

ONBOARD NURSE ON OIL PLATFORMS: AN OFFSHORE EXPERIENCE REPORT

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ABSTRACT: This experience report aims at describing the activities carried out by nurses on an offshore oil platform between 2010 and 2011. Administrative (monitoring, inspection, and water analysis) and health care and orientation (training of the rescue team, health lectures, and health instructions for onboard processes) activities were managed through planning, organization, control and leadership protocols within the workplace context established in offshore environments. Predictable and unexpected occurrences were also taken into account. In this multiprofessional team, the nurse must interact, dialogue with and conduct actions aimed at promoting health and maintaining the physical and psychological integrity and welfare of offshore workers performing complex and dangerous activities in a confined space, as professionals are kept onboard for 15 consecutive days. In this scenario, the nurse is the only health professional to work a daily 12-hour shift, plus 12 on-call hours for emergency care.

DESCRIPTORS: Nurse. Professional practice. Self report. Petroleum.

ENFERMEIRO EMBARCADO EM PLATAFORMA PETROLÍFERA: UM RELATO DE EXPERIÊNCIA OFFSHORE

RESUMO: Trata-se de um relato de experiência com objetivo de descrever atividades desenvolvidas por enfermeiros, de 2010 a 2011, em plataforma de petróleo *offshore*. As atividades foram caracterizadas em administrativas (fiscalização, inspeção, análise de água), e assistenciais e de orientação em saúde (treinamento da equipe de resgate, palestras de saúde, instrução de saúde para embarque); sendo gerenciadas através do planejamento, organização, controle e liderança diante do contexto laboral instituído no ambiente *offshore* e das ocorrências previsíveis e inesperadas. Desempenha-se um trabalho em equipe multiprofissional onde o enfermeiro interage, dialoga e implementa ações visando a promoção da saúde, manutenção da integridade física e psicológica, e bem-estar do trabalhador *offshore* que exerce atividades complexas e perigosas, em um espaço dito de confinamento, por ficar embarcado 15 dias consecutivos. Neste cenário o enfermeiro é o único profissional de saúde num turno diário de 12 horas, e mais 12 horas em sobreaviso para atendimentos emergenciais.

DESCRIPTORES: Enfermeiro. Prática profissional. Auto-relato. Petróleo.

EL ENFERMERO QUE SE EMBARCÓ EN UNA PLATAFORMA PETROLERA: UN RELATO DE EXPERIENCIA OFFSHORE

RESUMEN: Relato de experiencia que tiene como objetivo reportar actividades realizadas, 2010 a 2011, en plataforma petrolífera *offshore* por enfermeras. Actividades se han caracterizado en procedimientos administrativos (supervisión, inspección, análisis de agua), asistencia y orientación de salud (capacitación de trabajadores de rescate, conferencias de salud, educación en salud para embarque), que se gestiona a través de planificación, organización, control y liderazgo en contexto el empleo en entorno marino y conjunto de sucesos previsibles e inesperados. También está trabajando con equipo multidisciplinario donde interactúa, conversa y ejecuta acciones para promover salud, mantener la integridad física y psicológica y el bienestar de los trabajadores realiza actividades en mar complejo, peligroso, y dijo en un espacio de encierro para ser enviado antes del 15 días consecutivos. En este espacio, la enfermera es profesional de la salud sólo en un turno diario de 12 horas diurno y más en guardia 12 horas para emergencias.

DESCRITORES: Enfermera. Práctica profesional. Autoinforme. Petróleo.

INTRODUCTION

The nurse is responsible for performing activities related to the care of individuals and communities, and is expected to promote actions that will generate well-being. By means of prevention, promotion and rehabilitation attitudes, methods and techniques, this professional seeks a balanced status toward achieving a healthy condition for human beings by planning, organizing and conducting tasks based on problematization practices resulting from the correlation between health, disease and risks.

