FINDINGS FROM A RAPID REVIEW OF LITERATURE ON GHOST WORKERS IN THE HEALTH SECTOR: TOWARDS IMPROVING DETECTION AND PREVENTION
Findings from a rapid review of literature on ghost workers in the health sector: towards improving detection and prevention
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During the 2018–2019 biennium, the World Health Organization (WHO) is advancing a workstream on strengthening anti-corruption, transparency and accountability in health systems. This workstream is a partnership between the Gender, Equity and Human Rights team and the Health Systems Governance and Financing department of WHO headquarters, in coordination with other partners with expertise and interest in promoting transparency and accountability mechanisms in health systems. Theadora Swift Koller (Technical Officer, Equity; Gender, Equity and Human Rights) and David Clarke (Team Leader, Universal Health Coverage and Health Systems Law; Health Systems Governance and Financing) jointly lead the workstream.

One objective of this workstream is to support the enhanced focus on anti-corruption, transparency and accountability in WHO normative guidance on health systems strengthening. Three areas were identified for furthering this focus in 2018–2019: health systems governance; human resources for health; and health financing.

This document, which contributes to WHO’s ongoing evidence collection and synthesis in support of the Global Strategy on Human Resources for Health: Workforce 2030, was elaborated in collaboration with the Health Workforce department of WHO headquarters. Ibadat Dhillon (Technical Officer, Health Workforce) and Michelle McIsaac (Economist, Health Workforce) were the counterparts, and provided essential technical inputs for the conceptualization and production of the document.

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Abstract

The problem of ghost workers in the health sector is an understudied phenomenon, yet the existence of this form of payroll fraud is a significant drain on public health and overall budgets in some countries, undercutting global and public health goals. This rapid review explores a selection of relevant research to identify types of payroll fraud related to the ghost worker problem, and analyses how the fraud triangle theory can help to explain the prevalence of ghost workers in the health sector. The rapid literature review draws on evidence from various country contexts. Detection and prevention of ghost workers in the health sector may be improved through increased transparency and accountability in payroll processes, improved record keeping and strong record management systems, monitoring of human resources for health (HRH) and specific technology tools.
Key findings from the rapid literature review

- The ghost worker problem in human resources for health (HRH) is global in reach and undercuts financing allocated to the health sector, which may have an impact on global and national health policy goals.

- Given that there are different types of payroll fraud (with different drivers), there is a need to design explicit and coherent policy interventions to address the ghost worker problem.

- More knowledge needs to be generated on the specific impact of the ghost worker problem on health systems globally and its effect on health policy goals and population access to health services.

- There are a number of conditions that may allow for emergence of the ghost worker problem. For example, limited institutional capacity for recruitment of HRH to vacant positions can create an opportunity for ghost workers to emerge, particularly when there is lack of personnel to manage the process. Poor record management and insufficient checks and balances in HRH processes can also create opportunities for the ghost worker problem to emerge.

- Integrating anti-corruption, transparency and accountability mechanisms into health systems can help to identify ghost workers on a payroll and reduce the risk of the ghost worker problem. The risk of ghost workers may be reduced by increased transparency; for example, in the hiring, termination and attrition processes related to HRH, and in payroll processes. Accountability mechanisms, such as public expenditure tracking surveys, payment modalities, audits, civil society monitoring of HRH, strengthened health information systems [part of many solutions to the problem] and other technology tools, may also help to reduce the prevalence of ghost workers.

- Political commitment to health information strengthening and the integration of anti-corruption, transparency and accountability measures in health systems are crucial for reducing the occurrence of the ghost worker problem.
The World Health Organization (WHO) is advancing research and operational work on strengthening transparency and accountability in health systems. Preventing the ghost worker problem in the health sector is particularly relevant as WHO seeks to implement the 2016 *Global Strategy on Human Resources for Health: Workforce 2030.* As part of these efforts, this working paper provides an overview of key findings from a rapid literature review on detecting and preventing ghost workers in the health sector, to help to inform policy work in this area.

A ghost worker can be defined as “… a real person who knowingly or not is placed on the payroll, or a fictitious person intentionally placed on the payroll by a dishonest employee who typically pockets the wages paid to the ghost worker”.*2 The ghost worker problem demands dedicated policy attention as it is reported to place a substantial burden on budgets for human resources for health (HRH), thus wasting financial resources allocated to the health sector. Globally, it is estimated that 20–40% of all health spending is wasted, with health workforce inefficiencies responsible for a substantial proportion (WHO, 2017). Weaknesses in transparency and accountability may contribute to the problem of ghost workers, who artificially increase the amount of spending allocated to HRH (WHO, 2017).

