LESSONS FROM THE HEALTHCARE FUNDING CHALLENGES AT KONKOLA COPPER MINES IN ZAMBIA

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SUMMARY: The global challenge of healthcare financing due to rising healthcare costs requires innovative solutions. This challenge is present not only at the U.S. national level and employer-based financing, but also internationally in organizations such as Konkola Copper Mines (KCM) in Zambia. This study sought to determine effective healthcare funding options for KCM's employee medical services to be more self-sustaining and reduce its reliance on a single source of funding. We surveyed 285 KCM employees and nine management staff from June to July 2016. The employees showed a willingness to contribute towards prepayment medical schemes and earmarked employee contributions to support funding for specific areas of medical services. However, they did not favor employee contributions directly towards general medical services. This research offers suggestions for addressing inefficiencies with the current resources and implementing prepayment employee medical schemes as a funding option.

Introduction

Located in the middle of Southern Africa, Zambia was one of the world's fastest growing economies with a real GDP growth averaging roughly 6.7% per year during 2004-2014. The country's dependency on copper as its sole major export made it vulnerable to global price fluctuations (World Factbook, 2017). According to the Center for Disease Control (CDC, 2015), Zambia's population was about 15 million, per capita income was $3,860, life expectancy at birth was 56 for women and 51 for men, and the top three diseases were HIV/AIDS, tuberculosis, and diarrheal and cardiovascular diseases. Therefore, timely access to healthcare services and their availability and affordability that are dependent on well-functioning healthcare models are critical for Zambia's development. According to the WHO Regional Office for Africa (2013), some of Zambia's healthcare-funding models include sources such as donor countries that fund specific healthcare programs. Another model involves private organizations and facilities that also provide healthcare in Zambia. For example, the mining industry historically had developed a network of health facilities, particularly across the Copperbelt Province of Zambia, to provide healthcare to miners.

Unlike in the United States, where the health insurance system has been well established, the insurance system in Zambia has not been well developed. However, in both Zambia and the

U.S., labor unions have been very instrumental in pushing the miners' health agenda. For example, even after threats of coal-mining companies' bankruptcies, the United Mine Workers Association (UMWA) has been instrumental in working with U.S. legislators to continue providing financial support, as evidenced in the 2017 Miners Protection Act (Volcovici, 2017). Mwale (2014) posits that, in terms of representation, the Mine Workers' Union of Zambia (MUZ) was one of the most vital bargaining agents for most major mining companies in Zambia. Among the key goals of MUZ was providing members relief in sickness, accidents, disability, distress, unemployment, victimization trade disputes, and funeral expenses for deceased members.

This study examines the health challenges for Zambian miners with implications for the mining industry in the US and elsewhere. Although the benefits of promoting employee health are extensively covered in the healthcare management literature, there is a lack of in-depth research that considers employee health promotion from the employee perspective in the Zambian mining industry. Furthermore, limited information is available to address the Zambian mining industry and how organizations such as Konkola Copper Mines (KCM) can develop strategies for funding employee medical services. Due to lack of resources and conflicting priorities between copper production and funding employee health services, KCM's medical services were faced with the inability to become more financially self sufficient. Accordingly, this study examines how employees could have a role in helping the medical services department become financially sustainable. To address this issue, this study analyzes hypotheses regarding KCM employees' potential contributions towards medical services with respect to union membership, gender, marital status, and location based on a 2016 survey. The study also discusses implications of the empirical results on employer-based healthcare financing in the Zambian mining industry in general. Furthermore, this study sheds light on the growing challenges in the US mining industry and on the union problems regarding health coverage and financing. These issues are further examined in the discussion.

Background

KCM, one of Africa's largest integrated copper producers, is situated in the Copperbelt Province of Zambia. The organization is a subsidiary of Vedanta Resources, which was founded in India in 1976 (Vedanta, 2017). KCM was previously under a mining conglomerate called Zambia Consolidated Copper Mines (ZCCM). ZCCM had established water and electricity utility facilities, recreational facilities, educational facilities, and health services. The privatization process in the late 1990s and early 2000s required the mining companies to take up most of the social services. Therefore, at the time of privatization, KCM inherited two mine hospitals, eight community clinics, and six plant site clinics (Kumar, 2016).