The globalization process and the constant transformation seen in the work environment directly impact the type of academic background and knowledge of the professionals demanded by the market, as well as on the ways individuals act and produce in corporations that demand multidisciplinary professionals to be aligned with their organizational goals and results.¹

In light of a long list of assigned practices, the nurse embodies an interdisciplinary work profile. The nurses' professional competencies must lead them to "mobilize, articulate and put values, knowledge and abilities into action toward the efficient and efficacious performance of activities required by the nature of their work".^{2,493}

The insertion of the nurse in the oil industry stands out as an alternative to his performance in the Brazilian healthcare market. As a workplace nurse, this professional participates in the planning, execution and assessment of programs that guarantee continued actions toward providing workers on offshore oil units - that is, on the open seas - with health care and a safe environment. *In locus* offshore nurses onboard oil exploration platforms conduct health care, teaching and sanitary inspections in this type of labor environment, aiming at providing offshore workers with health care and a safe environment.

Workplace nurses and offshore nurses articulate efficient and efficacious actions based on Brazilian legal mandates and provisions aimed to provide workers with health and well-being "under the commitment to the promotion and maintenance of the workers' overall physical and psychic integrity".^{3,107} As of the end of 1994, the Brazilian legislation dealing with safety and health in the workplace demanded companies elaborate and conduct two programs: an environmental program - the Environmental Risk

Prevention Program (ERPP) - and a medical program - the Occupational Health Medical Control Program (OHMCP)⁴, used to ground the whole labor-related infrastructure in such a way as to achieve a healthy environment for workers. Besides pointing out required structures for the welfare of individuals and indicating potential vulnerabilities in their labor conditions in the workplace, these programs are also aimed at organizing the workspace and the use of collective and individual protective equipment.

Aiming at providing safety and health in the workplace, the programs stand out as a set of technical, educational, medical and psychological measures "used to prevent accidents by eliminating unsafe conditions and by instructing people on best practices to be developed in order to prevent individual and collective risks at the workplace".^{5,57} In order to be effective, such initiatives also count on the support of a multi-professional team.

In offshore work, these programs are elaborated by the Safety Engineering and Workplace Medicine Specialized Services located at the headquarters of the company that is legally responsible for the platform. The team is comprised of the workplace nurse, the workplace nursing technician, the workplace doctor and the workplace safety engineer. However, the programs are operated locally on the open sea by the workplace health and safety team comprised of the offshore nurse and the workplace safety technician.

The functions carried out by the offshore professional are also upheld by other legislations, such as Law 5.811/72, which outlines the guidelines governing special regimen labor composed of uninterrupted, alternating and on-call shifts proposed in the oil industry⁶; the Regulatory Norms of the Ministry of Labor and Employment, such as RN 30, which aims to protect and regulate the safety and health conditions of waterway workers⁷, and RN 32, which establishes the basic guidelines for the implementation of protective measures for the safety and health of health service workers⁸; the Maritime Authority Norms for Ships Used in Open Sea Conditions (NORMAM-01)⁹; and Decree 72/2009, which alters the NORMAM-01 and establishes that all ships or platforms must have a minimum number of qualitatively and quantitatively distributed onboard crew - named "safety crew"¹⁰ - to ensure a safe workplace. The decree also "establishes the compulsoriness of the presence

of nursing professionals in the maritime unit's Health Departments.^{11:38}

The offshore nurse stands out as an offshore health representative on oil platforms. As the oil industry has become a pillar in the genesis and maintenance of the modern industrial economy and its *modus operandi*, and consequently in the *modus vivendi* of modern man by generating essential products for the dynamics of modern society, this new and economically interesting labor market has been in the spotlight due to its social and economically attractive features.

The evolution of industrial sectors, such as the chemical, automotive and shipbuilding industries, is directly connected to the oil industry.¹² In this sense, the oil industry transforms society's lifestyle and indirectly impacts our services, workplaces and consumption of goods.

The offshore oil industry extracts oil and gas for labor markets located far from continental shores. This complex, risky type of extraction is performed by multiprofessional and multinational teams employing interdisciplinary approaches. Facilities like these present several labor accident risks, such as those risks related to the leakage of highly toxic products - hydrogen sulfide, benzene, toluene, ammonia, and carbon monoxide, whose inhalation may cause several health issues.