It is clear that further research is needed on the prevalence of ghost workers globally and how best to mitigate the risk. Tackling the problem of ghost workers is also essential to achieving Sustainable Development Goal 3 – Ensure healthy lives and promote well-being for all at all ages, and subtarget 3.c to – Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States.

The central purpose of this working paper is to compile evidence on methods used to detect, prevent and eliminate ghost workers in health systems, providing country examples where possible. The paper is organized as follows: first, the background to the ghost worker problem in the health sector and the different types of ghost workers are outlined. The second section describes the methodology. The following section discusses the conditions that contribute to the occurrence of ghost workers (based on fraud triangle theory), supported by targeted literature. Next, interventions to address the ghost worker problem are discussed, with country examples. Lastly, key themes and areas for further research are advanced.

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1 The Global Strategy includes: objective 1 – optimize performance, quality and impact of the HRH through evidence-informed policies on human resources for health, contributing to healthy lives and well-being, effective universal health coverage, resilience and strengthened health systems at all levels (p.15); objective 3 – build the capacity of institutions at subnational, national, regional and global levels for effective public policy stewardship, leadership and governance of actions on human resources for health (p. 29); and objective 4 – strengthen data on human resources for health for monitoring and accountability of national and regional strategies, and the Global Strategy (WHO, 2016, p.33).

Background

HRH are vital for the achievement of health and wider development objectives (WHO, 2016). Health workforce salaries often represent a significant proportion of a national health budget. When fraud exists in the payroll process as a result of the ghost worker problem, then resources allocated to the health sector are clearly being wasted. This, in turn, can undercut public health goals and exacerbate inequities in terms of population access to essential public health services and products. There is great scope for further research on the ghost worker problem, including acquiring global data on the prevalence of ghost workers in the health sector and the specific impact of the problem in different country contexts. This paper aims to contribute to advancing further policy dialogue and research on the ghost worker problem.

Although a critical issue in the health sector, absenteeism or “work loss from unscheduled absences”3 is not included in the discussion. The drivers of absenteeism are often very different from those of payroll fraud, and therefore the policy responses needed for detection and prevention of payroll fraud are distinct from those needed to address high rates of absenteeism. The focus of this paper is on ghost workers (defined as payroll fraud) and the rapid literature review seeks evidence on how to detect and prevent this particular issue in the health sector. Nevertheless, some policy responses – such as improving transparency and accountability, by way of enforcing robust monitoring mechanisms and supervisory processes – may be applied to both these policy issues.

The creation of a ghost worker on a payroll can be understood as a fraudulent act, along with theft of money from government and kickbacks (Obara et al., 2017). Fraud is defined as:

"[…] the use or presentation of false, incorrect or incomplete statements and/or documents, or the non-disclosure of information in violation of a legally enforceable obligation to disclose, having as its effect the misappropriation or wrongful retention of funds or property of others, or their misuse for purposes other than those specified".4

The ghost worker problem is significant: it is a global issue, and ghost workers can account for a high percentage of public employees including those in the health sector (Makonnen & Tulenko, 2015). For example, in the United States of America, a criminal investigation concluded in 2013 found that a former Assistant Controller at Grandy Memorial Hospital, Georgia, had embezzled hospitals funds through the fabrication and alteration of payroll records. Severance pay was issued to terminated employees and deposited into accounts controlled by the Assistant Controller (United States Department of Justice, 2013). Another example from the United States shows a health claims director was convicted of embezzling US$ 846 000 using a ghost worker scheme (United States Department of Justice, 2018). In Nigeria, using the Integrated Payroll and Personnel Information System (IPPIS), the Government identified an estimated 65 000 ghost workers (Bureau of Public Service Reforms, 2016).

Notably, the impact of the ghost worker problem goes beyond financial implications. It has also been linked to low employee morale, monumental corruption, reduced employee career prospects and decreased efficiency and effectiveness among actual HRH in the system (Moyo, 2017). What is more, when ghost workers are identified and eliminated from payrolls, it can provide an opportunity for governments to incentivize the performance of existing HRH and also to direct funds towards training and hiring of HRH. For example, in the Democratic Republic of the Congo, the implementation of a human resource information technology system in two states helped to identify ghost workers and reallocate approximately US$ 1.8 million annually (Likofata Esanga et al., 2017).

