

## **RECOLECCIÓN DE RESIDUOS SÓLIDOS URBANOS Y SU IMPACTO SOBRE LA SALUD DE LOS TRABAJADORES**

### **COLLECTION OF SOLID URBAN WASTE AND ITS IMPACT ON THE HEALTH OF WORKERS**

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#### **Abstract:**

In the development of the activities of the human being, always generate waste, statistical data inform that in average in the world generate 1,2 per capita kg of useless waste, in consequence, does important the work developed by the people that work in companies of recolección of waste, those who in the development of his works see exposed to diverse factors of risks that can derive in an accident of work or in an illness of labour origin, thus this document analyses the exhibition to one of these risks, the biological. In the same does review of the recommendations of prevention that have realised some authors and concludes with the need to standardise and implement safe procedures that involucres to the company to the worker and to the community in general.

**Key words:** Waste, employee, occupational disease, biological risk.

## INTRODUCTION

The human being in the development of the activities, produce waste, "In the world the per capita average newspaper of useless waste is about 1.2 Kg" (Revista Dinero 2015), therefore Colombia is not extraneous to this reality, which "currently generates 0,95 Kg of urban rubbish by day for every inhabitant" (Revista Dinero 2015).

The integral management of the solid waste has been a worry of old dates:

The first hygienists appeared during the industrial revolution, in the 19th century, as consequence of the demographic explosion that this supposed which originated in big urban concentrations. These first ambientologists proposed measures to clean the streets, concerned by the big quantity of scraps and wastes that existed in the public roads. (Euformación consultores S.L., 2012, p.55)

Over time it has been developed, in different political countries for the integral management of waste.

In the mid-twentieth century began to develop a more appropriate management of household solid waste, especially uncontrolled spills in streets and roads.

This brought with it, not only an improvement in the quality of the landscape and health, but also a positive effect on the valuation of the land, which led the populations to settle in new residential areas or - urban qualifications of greater added value.

Currently, the management of the domestic waste covers from the instant in that the

citizen leaves in his cube of rubbish or container the residue in question until the moment in that it proceeds to its elimination or treatment of recovery or recycled. (Euformación consultores S.L., 2012, p.55)

Nowadays in Colombia, the model of waste collection is done door- to-door, this wants to say that the citizen deposits the stock exchanges of rubbish in front of his domicile, in some neighborhoods they are put into baskets or points of gather and in the buildings and residential groups in the destined toilets for such end, there are collected of manual form by the collection operators to be deposited in the collector vehicle and later it finish when the collection route this to the place of final disposal.

In the urban collection of domestic solid waste, generally participate four workers by compactor vehicle, a person drives the vehicle and the other goes walking and collecting the stock exchanges that are deposited in the same, from this collection activity, it is generated two types of risks, the risk to have an accident and the risk to purchase a disease.

For the first appearance, that is to say, for the risk of accident, it is identified some unsure conditions that they could allow the event, Cheerful (s.f.), states:

- Design or unsuitable use of the tools and team of work
- Railing too high of the collector vehicles (not recommended more than 1.20 m).
- Excessively bulky or heavy containers for average human effort.

- Bad position when lifting containers (the force is supported by the flexed column, instead of the muscles of the limbs working with the spine in a straight position)
- Injury due to lack of dexterity or care when handling spikes, lampas or trenches.

On the other hand, there is a risk of acquiring diseases, for this it is necessary to talk about biological risks, which are associated with the presence and incidence of certain microorganisms in work environments. These microbes, when entering the body economy can trigger infectious diseases, allergic reactions and intoxications in human beings. (Álvarez, Faizal and Valderrama, 2010).

It is as well as the worker involved in the collection of urban solid waste that they are exposed to:

The biological risk, derived from the exhibition to the biological agents. It is important to stand out that this exhibition self-evident of direct or indirect form. The direct form is originated when the staff manipulates directly biological agents through techniques or procedures established. Álvarez et al. (2010).

In the case of the collector employee of solid waste, the biological agents proliferate by the decomposition of food waste, elements polluted with corporal fluids, short stinging elements like needles, leaves amongst other, that can go in contact with the employee at the moment of manipulation of the stock exchanges that contain the waste and that in some opportunities break as they do not resist the weight of the same or are even ripped by present materials in its interior.