Other existing risks in the workplace are the existence of high levels of noise and exposure to excesses of heat, in addition to the use of the working tools. Moreover, there are also those risks related to biological balance disturbances resulting from different labor shifts, as well as a broad set of unfavorable psychosocial factors originating from the confinement status of the open sea, the imposed lifestyle and the mental reverberations of these factors on the workers¹³. This lifestyle risk is related to the workers' social adjustments to their families during each 15-day period, as well as the necessary arrangements regarding their leisure and rest activities and their relationship with co-workers on the platform, especially because of the different and distinct cultures and nationalities of the professional group.

The health and safety work team provides safety to workers and their activities on oil exploration units. In an articulated way, this team also seeks to promote a satisfactory health status for all employees working in that space. In this health and safety team, the nurse is the only health professional. In emergency situations, he

must lead a team - named "the stretcher team" - comprised of professionals belonging to the oil production area who are trained to cope with first aid emergency situations.

In light of this reflection on the work of the nurse in safety and health teams on offshore oil platforms, this present article aims to describe some of the activities performed by this professional on an oil and gas exploration platform.

METHODOLOGY

This research is an experience report regarding the activities performed by two onboard nurses working on an oil platform located in a Brazilian water basin. The nurses were third parties who rendered services to a multinational company located in the State of Rio de Janeiro. Every two weeks, the offshore facility - usually comprised of 100 onboard workers - receives one nurse onboard. The activities were performed between 2010 and 2011.

The activities of the nurse on the platform follow the job description of the company responsible for the offshore platform. The job description stands out as a list of professional assignments and must comply with both the Regulatory Norms of the Ministry of Labor and Employment and the Maritime Norms of the Brazilian Navy in regards to safe work on oil platforms.

In light of the daily organization of the activities experienced and performed by the two nurses in this workplace, these actions were classified and grouped according to common issues, namely: administrative, health care and orientation activities. These three issues will be presented and discussed within the context of the experiences reported by the two offshore nurses.

General characteristics of the offshore scenario and labor

Resembling a city environment, offshore oil exploration units are specifically organized into operational and support systems necessary for their 24-hour functioning,¹⁴ such as power generation, sewage treatment, and food and medication supply.¹⁵ The units have large open areas designed to shelter the heliport, repair shops, dinghies (small closed, fire-proof boats for emergency escape, with a total capacity to 60 people), and the motor boat used for rescues on the open sea.

As part of this structure, the open space in the external area is the place where all loads shipped to the platform are unloaded and where the work team develops operational processes. These are complex operations, as they involve continuous and collective practices carried out by different work shifts. Platform activities are endless and deal with the constant handling of explosive and toxic materials.¹⁶ Petrol is composed of several types of hydrocarbons and also contains smaller proportions of contaminants, such as sulfur, nitrogen, oxygen and heavy metals, which are all very toxic to the human being.

The entire external area of an offshore facility has an iron-girded floor and this can initially generate uneasiness in passers-by.¹⁵ The external area is connected to the internal area by means of staircases spread throughout all of the levels, allowing workers to access cabins, the kitchen, the cafeteria, the control rooms, and the nursing room among others, all located in the space called the "superstructure".

An oil exploration unit "has an average of 100 inhabitants – a number that is partially exchanged every week – and is composed of four residing groups of workers – two at work and two on leave – in addition to temporary workers and visiting professionals".^{13:3} Two idioms are primarily spoken in these units, Portuguese and English.¹¹

The onboard nurse "has to count on the imminent possibility of an accident and thus must be prepared to provide assistance to an unlimited number of injured workers, in addition to the possibility that he himself becomes a victim of an unfortunate occurrence".^{17:34}

Oil extraction processes offer risks to the health of workers. Although these risks are attenuated by the safety system, the presence of a health professional for eventual accident situations, such as light intoxications, cuts, bruises, dislocations, dermatitis caused by contact with chemical substances, burns or collective emergency situations such as a fire, is a crucial step.