The company has been offering free medical services to employees and their dependents for the past fifteen years since privatization. Despite opening up services to the public and contractors, the income generated by the services is only 11% of the total annual operating costs. Income earned from services rendered to fee-paying contractor companies began to dwindle as the decline of contractor jobs around the mine resulted in a reduced number of contractor clients accessing the services (Carrin, Doetinchem, Kirigia, Mathauer, & Musango, 2008). The organization therefore needed to seek other options in order for medical services to become self-sustaining. The increasing operational costs of running medical services with the ever-increasing costs of running the mining operations created internal competitive financial pressure on how the organization prioritizes and utilizes its resources. The low copper prices on the international

markets also meant that the organization could not make significant revenues and profits needed to cover costs for the medical department (Chuma, Mulupi, & McIntyre, 2013). This is unlike the US coal mining industry, in which some mines had been abandoned and, hence, their retired workers had faced health benefit cuts (Samuels, 2017). Therefore, the purpose of this study was to examine the potential of employee contributions for enhancing sustainability of employee medical services.

Given the potential for decreased availability of company-sponsored health services for employees, it was anticipated that employee contributions would reduce the risk of losing such services. Hovlid, Bukve, Haug, Aslak, and Von Plessen (2012) used the learning theory to assess the sustainability of healthcare improvements. They argued that theoretical frameworks can guide further research on the sustainability of quality improvements and that theories of organizational learning have contributed to a better understanding of organizational change in other contexts. Similarly, the moral hazard theory has been referenced in this context, arguing that when people pay a higher share of total health spending, they become more careful consumers of healthcare and forgo unneeded care (Gould, 2013). For example, in their study of the UMWA Health Plan in the US, Roddy, Wallen, and Meyers (1986) noted that in 1977, UMWA members were given a 40% coinsurance requirement with $250 deductible for hospital care. However, Nyman (2007) refuted the application of the moral hazard theory in this context, arguing that most of the theory represented healthcare that patients would not access without insurance.

Considering ecological models, health promotion can be most effective when all the interwoven social, institutional, and environmental factors are targeted together (Golden & Earp, 2012). Employers, too, have realized that by not investing in employee healthcare, they will incur high indirect health costs such as absenteeism, sick leaves, and loss of highly qualified labor (Porter, Teisberg, & Wallace, 2008). Employer-sponsored healthcare also ensures that employee welfare in the workplace is maintained by ensuring that employees are safeguarded from poor and unsafe working conditions through adherence to occupational health regulations, particularly in large industries such as mining, oil, and steel. This research assessed KCM employee preferences for healthcare cost share based on union membership, gender, marital status, and site location.

Methodology

This study used a descriptive research design that measures behavior, prevalence, or outcomes of a population under certain conditions (Bless, Smith, & Kagee, 2006). Employee healthcare benefits studies have previously utilized this form of study design to describe the various factors or phenomena associated with employer-sponsored healthcare (HRET, 2015). In this study, the population constituted 7,000 KCM employees, and the sampling frame was the list of all KCM employees in the human resources database in the information management system (SAP). Clustered and stratified random sampling techniques were used to obtain a representative sample of KCM employees. The clustering units were based on integrated business units (IBUs) or work locations, and each IBU was partitioned into several subpopulations, called strata, according to the KCM grade system. Samples were drawn independently across each stratum (Ahmed, 2009). Employees were then further randomly sampled according to their KCM grade, salary scale, or department. Hence, two hundred and eighty-five KCM employees and nine management staffs constituted the sample and were surveyed during the period from June to July 2016. The nine management staffs were identified as key informants with a good understanding of the medical services program.

Two pre-tested structured questionnaires were employed to obtain data from KCM employees and management staff, respectively. A proposal was presented to the senior KCM Human Capital Management and KCM Medical Ethics Committee for approval to conduct the study among KCM employees. Meetings were also held with union officials in the presence of human resource officials to explain the study and to address any concerns. Research assistants were recruited and trained to ensure data accuracy. Employees could consent to participate in the study, were assured of confidentiality, and were allowed to opt out if they were not willing to participate. Data were coded, entered, and analyzed to compute descriptive statistics using the SPSS, STATA, and Minitab.

Data Analysis

Overall, the study found that most employees were not in favor of healthcare cost sharing. Agree and strongly agree had the highest combined rating, as shown in Table 1, with almost 89% of employee respondents preferring that KCM continued funding and providing free employee medical services. They were not keen on a monthly employee contribution for medical services or for the medical services to be handed over to the government.

