measure ultimate outcomes such as corporate profits or consumer satisfaction. Papers are discussed below in groupings based broadly on the locus of key findings: outcomes, risk assessment skills, task productivity, product or service innovation, and financial returns.

Outcomes studies

Increased diversity in the healthcare workforce helps reduce or eliminate racial health disparities, according to a 2014 meta-analysis of 25 studies.⁸ Composed of research set entirely in the healthcare industry, this broad analysis included studies that looked at the race, ethnicity, cultural competence and language diversity of providers, ranging from characteristics of the entire organization, down to healthcare teams, including physician and nursing staffs. Improvements were noted in patient compliance and satisfaction scores. Additionally, clinical uncertainty of both regarding diagnoses and treatment options was reduced. While this is the only sample study focused exclusively on clinical outcomes, some include healthcare in higher level multi-industry analyses, and others focus on core skills central to multidisciplinary professional teams.

A large-scale study of all Texas schools reveals diversity's impact in public education systems.¹¹ They find student performance most-improved when there was greater management diversity, and a closer racial match (representation) between management and student. Notably this was a top management-level effect only; there was no significant impact of diversity at the teacher level. Given the importance of communication and education in healthcare, such findings suggest the significant effect of diversity, not just of those working directly with patients, but the hospital leadership who design the content, distribute the necessary resources and decide which services are appropriate for which patients.

Diversification improves performance not just by "providing variety in perspectives and skills, but also because diversity facilitates friction that enhances deliberation and upends conformity" that results in better risk assessment.¹² This study of investment company decision-making found that diversity among investment analysts resulted in less exposure to involvement in price bubbles,

such as the housing market crash of 2007, allowing those companies to fare better when the bubble burst and lead to the financial crisis. A similar effect might reasonably be expected in clinical decision making based on experiences with differing patient populations. The ability of investment analysts to accurately forecast future company performance based on current measures is roughly equivalent to a physician's ability to accurately diagnose a condition based on past clinical experience in cases when tests are inconclusive. This study looked at the diversity of entire investor markets, such as soy bean traders or corporate bond analysts. In healthcare, this might be analogous to an entire research community spread across universities, hospital systems, or the pharmaceutical industry, highlighting the importance of diversity in all settings.

Risk assessment studies

A longitudinal study of the banking industry that spanned the sub-prime crisis found that banks with gender-diverse boards were less likely to get involved with the high-risk loans that crippled much of the financial industry in the sub-prime crisis.¹³ Specifically, banks with more gender-diverse boards were less likely to be involved in risky sub-prime activities associated with the 2007 crisis. If diversity dilutes the mono-socioeconomic perspective of top management, it would be expected that these new points of view could improve risk assessment which are at least partially based on the subjective judgements of those leaders. Similarly, second opinions in healthcare often contribute to improved patient health outcomes and reduced risk.

At a higher level of analysis, a market-wide assessment of Australia S&P 300 companies measured the impact of industry-average board gender diversity on the financial performance of entire portfolios of companies.¹⁴ While this study found no evidence of positive returns from gender diversification, the high level of abstraction employed likely interfered with conclusive findings. It nonetheless supported that gender diversity does not hinder performance in any parameter measured.

A meta-analysis of 140 separate studies¹⁵ finds Boards with greater gender equity fulfilled monitoring responsibilities more often, and that this vigilance was also associated with higher accounting returns. In healthcare, this kind of due diligence could manifest, for example, in observations that female doctors monitor patients more closely, yielding lower rates of hospital readmissions.²⁶ Similar diligence and patience may partially explain the diversity advantage derived from race concordance observed in other studies.²⁷

Productivity studies

Age-range diversity also improves corporate performance. A study of 147 companies finds age diversity associated with higher employee productivity and retention, as well as higher profits and growth projections.¹⁶ This study also notes age diversity is associated with creating greater internal conflict. However, if balanced by a no “age-discrimination” climate within the company, supported by management and HR policies, these conflicts do not arise. Other studies also note potential for increased internal conflict associated with various forms of diversity but reinforce the neutralizing power of supporting policies and a positive work environment.

Just such a pro-diversity work climate was associated with higher sales production for black and Hispanic employees in a large-scale study of salesperson performance at a major national US retailer.¹⁷ In lower pro-diversity climates, blacks trailed white salespeople productivity by \$8.90 per hour, while in diversity supportive climates, black sales exceeded that of whites by \$7.41. Significantly, white productivity remained relatively unchanged, making the net effect of a pro-diversity climate strongly positive. Hispanic employee sales improvements were even more dramatic, increasing to \$25.52 in sales per hour. Viewed another way, these findings demonstrate that diversity may be more than a path to equity; it may enable women and minorities to become top performers, simultaneously improving overall company profits.

Possibly hinting at background mechanisms through which diversity-accepting environments achieve higher performance, a study of nursing care teams found communications effectiveness significantly improved with greater team diversity.¹⁸ Groups in which leaders set a positive, accepting tone were associated with lower levels of team conflict and miscommunication.

Innovation studies

“Companies with higher levels of diversity get more revenue from new products and services”.¹⁹ Focused on management diversity, this study of 171 companies measured the impact of gender and racial diversity on innovation revenues using financial performance, operating statistics, and employee surveys. They found companies with above-average diversity were rewarded with 38% more revenue from innovative products and services. They also emphasized that diversity must exceed mere tokenism; particularly in top management. The study showed that the proportion women in top management needed to exceed 20%, in order for the company to experience the most significant increases in innovation revenues.