Moreover, the confinement of the workers is also a condition that demands the presence of a health professional that can assist individuals with specific requirements, such as anxiety, nausea due to the rocking of the platform, diarrhea, and muscle pain caused by work efforts, among others. It must be highlighted that each discomforting or painful situation experienced by offshore professionals is to be assessed by

the nurse, together with the call-center doctor, in order to allow them to keep working or recommend a leave. Depending on the need, workers may go back to the mainland prior to their scheduled time.

The nurse has a 12-hour work schedule. The work on a platform usually begins at six (or seven) in the morning and finishes at six (or seven) in the evening. In addition to this work period, the nurse must remain on call for emergency duties.

Given these work environment characteristics and the operational status experienced on oil platforms, the offshore nurse performs management activities in promoting and caring for the health of offshore workers.

DISCUSSION OF RESULTS

Administrative activities of the offshore nurse

"It is up to the nurse to insert his administrative competency into his work process by using the managerial process as an instrument and a means to perform his duties".^{18:11} The nurse on an offshore platform conducts his activities by making use of administrative elements, managing all activities in an integrated way and reaching his healthcare goal on the open sea; that is, to provide offshore workers with health and well-being.

The practice of management involves the art of thinking, judging, deciding, assessing and acting towards the achievement of results.¹⁹ Hence, the nurse must plan, organize, direct (lead) and control activities related to the offshore health work assigned to him. Within the reality and the context of his actions on the platform, he must manage material and human resources and deal with information and conflicts.

It should be highlighted that the daily actions of the nurse are influenced by multifactor dynamics in an offshore environment. The professional may be handling certain materials in a given area and be called to deal with an emergency, or he may be assisting someone and be called to follow up on an inspection. There are other situations in which he may be delivering a lecture on medical supplies and be required to receive an order of food supplies and cleaning materials to be used on the platform. In these cases, the nurse is expected to deal with priori-

ties, always seeking to prioritize the care of the offshore worker.

Weather conditions may also interfere in the nurse's offshore work. Whenever an incoming flight lands on the platform, for instance, the nurse has to educate new onboard professionals by applying a practice called "healthcare briefing". This activity triggers administrative actions, such as the control of people onboard, updating the list of people onboard, updating the identification card that must be filled in by each new crewmember, and the individual replacement of the safety T cards at emergency exits. On the other hand, if the incoming flight does not land due to poor weather, the activities related to the landing will not be performed and will then be added to the list of activities to be done at another time or day.

On an oil platform, the nurse also conducts inspection and monitoring activities, such as water quality analysis and notification of expiry dates of workers' occupational health certificates. Each activity demands a specific printed document that allows for the recording of information on outcomes and eventual requirements resulting from monitoring and inspection processes.

The nurse, for example, is accountable for the inspection of incoming containers of hygiene products, food and cleaning materials. The nurse must identify and record the quality, contents and cleanliness of the container to be transported, the temperature of the transport, and the validity and general conditions of products of consumption. Whenever the material reaches the platform, it has to be quickly unloaded in order to prevent waste; in addition, containers may hold food stored at low temperatures for two or three days, and these products need to be more efficiently packaged. When the container is open, meat, dairy and vegetable products must be examined, as they might be unfit for consumption due to delivery delays and/or improper packaging. Then, perishable and non-perishable goods must be examined.

These activities are usually carried out by the nurse together with the delivery professionals, as they are the ones who unload and empty the containers, and take the products to the storage area. In general, the steward, who is also a nutritionist, is involved in this activity in order to provide instructions regarding the adequate storage of the products.

It is clear that the nurse at this stage is part of a team; he is expected to lead, record, manage

and control possible health risks related to the dietary products to be delivered to the crew.

In addition to these activities, nursing professionals must also verify the expiration date of ophthalmic solutions at eye wash stations used in case of accidents with any spilled substances. This station has an emergency shower available in case of skin contact with any caustic substance. The nurse also verifies the adequate functioning of these showers and assesses water spillways, color and odor.