Table 1

Healthcare Funding Options for KCM Medical Services – Employee Responses

	RESPONSE (%)				
	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
KCM should continue funding and providing free employee medical services	67.1	21.8	3.2	5.7	2.1
Employee willingness to make monthly contributions towards KCM medical services	4.3	20.1	9.3	30.1	35.8
Handing over KCM medical services to the government	4.3	11.1	9.3	27.6	47.7
Partnerships with other private organizations to run the medical services as a commercial unit	13.2	28.3	14.3	21.9	22.2

To further examine the negligible willingness by employees to contribute financially toward medical services, the study compared the proportions of union and non-union employees by testing the hypotheses: null hypothesis is *Ho: p1 - p2 = 0* and alternative hypothesis is *Ha: p1*

- $p2 \neq 0$, where groups 1 and 2 are union and non-union, respectively. Table 2 shows the output from the hypothesis testing using Minitab software. The z-value in the output is 4.14, and the p-value is 0.000, which is less than the significance level of α value = 0.05. Thus, the p-value is highly significant and the null hypothesis is rejected in favor of the alternative. From the sample proportions, 75.2% of union employees opposed financial contribution to medical services versus 50.5% of non-union employees who opposed. The difference was statistically significant.

Table 2

Employee Willingness to Contribute to Medical Services

SUBSAMPLE	N	OPPOSE	% OPPOSE
Union	169	127	0.751
Non-Union	101	51	0.505
Female	74	47	0.635
Male	204	137	0.672
Single	52	33	0.635
Married	212	142	0.670
Nchanga	113	67	0.593
Konkola	109	80	0.734

Regarding gender influence on employee contributions towards medical services, the study compared the sample proportions for males and females where the null hypothesis was *Ho: p1 - p2 = 0* and the alternative hypothesis was *Ha: p1 - p2 ≠ 0*, where groups 1 and 2 were females and males, respectively. The z-value in the output was -0.57, while the p-value was not significant, hence the null hypothesis was not rejected. Therefore, the gender influence on employee contributions to medical services was not statistically significant, although from the sample proportions, males were more opposed to cost-share than were females (67.2% for males versus 63.5% for females).

With respect to marital status, the study assessed the statistical significance of the difference in marital status on the willingness to contribute toward medical services and compared the proportion of single and married employees by testing the hypotheses: null hypothesis is *Ho: p1 - p2 = 0* and alternative hypothesis is *Ha: p1 - p2 ≠ 0*, where groups 1 and 2 were single and married employees, respectively. Since the p-value was greater than the significance level of α value = 0.05, the null hypothesis was not rejected in favor of the alternative. Hence, the study concluded that the effect of marital status on the willingness to financially contribute toward medical services was not statistically significant, even though the sample proportions showed married employees were more opposed to the cost-share compared to single employees (67% for married employees versus 63.5% for single employees).

Finally, to examine site location's influence on employee contributions to medical services, the study compared the sample proportions for employees at the Nchanga and Konkola sites. The null hypothesis was *Ho: p1 - p2 = 0* and alternative hypothesis was *Ha: p1 - p2 ≠ 0*, where groups 1 and 2 were employees in Nchanga and Konkola, respectively. The z-value in the output was -

2.22, and the p-value =0.026 was less than the significance level of α value = 0.05. Thus, the p-value was highly significant and the null hypothesis was rejected in favor of the alternative. From the sample proportions, 73.4% of employees in Konkola opposed financial contribution to medical services versus 59.3% of employees in Nchanga who opposed contributions. The difference was statistically significant.

Discussion

This study tested hypotheses regarding the willingness to contribute to medical services with respect to union membership, gender, marital status, and work sites of employees. As revealed in the analysis, the results demonstrated significant differences between union and non-union employees. Union employees strongly opposed more employee contributions to medical services, compared to non-union employees. It appears that union employees were more inclined to actively seek employee benefits including healthcare benefits than were low-paid non-union employees who were on short-term contracts. KCM had almost 50% contract employees (6,000) compared to 6,500 direct employees (Koyi, 2017). Most mining firms in Zambia increasingly preferred independent contractors for cost saving. Contractors typically earn 50-80% of what permanent employees earn (Danish Trade Union Council, 2014).

For the gender hypothesis, the results showed that gender has insignificant influence on employee contributions to medical services, although males seemed to oppose more financial cost-share contributions towards medical services than did females. Male miners in Zambia have been vulnerable to labor abuses and have been exposed to unsafe working conditions for a longer period. Consequently, they have been continuously facing injuries and poor health, as the Zambian Ministry of Mines, Energy, and Water Development has been loosely enforcing the national labor law and safety regulations (Zambia: Safety Gaps, 2013).

The study further revealed that marital status exerts weak impacts on employee contributions to medical services. Nonetheless, the sample proportions showed that married employees were more likely than single employees to oppose employee contributions to medical services. This could be explained by the fact that married employees have responsibilities toward their dependent children. They are estimated to have at least 10 dependents and must pay for school, food, and medical expenses (KCM workers, 2014).