A broad meta-analysis of over 100 studies finds the process of adapting to greater diversity stretches ‘cognitive

flexibilities’, making everyone on the team more creative and improving collective and individual judgement.²⁰

A study of Fortune-500 firms employing robust statistical methods finds gender and race board-level diversity associated with both greater innovation and corporate reputation.²¹ Reputation, measured by industry surveys, improved with racial diversity. Innovation, as measured by research and development investment, improved with both racial and gender diversity. Highlighting the importance of risk assessment, the study concludes “the less information they have on the attractiveness of the market, the more innovation is perceived as a risk”. Finally, the authors attribute improved risk assessment to the greater number of social ties held by minorities and women, noting “these weak ties, in turn, are known to be valuable because they provide non-redundant information”. These gains are especially relevant in dealing with the diverse consumer mix of critical access hospitals.

Financial studies

A sizable highly-regarded longitudinal study of 127 large US companies finds clear evidence that the combined racial and gender diversity of a board is positively associated with both return on assets and return on investments.²²

One study found the impact of diversity varied both over time and by industry. In another longitudinal study of Fortune-500 US companies spanning 1997–2002,²³ workforce diversity was measured with the sophisticated Blau’s index of heterogeneity.²⁸ Long-run performance, based on market expectations inferred by stock valuation, increased consistently with higher diversity. Measuring short-run performance based on variations in revenue per employee, this study finds initially decreasing revenue with increasing diversity, then an increase after a threshold is reached. This could indicate that the benefits of diversity are only achieved after they progress beyond tokenism. The effect was most pronounced in the service sectors, which would include healthcare, and also highlighted the importance of setting a positive climate to minimize frictions and maximize returns.

Not all studies find evidence of positive financial returns associated with diversity. A narrow study of just 9 companies could detect no improvement to return on assets associated with the presence of women or minorities on boards.²⁴ However, this study did cite similar diversity-associated internal conflicts reported in the other larger studies, while it did not control for corporate environment, missing an opportunity to elaborate on preliminary findings.

A broad study of 1002 US firms found ethnic diversity was associated with higher sales, more customers, higher market share, and larger profits.²⁵ Again, greater gender-diversity improved sales, customer base and profits. Of

interest this study is based on the composition of the entire company workforce; not just that of the board or top management.

DISCUSSION

Limitations of our study stem primarily from the relative newness of diversity research in general, and healthcare applications specifically. Women and minorities have become more numerous in service and business roles in just the last few decades, and even less time has passed since they started appearing on boards. Hungry for a large enough representation in workforces and adequate passage of time to track longitudinal change, most studies to-date do the best they can with limited data. While some studies can support quantified outcomes with reasonable confidence, the exact outcome varies somewhat from one study to the next. Our study explores this growing field, looking first for evidence of performance consequences of diversity, and then for mechanisms through which those outcomes might be achieved. Even with a conservative research approach, our study draws several key lessons from past studies.

Our first conclusion is diversity improves performance. It is associated with higher profits and a range of financial rewards including: innovation, increased productivity, improved accuracy in risk assessment and has already been associated with improved patient health outcomes. Even the relatively few studies that find no diversity-related gains do not suggest negative effects on performance. Future studies should provide more precise estimates of how much and what kind of diversity has the most positive effects on performance and health outcomes.

Specific mechanisms through which performance improvements manifest are identified in our umbrella study. Improvements in personal productivity, team communication, employee retention all have all been shown to contribute to enhanced outcomes that are both financial and clinical. Looking deeper, behind these 'interim' steps, are several core skills that benefit from diversity. Creativity and innovation appear to blossom in more diverse setting. Risk assessment is more precise and balanced in more creative environments. These two core skills — risk assessment and creativity — are vital in a healthcare setting.

Simple diversity is not a panacea. Even these early studies identify key enabling characteristics. First, the organization must set diversity-friendly policies and foster an open environment that minimizes the negative consequences of frictions that are inevitable with any culture change, including those associated directly with diversity.^{16,18,19} Second, diversity appears to be

effective only when it extends beyond tokenism.^{19,23} Lastly, gains from diversity are maximized when reflected in top management and board positions.^{13–15,21,22,24} Although most findings above were not drawn exclusively from studies set in the healthcare industry, basic concepts such as diversity-friendly policies, tokenism, team communication, risk assessment seem universal and relevant.

Implications

Diversity is associated with better financial performance and a higher quality of patient care. Many organizations are already embracing it as a core strategy. In 2016, Intel initiated a program to invest \$300 million to increase the diversity of its workforce, justifying the move largely based on its financial returns.^{29,30} Beyond parochial motives, greater industry diversity may also help address disparities in the population.³¹

Despite these benefits, women and minorities are still poorly represented in professional and management ranks. Perhaps part of the problem has been where attention was focused. Unfortunately, much discussion centers on regulations, quotas, tax incentives and other “carrots and sticks”. Our goal with this paper is to ‘boost the signal above the noise’ of this politically charged discourse. Appealing simply to the organization’s self-interests, we attempt to objectively demonstrate the financial and quality returns to diversity.

APPENDIX A. SUPPLEMENTARY DATA

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jnma.2019.01.006>.

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