The nurse is also expected to order replacement medications or exchange damaged medical materials in the nursing room and those allocated to strategic points in the superstructure, where the cabins, the hospital and the cafeteria are located, as well as verify and assess the condition of first aid materials used in the external area, such as stretchers and cervical collars. Moreover, he must check the functioning and expiration date of oxygen cylinders and pressure valves to be used while caring for and transporting patients.

The "handover" is also part of the nurse's administrative activities. It is comprised of a book or folder containing general records of performed activities, decisions made and pending situations identified by the nurse. This book stands out as a relevant tool toward subsidizing and systematizing the nurse's own work and also the work of the back nurse; that is, the professional that arrives at the platform to work the next 15 days.

All activities are developed after being previously planned for, based on information and requirements determined by the captain responsible for the navigation, ballast control, integrity of the unit and emergencies, among others,²⁰ and also by the Offshore Installation Manager (OIM), who is responsible for digging operations, personnel, operational performance, well control, equipments and oil spills on the sea as a result of the operation.²⁰ These two professionals - the captain and the offshore installation manager - are superior to the nurse on the open sea and lead the whole functionality of the offshore platform. Every day, a pre-shift meeting is performed with all supervisors. The entire organization of daily activities and weekly and biweekly work of the nurse must be reassessed and restructured in the discussions taking place at the supervisor's meetings so that the nurse's work is continued by the back nurse, as the work processes complement each other.

Care activities of the offshore nurse

The care activities of the offshore nurse are determined by either spontaneous or emergency care in the facility. The request for care is a spontaneous action, as direct care is triggered whenever an individual has a health concern and seeks the nurse's assistance, or whenever the professional requires permission to work in a confined space. According to Regulatory Norm 33 of the Ministry of Labor and Employment, a confined space is understood as any area or environment not designated for continuous human occupation, presenting a limited means of entrance and exit with insufficient existing ventilation necessary to remove contaminants, or where oxygen is either enriched or defective.²¹

To engage in this type of work, the professional must undergo a physical exam with the nurse in order to acquire a 12-hour validity certificate. This document is valid only for a single entrance process. In this case, the nurse has to be alert to all types of complications that may eventually happen to the worker. For this purpose, he must verify and reassess his aid materials and make them available for any necessary and immediate use. The nurse must always be aware of the workers who perform this type of activity, in order to monitor and become acquainted with the risks that each confined space offers to the health of the worker.

As for the work permits for confined spaces for workers on the night shift, it is worth highlighting the resolution that demands these workers to request the performance of such an exam before 10 p.m.; as the nurse is the only health professional on the platform, they must understand that he needs to have a minimum resting time in order to be able to cover eventual night emergency calls and adequately act based on quick and critical reasoning. The work permit is valid for 12 hours and can be issued beforehand, respecting the beginning of the shift. This reality shows how fundamental the cooperation among offshore workers is.

Another health care situation happens when the nurse observes the need to perform a nursing assessment in the presence or under the observation of workers during their work, leisure or rest periods.

Other eventual occurrences are: emergency care processes for accidents resulting in low, medium and high complexity wounds (such as small

injuries and lesions), risk of death, risk of functional and/or structural damage (for instance, crushing of bone structures), and psychological emergencies triggered by exhaustion, stress and anxiety.

While caring for his patients, the offshore nurse establishes therapeutic listening and preventive care based on the nursing diagnosis, or an oriented treatment prescribed by the doctor via call center, telephone and/or videoconference on the platform. In an emergency situation, the nurse must conduct first aid procedures in order to preserve the health and safety of the patient.

Health orientation activities of the offshore nurse

On an offshore platform, health orientation activities are specifically presented in the health briefing directed at incoming crew members during the weekly health lectures, which are concurrently carried out with the safety lectures, as well as during the stretcher team training programs.

The entrance briefing informs and instructs professionals regarding ongoing operations, the actual digging phase, and whether or not accidents took place in the previous 14 days. Issues regarding accidents that occurred are also addressed, usually pointing out and ratifying safety measures to prevent exposing the workers to any risk.