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4 European Healthcare Fraud and Corruption Network (http://www.ehfcn.org/what-is-fraud/).
Methodology

The methodology used for this working paper is based on techniques employed in a rapid literature review, which seeks to provide evidence-informed answers to policy questions. According to Khangura et al., rapid reviews are a "form of knowledge synthesis in which components of the systematic review process are simplified or omitted to produce information in a timely manner".\(^5\)

The rapid review process gives preference to research that is easily retrievable and, therefore, some bias is necessarily embedded in the methodology.\(^6\) This working paper does not provide an overview or comparison of all of the literature identified as relevant in the search. Instead, the findings from the literature are used to illuminate the main topics related to the ghost worker problem in the health system and then to describe strategies and tactics for detecting and preventing the problem. The rapid review is also limited in that only English articles and documents were used in the search. However, it is anticipated that the working paper will lead to further policy discussion on the ghost worker problem in the health sector globally, and to additional research that "deep dives" into related topics.

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\(^6\) Stated differently, a rapid review does not seek to provide an overview of the universe of literature, which is the approach more typically adopted for a systematic review.
The following diagram shows the methodology applied to identify relevant literature for the rapid review.

**Literature search**

The following databases were searched for peer-reviewed literature: Ovid MEDLINE®, PubMed, EconLit, Scopus, PAIS International, Google, Google Scholar and Factiva. Six main search strategies were utilized, with the following combination of keywords:

- “ghost worker” AND “corrupt*” AND “fraud” AND “public sector” AND “health”
- “civil society healthcare workforce monitoring”, “accountability healthcare workforce”.
- “performance monitoring healthcare workforce” AND “pay for performance healthcare workforce”
- “ghost worker” AND “public sector”
- “payroll fraud” AND “health sector”
- “payroll fraud” AND “public sector” AND “health”
- “health” AND “HR” OR “professional” OR “doctor” OR “nurse” OR “pharmacist” AND “corrupt*”

Searches were conducted from September 2018 to February 2019.


Searches were restricted to articles published in English. No restrictions were placed on timeframe (aside from database-specific limitations), settings, or population. All article types were considered in the white and grey literature, including commentaries, original qualitative and quantitative research papers, literature reviews, academic reports, news articles, documents from international organizations, and book chapters. Articles were included if they related to corruption in human resources for health and/or corruption and ghost workers.

**Screening**

Titles were screened for appropriateness and duplicates were removed, leaving 210 articles for more detailed review.

Documents determined to be out of scope, after review of abstract or full text, were removed, leaving 98 articles to be summarized. These 98 articles included recommended sources from WHO that were added to the initial literature pool.

**Included**

50 articles were selected for inclusion and confirmed with WHO. Following peer review, 10 additional sources were added. In total, 58 articles are cited.
Nafiu, Yalo & Aduku (2016) identify a number of types of fraud related to ghost workers. Although the research was focused on Nigeria, the types of fraud identified are generalizable. The most relevant types of ghost worker fraud are described in Box 1, below.

Box 1. Types of ghost worker fraud (Nafiu, Yalo & Aduku, 2016)

- **Fictitious employee**: when a supervisor allows for the falsification of an employee’s timesheet. Payroll salary may be diverted, or the payment may be allocated to a false bank account.
- **Pre-employment ghost employee scheme**: when an employee has been recruited and is then listed on a payroll before starting their employment.
- **No-show ghost employee scheme**: the real employee does not show up at work and provides no actual services. Under this scheme, the supervisor enters into an agreement with the no-show employee as to what percentage will be taken on the monthly wage.
- **Temporary employees bypassing critical hiring control**: although these workers do exist, the temporary nature of their employment enables hiring controls to be bypassed. The control over temporary employees is usually overseen by a local manager, which can potentially allow for this bypass.
- **Temporary employee working through agency**: when this happens, there may be collusion between an agency and the person requesting the employee. This collusion may lead to the approval of an invalid contract that can be used to divert funds to the agency, manager and the employee involved in the fraudulent act.
- **Family member as ghost employee**: when the name of a family member (such as a minor) is used to divert payment into a false bank account.
- **Unclaimed payroll cheque scheme**: when a supervisor terminates an employee’s position without formal procedures. The terminated employee is still on the payroll, but the supervisor claims his/her cheque.
- **Termination ghost employee scheme**: when an employee ends his/her employment without a formal termination process. This can allow for the employee’s salary to be fraudulently claimed.
There are a number of compelling theoretical frameworks that can be used to analyse the ghost worker problem as a fraudulent act. For example, bureaucratic corruption focuses on the role an incentive structure plays in an individual’s decision to commit a corrupt or fraudulent act (Olken & Pande, 2012; Hessami, 2014). Another example is organizational theory, which explains how corruption becomes embedded in processes, how it is rationalized, and how it is socialized within an organization (Ashforth & Anand, 2003).

