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Review article

Does resource development increase community sexually transmitted infections? An environmental scan

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ABSTRACT

Resource development (RD) projects such as oil and gas projects, pipelines, and mining have often been associated with increases in rates of sexually transmitted infections (STIs) in catchment communities. This has been attributed largely to the influx of mobile workforces of hundreds to thousands of temporary workers, often young, male, and single. These workers have gained the reputation, particularly within media and anecdotally, of engaging in risky sexual behaviors, that leads to increases in STIs. The original intent of this project was to conduct a systematic literature review that would support the quantification of the change in community STI rates that have been observed in relation to different phases of RD projects. However, a thorough search found surprisingly few published articles that provide sufficient detail to reliably examine the association between RD projects and community STI prevalence. Researchers, government, industry, and organizations are urged to publish relevant research, so that the impact of RD on community STIs can be confirmed and quantified (or disproven). Such research is critical to understand the extent of the impact of RD of community health, and how adverse affects can be mitigated.

Contents

Abbreviations: RD, resource development; STI, sexually transmitted infections; FIFO, fly-in-fly-out; ICMM, The International Council on Mining and Metals; NSB, North Slope Borough; SLCs, small local communities.

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1. Introduction

Natural resource extraction projects such as oil and gas and mining projects have been shown to result in numerous social and health impacts for local communities (Pfeiffer et al., 2010; Jacquet, 2009). While these projects can have positive effects on communities, such as increased employment and income and training opportunities, some effects can be deleterious for community health. Examples of these adverse effects include environmental contamination, overwhelmed health and social services, social disruption, loss of culture among indigenous groups, mental health effects, substance abuse and increased infectious disease spread (International Finance Corporation, 2009).

One health impact that has been frequently cited in relation to these types of natural resource extraction or 'resource development' (RD) projects is an increase in sexually transmitted infections (STIs) within the host communities in which the RD occurs. Support for this association comes primarily from anecdotal evidence, often related in news articles from the cities and regions where RD occurs. Newspapers, magazines and NGO reports have stated that STIs have increased dramatically, or even doubled within a year, in areas experiencing RD "booms" (Richardson, 2012; Anselmi, 2014; Holloway, 2007; Eligon, 2013a,b; Doyle, 2012; Carrington, 2015; Stablum, 2007; Bacheva et al., 2006). This phenomenon has been reported widely, across North America, Africa, Asia, Australia and the former Soviet Union. In addition, the potential for an association has been supported by a number of research studies have drawn conclusions from cross-sectional or ecological data (Campbell, 2000, 1997; Ndhlovu et al., 2005a; Desmond et al., 2005; Goldenberg et al., 2008a; Corno and Walque, 2012).

However, there has been little work done to date that synthesizes the results of published studies to identify the nature and strength of the putative association between RD projects and an increase in STIs in the host community. This paper describes the results of a systematic review of published and grey literature that was conducted in order to answer this question.

1.1. Postulated mechanism of effect

The main pathway that appears to mediate the potential for an increase in STIs is the interaction of a transient, mobile workforce, often characterized as "mobile men with money", and local community residents (Aggleton et al., 2014). RD projects often rely on temporary mobile workforces to meet the need for specific skills and manpower. These mobile workforces can range from several dozen to several thousand workers, and the populations may in some cases be substantially larger than the permanent population of nearby communities. Mobile worker usage tends to be highest during the first few years that comprise the initial construction phase of the RD project, but may also continue throughout the operation of the project, often lasting decades. Workers are frequently housed in segregated mobile work camps, but may also be housed in hotels, apartments and other accommodations in a townsite.

Although the profile of the mobile workforce can vary substantially (Angel, 2014), a large proportion of these workers are often young, sexually active men who often face a culture of hyper-masculinity within work camp settings (Goldenberg et al., 2008b). This can create social pressure for a "hard-partying" lifestyle, and also propagate a culture of sexual promiscuity (Northern Health, 2011). The lifestyle of these workers differs depending on the country and industry context, as well as the workers themselves. For example, in Canada, mobile workers commonly work two-weeks-on, two-weeks-off shifts characterized by long workdays and recreational time spent in nearby towns, stereotypically with binges on drugs and alcohol (Goldenberg et al., 2008b). In large mining areas of South Africa, especially the gold and platinum mining areas, workers might migrate in from the Eastern Cape as well as various countries in southern Africa, visit home only once a year, and live in single-sex hostels that are surrounded by areas of high prostitution (Ndhlovu et al., 2005b). While different contexts and cultures inevitably result in varying behaviors, there are similarities across the mobile work experience, including isolation from regular social networks, a masculinized work culture, and substantial disposable income.

A number of causes have been hypothesized for an increase in unsafe sexual practices among mobile workers. These include social isolation from partners, increased disposable income, increased abundance of drugs and alcohol, stigma towards STI testing, as well as insufficient access to STI testing in the work camps (Goldenberg et al., 2008a; Environmental Health Assessment Services, 2007). Work shift hours can also clash with the operating hours of clinics within communities, making it difficult for workers to access testing and treatment in these locations (Goldenberg et al., 2008b). Furthermore, as most workers come from other areas and have few emotional ties to the communities where they work, it becomes more likely they will engage in casual sex with local women without getting tested for STIs (Goldenberg et al., 2008b). This fits with the "risk-taker" characterization that has been ascribed to male migrant workers, where in new socio-cultural settings there are new social networks and unforeseen consequences of behaviors in the new setting (Brockerhoff and Biddlecom, 1999). It is hypothesized that these individuals are more likely to have multiple sexual partners, sometimes without regard for a regular sexual partner at home. The sexual risk-taking mentality might be further amplified, particularly for workers in low-resource settings, by a lack of control over other life circumstances while working in dangerous conditions (International Finance Corporation, Care and Golder Associates, 2004). Research among Vietnamese miners suggests that when workers have dangerous daily jobs, their concern for surviving on the job greatly outweighs the perceived risk of long-term health consequences from STIs such as HIV (Tuan, 2010). Sex is also viewed as a reward and incentive after a hard work week, where the benefit of sex, generally unprotected, outweighs the risk of STIs (Tuan, 2010). This same connection has been echoed among South African miners (Campbell, 1997).

The establishment of a work camp with a large population of men can also lead to increased commercial sex work in the area and can act as a 'bridge' between high-prevalence and low-prevalence populations, with mobile workers acquiring new STIs and passing them on to both other local women and women from their home region (Aggleton et al., 2014; Scott et al., 2013). Women working in the sex industry may be professional sex workers who are drawn to the region for economic opportunities (Scott et al., 2013), or women working in recreational facilities such as bars, disco halls, hotels or restaurants who may not self-identify as a 'sex-worker' (Desmond et al., 2005). In other cases, sex work may be informal and often characteristic of vulnerable women, living in poverty, with local or non-local women engaging in sex work out of desperation and little to no control over condom use, which in some societies is dictated by the man (Ndhlovu et al., 2005a; Campbell, 2000). It has also been suggested that with men's differing work schedules, women may maintain relationships with multiple men, also increasing risk for STIs (Goldenberg et al., 2008a). Finally, the issue of men who have sex with men (MSM) in camps and the community is another factor that may influence STI prevalence and incidence.

Clearly, there are numerous possible pathways of transmission and factors leading to infection, each being contextual and