Finally, work locations seemed to have a significant impact on the willingness to financially contribute toward medical services as demonstrated. Employees in Konkola strongly opposed more employee contributions to medical services as compared to employees in Nchanga. In addition, permanent employees in Konkola seemed to be more determined to maintain current healthcare benefits in contrast with contract employees in Nchanga. KCM laid off 2,500 contract employees at its loss-making Nchanga site in 2015 (Hill, 2015). Furthermore, in 2016, the company notified MUZ about their continuous outsourcing plan to lure enormous investments. Consequently, over 4,000 workers were handed over to private contractors despite the opposition of Zambian government and mining unions (KCM handover, 2017). This could explain their willingness to contribute to avoid further layoffs.

According to management respondents, the major challenge in financing KCM medical services was the dependence on copper revenues as the only source of financing. Additionally, allocation of healthcare funding is competing with priorities associated with copper production and the current liquidity challenges on the global market. Despite these challenges, management faces employees who prefer that KCM continue to provide free medical services to employees and

who are not keen on making financial contributions towards their medical services or benefits. In contrast, management respondents were more inclined towards employee contributions and fostering strategic partnerships with other organizations.

Like the Zambian mining industry, rising healthcare costs are unsustainable in the US mining industry. To cope with the upward-spiraling healthcare costs, some US coal companies are seeking telemedicine and wellness programs, while reducing employer contributions to health savings accounts (Giardina, 2014). Meanwhile, mining unions are lobbying the government to protect their members' benefits (Thornton, 2017). UMWA has been actively lobbying for the Black Lung Benefits Improvement Act, but it has been facing strong opposition from mining employers and their political allies (UMWA, 2017). Furthermore, oversight lapses in safety laws whether in Zambia or in the U.S put miners at higher health risks. Non-union miners in Zambia and the US are especially vulnerable to unsafe work conditions. Rising outsourcing and non-union jobs are fueled by foreign investors in the Zambian mining industry, while UMWA faces tough huddles due to the shrinking mining industry and falling memberships (Peterson & Jones, 2015).

Conclusions and Recommendations

Like the Zambian mining industry, the US mining industry has faced labor unions that have sought to protect miners' health. In both cases, the industry has not only been financially hit by falling prices but has also been facing rising healthcare costs (Thornton, 2017). Despite these rising challenges, miners continue to demand permanent health benefits and safe work protections. Major challenges in the Zambian copper mining industry have been the reliance on limited sources of funding, particularly copper revenues. Other major challenges have been inefficiencies in areas such as procurement processes and underutilization of information technology. In the US, mining companies' bankruptcies have been a major challenge. Nonetheless, funding of employee medical services is important for several reasons as ascertained by this study. Providing financial protection, improving employee satisfaction and morale, and ensuring dependents remain healthy are important factors at the employee level. It was evident that KCM would not perform better financially or operationally without serious consideration of employee medical services. While legislative intervention has been one of the approaches in the US, cost-share in company-operated medical facilities has been an option in Zambia.

Given there were some employees in the Zambian case who saw the need for cost-share, there is a need for strategic deliberations between management and workers towards buy-in for a dedicated fund that could be jointly managed. KCM should promote wellness programs and partner with other healthcare providers who are able to provide better services that KCM is not able to undertake alone. Enhancing services through partnership and providing better services could also lead to more clients who would be able to pay and thereby increase the critical mass and the base of income for the fund. It is noteworthy that 50% of employees were influenced by the presence of employee health services and benefits when selecting KCM as an employer. Employee health can be closely tied to organizational effectiveness. Accordingly, cost-benefits of worksite interventions should consider these interrelated criteria (Stokols, Pelletier, & Fielding, 1996).

This study's findings will also allow the medical management team in KCM and other similar organizations in Zambia or the US and elsewhere to evaluate which multi-level strategies can be considered for miners' health promotion. Apart from providing employee health services, mining industry employers all over need to ensure that value is obtained from health services.

Management needs to consider alternative approaches for better healthcare and quality service provision to strike a balance between employee satisfaction with healthcare benefits and sufficient value for money invested in healthcare that can support future healthcare investment (Fronstin, 2012).

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Conclusion

Workplace mindfulness programs have become widespread—perhaps even trendy—over the last decade. While several research studies have demonstrated various wellbeing benefits stemming from corporate mindfulness programs including decreased costs, diminished compassion fatigue, and reduction of stress levels, care should be taken in the design and implementation of workplace mindfulness programs with experts. Involving employees during the program design, implementation, and follow-up stages is critical to the success and sustainability of mindfulness program participation. Evaluation of program results should be conducted on an ongoing basis to determine the efficacy of the program and to identify aspects that should be added, changed, or omitted. Follow-up training offerings would be a mindful practice to encourage employee and program sustainability.

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