The well-established “fraud triangle”, derived from the work of Cressey (1973), is the theoretical framework used in this paper to explain the occurrence of fraud. The theory is appealing as it provides a clear organizational framework, focusing on three conditions that are always present for fraud to occur: pressure; opportunity; and rationalization (see Fig. 1). Although the fraud triangle theory focuses primarily on the individual, it can be used for an analysis of organizational structures, thus making it particularly applicable to the ghost worker problem. The theory has been applied in a number of country contexts to illuminate the risk of corruption and fraud in the public sector (for example, Nyaledzigbor, 2015). Vian, a global expert on anti-corruption and health, in a 2008 article cites fraud triangle concepts to help to broadly explain the causes of corruption (Vian, 2008), and also makes reference to the theory in an upcoming publication (Vian, in press). However, there are certain limitations to the fraud triangle theory that should be noted. For example, the fraud triangle only provides a one-dimensional analysis (Albrecht, 2009), it may be weak in empirical support and not explain other factors relevant to fraud (Donegan & Ganon, 2008), and it ignores group dynamics (Trompeter et al., 2013).

Fig. 1. The fraud triangle

Each of the three conditions necessary for fraud (pressure, opportunity and rationalization) is discussed below. Where possible, each condition is discussed in terms of how it may contribute to a fuller understanding of the emergence of ghost workers in the health system.

**Condition 1: pressure**

The first condition in the fraud triangle theory is pressure. Stanciu (2012) notes that pressure on an individual to commit a fraudulent act can be both financial and non-financial in nature. As shown in Fig. 1, pressure can be emotional, financial, or a combination of the two. Emotional pressure to commit fraud may result from an individual’s dissatisfaction with the working environment, professional ambition, or desire to reach personal and professional goals faster. Financial pressure may include financial needs (Nyaledzigbor, 2015). For example, public sector salaries are often low, including in the health sector, which may create financial pressure for an individual to engage in a fraudulent act. An individual’s desire to increase their economic status is an example of a pressure that stems from the combination of both emotional and financial, and may be reflective of underlying political or social norms that inform the individual’s conception of prestige.

**Condition 2: opportunity**

The fraud triangle theory outlines opportunity as one of the conditions present for fraud. When there is a lack of strong governance and accountability mechanisms in payroll processes, opportunities for fraud can occur. In such instances, the perceived net benefit of committing fraud may be higher than the perceived net loss of punishment (Amoako-Tuffour, 2002; Lewis & Pettersson, 2009; Lou & Wang, 2009). This implies that the potential perpetrator believes the probability of detection and costs of punishment are low. Stanciu (2012) emphasizes there is a risk of not only an “implicitly real” opportunity, but also a “perceived” opportunity. An opportunity for fraud may arise if an individual calculates there is a very low risk of detection or that, even if fraud is detected, punishment is less costly than the fraudulent act. Stanciu (2012) notes that opportunities for fraud may also present themselves if there are weak controls within an institution, poor management oversight, inadequate external oversight and monitoring, and lack of policy on conflicts of interest.

Some of the literature underscores how poor information systems can create opportunities for ghost workers to be created on payrolls. This can happen when the likelihood of detection is low; for example, in situations when health staff deployment is not automatically recorded, is not updated regularly or is poorly done, without proper checks being in place (Lewis & Pettersson, 2009; Hussmann, 2011). The presence of ghost workers on a payroll, however, is unlikely to be a result of health workers acting alone (indeed, they may not even be involved). In some countries, multiple stakeholders are involved in the HRH recruitment process, such as the civil service, or finance and health ministries. Administrative staff in charge of payroll processes have the greatest opportunities to manipulate records in order to siphon off wage payments (Lewis & Pettersson, 2009; Hussmann, 2011; Izedonmi & Ibadin, 2012). A “successful” payroll fraud scheme would demand some degree of cooperation from an accountant or a payroll manager, for example (Amoako-Tuffour, 2002). The risk of payroll fraud, including ghost workers, is thus exacerbated when administrators are able to exploit a lack of accountability within systems that are already weak. (Lewis & Pettersson, 2009).