Health lectures can be specific, related to issues such as diabetes and hypertension in compliance with the OHMCP conducted by the health team at the headquarters of the company, when a forecast concerning the frequency of such issues to be addressed with employees is also determined. In January, for instance, the health team addresses the issue of smoking. The nurse plans for a four-day safety meeting and addresses smoking practices and the health implications, proposing tips for workers to quit smoking and handing out the Ministry of Health's hotline number for workers that might need assistance.

Eventual considerations regarding a need for a specific lecture are directly dealt with by the workplace doctor. For instance, if there is a scabies outbreak on the platform and this problem has not been previously addressed by the health lecture, a contextualized requirement is forwarded to the worker's health team and its inclusion as a thematic issue is recommended for that month. Even if the proposal aims to

educate workers about breast or uterine cancer, the process must either set aside two days (for the safety meetings) for each issue or unite the thematic issues, allowing for their integration. In this situation, the offshore nurse prepares a lecture to be delivered weekly to the different groups of workers.

It is worth highlighting that all of the practices of the nurse in this environment require specific orientation, as the observation capacity and the availability of the health professional can promote the creation of care spaces, even in informal conversations in the cafeteria or during moments of leisure. This attitude of the health professional also encourages and enables workers to more actively seek healthcare education from the nurse, aiming to answer questions and concerns.

FINAL CONSIDERATIONS

The work of offshore nurses differs from that of nurses working in healthcare institutions. However, despite the singularities of his administrative activities, it is worth highlighting that the core competencies of the nurse are more broadly applied in the offshore context.

On an offshore oil platform, health care takes place in the dialogic and interactive relationship of the health professional, the nurse, together with all other professionals that manage the platform, particularly the safety technician. It can also be seen in the engagement of offshore workers toward fulfilling their responsibilities for using personal protective equipments and in defending their health and safety by seeking healthcare support in moments of need.

The actions of the nurse are also grounded on the relationship established with the doctor via external support provided by videoconference and/or telephone toward the therapeutic practice to be conducted. For that purpose, the nurse must be able to competently design a nursing diagnosis by using his knowledge, technical skills and ethical practices to care for the worker.

The nurse can provide strong support for the development and management of offshore health care practices, grounded on his relationship with the healthcare team located at the company headquarters where the OHMCP is elaborated, aiming to promote a satisfactory health status in the offshore workplace.

Notifications are always mandatory in the offshore environment, so that eventual problems, misconduct or unexpected results can be prevented. Teamwork, communication and management issues are broadly disseminated and discussed among supervisors, aiming to integrate healthcare actions and results that can encourage the company to dig wells and extract oil while maintaining a safe work environment and minimizing risks at the same time. The correlation between the nurse's constant assessment process and the daily occurrences in the workplace is quite relevant in allowing the professional to design priorities, as unforeseen occurrences may always alter the daily schedule of offshore work. However, the nurse should always prioritize care actions beginning with the workers.

The management activities of the offshore nurse are determined by the company's job description. Based on this protocol, he makes decisions, leads actions, monitors, plans training programs, cares for patients and delivers health lectures. The knowledge and the skills of this professional subsidize his leading attitude in this work space. For that purpose, he must seek to be steadily updated, as the work dynamics on an oil platform may generate several risks to the health of the workers. In order to educate them, the nurse must understand and acknowledge his workplace and develop professional competencies directed towards health care, leadership and communication in the work of providing healthcare.

In order to achieve these goals, the nurse has to continually improve his health care qualifications, since he must hold all healthcare knowledge in any given situation occurring on the offshore facility, as he is the only health professional onboard. His decisions must minimize or eliminate risks based on adequate and efficient knowledge, including clear communication with the care support doctor based on an accurate nursing diagnosis.

We consider it to be important and necessary to report on and research the practices of the nurse, in order to identify and develop new configurations toward the effectiveness and quality of the health care work in this environment.

This present report aims at contributing to the scientific production, as existing publications on this nursing practice are quite scarce. Hence, the socialization and dissemination of the

nurse's work activities through the elaboration on his actions within an offshore context aim to subsidize critical reflections on the practices of this professional.

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