Regarding the services of urban cleaning, the biological risk to the that are exposed the workers, is related with their easiness of access to rubbishes and to scraps, with the consequent possibility of infection, by contact and inhalation, since the rubbishes can be cumulus of infected agents because of its varied content; they are besides ideal places for the proliferation of big quantity of germs, many of them present in the processes of decomposition of the nitrogenous materials (meats, fishes, etc.), these problems sharpen by the frequency of abrasions and wounds in the skin, that facilitate the entrance of the pathogenic germs to the organism. Colombian society of work medicine (2014).

The data gathered in a study realized by the institute of legal medicine of Costa Rica under the direction of the doctor Mark To.

García Suárez, that had by goal to evaluate the conditions of health of the employees that manipulate solid waste, in a population of Bolivia found:

From the pathologies observed there are some with high prevalence rates such as low back pain and 3 out of every 4 workers got this. The pains of the extremities are observed in an even greater proportion and the cervical ones are also frequent. This can be related to the fact that the workers become people who are in the questions, answers, errors, situations, etc. García (1997).

Regarding manifestations of diseases at eye level "Conjunctivitis is a quite frequent pathology, for which there is no clear etiology, but it could be associated with eye

contamination by dust particles, toxic liquids or by contact of contaminated hands with the eyes."García (1997). Similarly it is mentioned other conditions, "Several conditions detected with a high frequency such as weakness, anxiety, depression and irritability, deserve further study to establish the cause of them." García (1997).

In Colombia few studies have been realized on the subject, they have not found available data about measurements or analysis realized by the companies that give account of dangerous atmospheres or other factors that can affect the health of the collector employee of solid waste. Other studies state:

The high incidence rates of gastrointestinal problems, eye and skin irritation and symptoms of toxic organic dust syndrome (flu-like symptoms, cough, muscle aches, fever, fatigue, headache) have been reported among the employees. The available data on exposure to bioaerosols and volatile compounds have indicated that these waste pickers can be simultaneously exposed to several agents such as bacteria, dust containing endotoxins, mold spores, volatile organic compounds and fuel emissions. (Poulsen and Sánchez (as cited in SCMT 2014).

It exists another potential risk and it is the associated to contact with animals, the SCMT (2014) states:

In a special and relevant way regarding biological risk, the possibility of developing infections through direct contact with contaminated material, direct transmission of infectious agents by dog or rodent bites and the diseases generated when consuming animals raised in garbage dumps is

highlighted; Likewise, puncture wounds that can produce infections such as tetanus, hepatitis and HIV infection, are other sources of biological risk. (p.126)

By all the previous, it is necessary for the companies devoted to the collection of solid waste, to establish strategies for the identification and assessment of the risks associated to the tasks according to the role of each involved employee in the work, to establish plans of prevention depending on the identification of dangers and assessment of risks, especially protocol of vaccination, lab examinations and follow-up measures and control.

Regarding the needs of vaccination, In Colombia the SCMT (2014), recommends:

The vaccination recommendations for this heterogeneous service group are related to an occupational risk and epidemiological profile of immuno preventable diseases. The garbage and waste collection services companies, including the so-called "hospital garbage", works with "sewage", and similar ones, it requires primarily the vaccines and with the schemes described in the following table, against: Hepatitis B, Hepatitis A, Tetanus, diphtheria, typhoid fever and Influenza. (p.126)

Other measures of prevention are given in the application of protocols of biosecurity, and it is defined:

Set of preventive measures aimed at maintaining control of occupational risk factors from biological, physical or chemical agents, achieving the prevention of harmful impacts, ensuring that the development or final product of these

procedures do not threaten the health and safety of employees. Ministry of Social Protection (as cited in Álvarez, et al 2010).

Between the measures of biosecurity suitable for the handle of solid waste it is recommended the hands washing "it is recommended to do a hands washing with water and soap after touching any fluid or corporal secretion – independently whether gloves have been used or not -"(Álvarez, et al 2010, p 84); The elements of protection of barrier, that is to say, elements of personal protection "complete uniform, boots, gloves, mask, cap or protective head "(Alegre, s.f., p.68). handle of short sharp objects, this involves that the worker avoid to realize practical such as step the waste, try to compact the stock exchanges with the hands or to move them by hitting to his body, from this perspective, it is procured to avoid the contact with the elements in quotation

## CONCLUSIONS

In conclusion, the solid waste collection activity involves the exposure of the worker to different risks, which makes it necessary to deepen efforts from the different actors involved, that is, the company and the employees (standardize and implement safe practices and procedures) , nevertheless, the commitment also corresponds to the community in general as generators of waste, responsible for the proper separation of waste, which will be delivered for collection and storage conditions that facilitate not only access but also cleaning practices and disinfection of the sources generating waste.

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