Poor record management systems can also result in inconsistencies between the number of public servants on the government payroll and the actual number of employees that are working (Nyaledzigbor, 2015). Fraud opportunities exist when time gaps occur in updating payrolls across various institutions. If a public institution fails to update staff records in a consistent and timely manner, staff may continue to receive salaries even when they no longer work at the institution (Nyaledzigbor, 2015). It is important to note that sometimes gaps may be intentional (in order to allow for fraud) or they may simply be a result of institutional “bottlenecks” (Amoako-Tuffour, 2002).
An absence of checks and balances in the payroll process can create opportunities for fraud; for example, when there is only one person to manage an entire payroll process (Nyaledzigbor, 2015), or when employees are responsible for manually recording their hours on timesheets or by using a time clock. In a ghost employee scheme, individuals may create fake documentation to fraudulently record a ghost worker’s hours and then claim the corresponding pay for themselves. (Wells, 2017).

Limited institutional capacity related to the recruitment process for vacant positions can also create an opportunity for ghost workers to emerge, particularly when there are insufficient personnel to manage the process. Case-studies in Zambia show only three officers were responsible for managing as many as 900 requests for vacant government positions; and in Kenya, the agency responsible for recruitment of the entire civil service – estimated at 190,000 employees – consisted of only 38 personnel (Vujicic, Ohiri & Sparkes, 2009).

**Condition 3: rationalization**

The third condition in the fraud triangle is rationalization or, in other words, the ability of an individual to justify or defend their fraudulent activity (Nyaledzigbor, 2015). In some countries, fraud may be perceived as an acceptable practice within an overall corrupt system that has limited accountability and high political meddling. The level of management integrity within an institution is cited by Hechanova et al. (2014) as important, because it can influence how employees perceive fraud. Low wages may also make HRH rationalize their fraud as a means of compensation (Lewis, 2006; Nyaledzigbor, 2015).

Wolfe & Hermanson (2004) take the fraud triangle theory one step further, advancing a fraud diamond theory which adds a fourth condition – an individual’s capability to commit fraud. An employee must be situated within an organization where they can contribute to whether or not fraud happens, but they also must have the personal traits and abilities to make fraud a reality. That is to say, an employee’s capacity to exploit accounting systems, their confidence and their ability to manage stress are factors that can lead to a fraudulent act.
This section provides examples of anti-corruption, transparency and accountability mechanisms (identified through the literature search) that may reduce the risk of the ghost worker problem. Citations from the literature are provided as examples and are not intended to be exhaustive.

**Transparency mechanisms**

**Transparency in payroll systems**

The ghost worker problem is shown to be related to non-transparent and weak payroll management (Hussmann, 2011). A 2001 public expenditure review in Honduras estimated the percentage of HRH recorded in the central database but unknown in the actual workplace (pure “ghosts”) ranged from 0.9% for auxiliary nurses to 8.3% for general practitioners (World Bank, 2001). The main underlying problem identified in Honduras was a weak personnel information system that, at the time, did not properly record and regularly update health staff deployment. Hussmann (2011) states that the risk of ghost workers can be reduced by ensuring increased transparency in recruitment, assignment and promotion systems for employees. Enhancing transparency may also include contracting out these responsibilities to qualified private sector actors. Hussmann (2011) also recommends contracting out recruitment and deployment to the private sector to speed up human resource processes (assuming that private sector actors are operating within processes and mandates that are accountable and transparent). Overarching all of these measures is the need to ensure clear rules and criteria at all stages of employee recruitment, assignment and promotion.

Whether payroll processes are centralized or decentralized within an institution, it is the person[s] with authority to add new employees to the payroll that are most able to add ghost workers (Wells, 2017). Risks can result from restricted access to payrolls, when only a select group of managers has access to records and there is lack of oversight regarding how they manage the payroll system. Also, lower level staff may gain access to the payroll process if controls are weak. To prevent this, payroll duties need to be separated so that a system of checks and balances is in place (Wells, 2017). Separating out payroll duties can include having different employees responsible for entry of time data and approval of time cards, and comparing the number of paycheques with the number of staff on the payroll (Obara, Nangih & Agba, 2017). Even simple measures, such as updating employee names on payrolls and removing those no longer active, can help to reduce the risk of payroll fraud (Amoako-Tuffour, 2002). Regular rotation of employees working in the accounting and payroll departments can also help to reduce the risk of ghost workers (Amoako-Tuffour, 2002).

Transparency in payroll systems can also be enhanced through the use of electronic payment methods. Implementation of an automated payroll system with direct deposits into individual bank accounts can help to reduce the risk of ghost workers (World Bank & USAID, 2017). Examples include the Dominican Republic, where the Government saved US$ 6.2 million from identifying ghost workers (see Box 2), and the integrated human resources information system (iHRIS) in the Democratic Republic of the Congo (see Box 3). These no-cash-in-hand policies seek to avoid misuse of or fraudulent use of funds.

**Box 2. Transparency led to identification of ghost workers in the Dominican Republic**

In the Dominican Republic, a CapacityPlus project worked with the Ministry of Health and Social Assistance to reform the payroll system and create more transparent budgeting practices. The project identified an estimated 10 000 ghost workers. By removing ghost workers from the payroll, funding was made available to hire HRH, increase salaries for doctors and nurses, and increase HRH retirement benefits, improve HIV and other health services, and to eliminate user fees. (IntraHealth International, 2015).
Further strategies to reduce the risk of ghost workers on payrolls include: gathering evidence of work performance; checking government-issued identity cards for employees; ensuring that databases are secure; and conducting interviews with employees to verify that they are fulfilling their assigned duties (Nafiu, Yalo & Aduku, 2016).

**Strengthened HRH data collection**

Much of the literature agrees on the need to improve data systems in an effort to tackle the problem of ghost workers (Hussmann, 2011; Scheffler et al., 2016). Challenges in HRH data collection include improper collection strategies, poor entry and analysis of data, and lack of incentives for health managers to maintain accurate and up-to-date data (Herbst, 2006). However, with adequate resources, capacity-building and the right incentive structures in place, efforts can be made to collect sufficient data through HRH databases. Detection of ghost workers can be supported by identifying the salary source for a health worker and verifying the employee’s name registered at the facility level (Herbst, 2006).

Transparency can be enhanced through low-cost options such as publishing government data and enabling citizen monitoring and control (Johnsøn, 2014). To strengthen transparency and help to eliminate ghost workers, WHO recommends that governments establish national HRH registries of practising health workers linked to the payroll (WHO, 2016). Health workforce registries should contain a core set of performance indicators including stock, distribution, flow, demand, supply capacity and remuneration, in both the public and private sector (WHO, 2016). To facilitate this, WHO has developed the National Health Workforce Accounts (NHWA) system. NHWA is a system for countries to use to improve the availability, quality and use of HRH data through monitoring of a set of indicators to support achievement of universal health coverage, the Sustainable Development Goals and other health objectives. The NHWA helps to standardize and make interoperable HRH information and includes data validation processes (WHO, 2019). Other examples of e-governance tools include the Foreign Aid Transparency Hub (https://www.gov.ph/faith/) and the International Aid Transparency Initiative (https://iatistandard.org/en/), which are online resources for organizations to publish financial and other data about their projects.

**Use of technology**

Biometrics technology makes use of one or more of an individual’s physical characteristics as a means of identification, such as their eyes, hands or voice. Because it is difficult, if not impossible, to duplicate an employee’s physical measurements, biometrics can have a significant role in identifying and eradicating ghost workers by tying each health worker listed on a payroll to their unique biometric identifier (Obara, Nangih & Agba, 2017). In Nigeria, for example, a palm-vein identification system was implemented for employees. With this system, the Abuja State Government was able to identify government employees and eliminate ghost worker fraud and waste (M2SYS Technology, 2015). In July 2018, the Health Department of the Government of Sindh in Pakistan initiated a requirement that HRH undergo biometric identification (Government of Sindh Health Department, 2018). To ensure follow through on the policy, in September 2018 the Government identified 7376 employees that were unaccounted for, and noted that if the verification deadline was missed, the Government would consider the employee on the payroll to be a ghost worker (Government of Sindh Health Department, 2018). However, as noted by Privacy International, “we have to be cautious when putting the success of an anti-corruption scheme on technology” as it may raise privacy issues (Privacy International, 2016).
In India, as part of a United States Agency for International Development (USAID) project, a human resources information system (HRIS) was set up in the state of Andhra Pradesh in 2007. The purpose of the HRIS was to help to ensure an effective human resources system and also to identify vacancies. The effort in Andhra Pradesh was part of a larger plan to scale up a national HRIS framework in India, to enable all the states to make use of common technologies (Shukla et al., 2014).

The use of technology for overseeing HRH may be challenging in certain contexts, however, particularly where staff do not have a strong technological background (Obara, Nangih & Agba, 2017). Other factors, such as political commitment, also play an important role in preventing the occurrence of ghost workers. For example, in the United Republic of Tanzania, as a result of the Government’s commitment to address fraud, salaries paid to ghost workers significantly decreased from roughly US$ 604,900 in 2015/2016 to US$ 13,500 in 2016/2017 (United Republic of Tanzania, 2018). Of note, given that there are multiple stakeholders involved at both the system and facility levels, strong coordination and accountability mechanisms also need to be in place, as well as a clear regulatory framework with explicitly articulated penalties for fraudulent activities. Thus, although technology can be a helpful tool to detect and prevent ghost workers, it is not a necessary condition for prevention of the ghost worker problem.

**Accountability mechanisms**

**Public expenditure tracking surveys (PETS)**

Tools to identify and track ghost workers include PETS, as well as reviews and focus groups with public officials and health workers. PETS examine the flow of funds from central governments to providers, while quantitative service delivery surveys focus on the efficiency of service delivery and the dissipation of resources (Gauthier & Wane, 2008). Marouf (2010) points out that PETS are a specific tool within monitoring that can oversee budget execution and track breaches, including ghost workers. Gauthier & Wane (2008) caution that methods to account for funding flow (notably through PETS) in one country can significantly differ from analyses in another country, given the complexities and discrepancies between public administration structures. PETS are not simple to execute: they involve managing complex data and mapping out what may be very unclear resource flows, as well as dealing with poor record management (Lindelöw, 2008).

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**Box 3. Technology helped to identify ghost workers in the Democratic Republic of the Congo**

Likofata Esanga et al. (2017) examined the impact of iHRIS, an open-source human resources information system, in Kasai-Central and Kasai Province in the Democratic Republic of the Congo. iHRIS identified authentic government employees as well as any ghost workers in the provincial health systems. In the Democratic Republic of the Congo, public sector HRH require a “matriculation” (employee registration number) in order to be paid. However, many civil servants did not have a number and only 32% of civil service HRH were receiving salaries. Workers not formally receiving salaries found alternative payment channels, including through international nongovernmental organizations, external development agencies or informal practices. Using iHRIS, a substantial number of ghost workers were found on the government payroll (27%), and an even larger number were receiving a risk allowance (42%). The ministries of public health, public service and finance reallocated funds away from ghost workers to cover legitimate salaries for health workers who had not been compensated due to a lack of funds.
HRH performance management

Performance management is the continuous process of identifying, measuring and developing the performance of individuals or health care teams, and ensuring that performance matches the strategic goals of a particular institution. By monitoring and measuring the performance of individual workers, performance management may also help to identify when employees have no output, thus contributing to the identification of ghost workers. Performance standards and indicators facilitate accountability within HRH and in other sectors. Standards include job descriptions with objectives, setting performance agreements between staff and supervisors with clear targets and strategies for achieving them, as well as routine performance reviews of employees. Performance standards not only help to identify whether ghost workers are on a payroll by confirming active staff members, but also to identify training needs, promotions, staff distribution and demotions (Lutwama, Roos & Dolamo, 2013).

Performance-based financing

The application of mechanisms that make payments conditional on performance is another method identified by the literature as a potential way to reduce ghost workers. Performance-based financing, also referred to as results-based financing or pay-for-performance, is a system in which financial disbursements are conditional upon results of previous disbursements, using performance indicators. A typical pay-for-performance programme provides a bonus to health care providers if they meet or exceed agreed upon quality or performance measures (James, 2012). The quality measures used in pay-for-performance generally fall into four categories: processes; outcomes; patient experience; and structure. Process measures assess the performance of activities demonstrated to contribute to positive health outcomes for patients; outcome measures refer to the effect that care has on patients; patient experience measures assess the patient’s perception of quality of care received; and structure measures relate to the facilities, personnel and equipment used in treatment (James, 2012). These structure measures are important when conducting assessments at a system-wide scale, and thus are valuable for applying to the ghost worker problem.

In increasing the frequency and accuracy of monitoring and reporting outcomes, endpoints, performance and efficacy, performance-based financing may help illuminate corrupt activity or inefficiencies in health care financing. For example, a pay-for-performance scheme in the Rwandan public hospital system resulted in the identification of over 5000 ghost workers [see Box 4]. However, in contrast to this perspective, Nocera (2010) found that performance-based funding for hospitals can result in fraudulent practices to obtain funding. The case-study analysis in the Australian states of Victoria and New South Wales revealed fraudulent reporting of data, including “phantom admissions” and “ghost wards” (Auditor General Victoria, 2004; Garling, 2008). Pay-for-performance initiatives have been found to work well when implemented within an information technology infrastructure and by human resources capable of managing the demands of continuous data reporting (James, 2012).

Box 4. Pay-for-performance led to identification of ghost workers in Rwanda

In 2005, the Government of Rwanda restructured how public health workers were compensated, linking wages to attendance as a pay-for-performance strategy. Rwanda’s pay-for-performance strategy resulted in a reduction of ghost workers on the payroll (Basinga et al., 2010). The Minister of Public Service reported in 2016 that more than 5000 names had been removed. Since then, Rwanda has increased the use of pay-for-performance mechanisms and has emphasized that, when designed and managed efficiently, they provide “sought after results”. As of 2016, pay-for-performance has been rolled out in all public hospitals in the country (Republic of Rwanda Ministry of Health, 2018).
Audits

To reduce the likelihood of the ghost worker problem, audits should be a component of regular supervisory visits to health facilities – and, in fact, should be integrated into broader health system strengthening activities. Audits can help to detect payroll fraud by verifying HRH on a payroll (see Box 5), as well helping to address absenteeism. Audits should include a verification of employment and payroll records with employee numbers, employment histories, and the roles and responsibilities of an employee within the institution (Amoako-Tuffour, 2002). Hussmann (2011) cautions that internal audits are not always sufficient, as local auditors may not have the skill set to deal with the ghost worker problem. Hussmann advocates for strengthening capacity for external audits, including allowing nongovernmental actors to undertake the process (Hussmann, 2011). Lastly, audits should always include checks for “red flags” such as payroll and bonus anomalies, inconsistent employee hours and so on.

Box 5. Civil service payroll audit in Mozambique

As a component of its anti-corruption efforts, Mozambique implemented a civil service “proof-of-life” payroll audit for all employees and state agents. The audit involved processing wages and salaries through an electronic payroll reporting system (Republic of Mozambique, 2015). As a result of the audit, an estimated 30,000 ghost workers were identified between 2015 and 2017 (Club of Mozambique, 2018).

Civil society monitoring of HRH

Civil society participation in the monitoring of HRH performance can assist in identifying where ghost workers may exist and help to hold providers accountable. In addition, civil society should be enabled to take part in the health sector budget process, both in formulating budgets and monitoring their use (Hussmann, 2011) (see Box 6). In order to be effective, however, civil society needs access to information that is easy to understand regarding public resource flows (Boex & Martinez-Vazquez, 2006; Lewis, 2006). For example, Sikika, a nongovernmental organization based in the United Republic of Tanzania, uses social accountability monitoring tools and advocacy mechanisms to monitor the health and public finance systems. More specifically, Sikika implements a public finance management programme that aims to ensure the efficient and transparent use of public funds. It also operates a health programme that works to increase “pro-poor” financial protection, and monitors how well public health facilities are governed (Sikika, 2017).

Box 6. Civil society monitoring of HRH in Nigeria

In 2011, a civil society-led initiative, BudgIT, was established in Nigeria. Its goal is to make government budget data more accessible and understandable through digital technologies, including designing visual representation of data. In 2017, information drawn from this initiative reached a reported 2.5 million Nigerians, through online and offline platforms, and engaged 25,000 citizens in the review process. This led to government action on unnecessary budgetary items and the ability to identify “fake” projects (SDSN TReNDS, 2018).
The issue of ghost workers in human resources for health is a global problem. It threatens to undermine both global and national health policy goals by undercutting the amount of resources allocated to the health sector. Importantly, the conditions that enable ghost workers to emerge are not one-dimensional. Thus, there is a vital need for policy interventions to be designed in a way that systematically combats the various pressures that incentivize ghost workers. Anti-corruption, transparency and accountability mechanisms can help to prevent vulnerabilities in health financing systems from being exploited. Importantly, these efforts must include political commitment to strengthen health information systems and also involve civil society.

Although progress has been made to combat the issue of ghost workers, there are areas where little is known about the impact of ghost workers on global health systems. Questions remain regarding the prevalence of the ghost worker problem in the health sector compared to other sectors, the impact of the ghost worker problem on health budgets globally, and how specifically the ghost worker problem impacts national and global health policy goals. As we move forward, attention should be paid toward identifying the effectiveness of policy interventions to reduce the risk of the ghost worker problem, the systemic and contextual factors that are associated with the emergence of ghost workers, and how eliminating ghost workers can help governments achieve their national and global health goals.

Conclusion
References


Findings from a rapid review of literature on ghost workers in the health sector: towards improving detection and prevention


