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Occupational health hazards among veterinarians: A review

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Abstract
The profession of taking care of animals is considered to be the noble profession all over the world. The occupation of being a veterinarian exposes the individual to a lot of occupational health hazards including physical, chemical, biological and psychological social health hazards. This review article deals with different occupational hazard to veterinarians and strategies to minimize these hazards.

Keywords: health hazard, occupational, veterinarian

Introduction
The occupational health has been defined as "an area of work in public health to promote and maintain the highest degree of physical, mental and social well-being of workers in all occupations." (Joint WHO/ILO committee, 1950). According to the International Labour Organization (ILO), 2.3-2.7 million individuals/workers die each year as a result of work-related injuries, resulting in a total loss of 2.99 trillion USD, or 3.94 percent of world GDP. In terms of non-fatal occupational illnesses and injuries, veterinary services are ranked fifth in the United States (US BLS report, 2015b). As of March 2019, there were 68,680 registered veterinary practitioners in India and the lack of infrastructure in developing countries like India expose the veterinarians to the occupational health hazards (DAHD, GOI, 2020).
The health hazard can be defined as "a potential source of harm or adverse health on a person(s)" (HSA, 2017). A veterinarian is a health personnel whose aim is to protect the animal health (Bonini *et al.*, 2016) [4]. The veterinary practice is mainly categorized into 02 domains, i.e., large animal (livestock and large wildlife) and small (pet) animal practice. Physical, chemical, biological, and psychological health hazards are the four categories in which occupational health hazards connected to veterinarians are classified. The ICMR-National Institute of Occupational Health, Ahmedabad (ICMR-NIOH) is India's leading body for occupational safety research and education. Its mission is to assist in the creation of policies related to occupational health and safety. The ultimate goal of the ICMR-NIOH is to reduce the burden of occupational diseases on India's economy and productivity. We go over all of the health risks in depth in the next section.

Occupational health hazards
Physical hazards
The physical challenges and risks abound in the veterinary sector, which veterinarians must navigate. Physical health hazards (injuries) are the most common health hazard, accounting for 46-49.85% of overall health hazards (Parmar *et al*., 2021) [26]. The physical health hazards are more common in large animal practice than in small animal practice. It has been reported more frequently in female veterinarians than in male veterinarians (Epp *et al.*, 2012; Leggat *et al.*, 2009) [9, 21]. The risk factors for various physical injuries among veterinarians include lack of adequate infrastructure in the hospital, lack of adequate diagnostic aids such as oral gag, lack of experience / techniques in newly hired veterinarians, unpredictable temperament of animals, state of animal disease (rabies), improper restriction, etc. (Babeiker *et al.*, 2008, Mishra *et al.*, 2020, Bonini *et al.*, 2016; Jeyaretnam *et al.*, 2000) [2, 23, 4, 17]. Among all the hazards, the most common health hazard that the veterinarians face is the physical health hazards (physical injuries) such as animal bites, scratches, needle stick injuries, stampeding on foot, MSD, radiation injuries etc.

Needle stick injuries

The physical health problems most often reported to veterinarians are needle stick injuries resulting from improper injections, reinsertion of the needle, etc. (Lucas *et al*., 2009; Epp *et al.,* 2012) [9]. Needle stick injuries averaged between 80 and 90% of practicing veterinarians according to various studies (Mishra *et al*., 2020; Shreyansh *et al*., 2020; Fowler *et al.,* 2016) [23, 32, 11]. According to a report from UMASH, CDC, 2018, 73% of pig veterinarians working in livestock accidentally got stuck. The most common needle stick injuries include injection of vaccines, skin infections due to opportunistic microbes present on the individual's skin, allergic reactions and deep tissue wounds requiring surgery, and less common injuries include miscarriages due to hormonal products, severe cardiovascular events (Mycotil/Tilmicosin), suppression or coma by sedatives such as xylazine, systemic infections, allergic reactions to antibiotics, etc. The second highest occupational physical harm among veterinarians after needle stick injuries is an animal bite or scratch (Babeiker H. *et al*., 2016). In the United States, a needle injuries law has been passed for the prevention and safety of needle injuries among healthcare professionals that justifies the use of specific engineering protocols by employers to reduce the incidence of injuries from needle among health workers.

Bite injuries

The dog bite is most common among all the animal bite cases which counts to 76-94% of total animal bites globally. The case fatality rate is higher among low and middle-income countries (WHO, 2018). The epidemiological studies of occupational animal bites among veterinarians in India reveal the prevalence of 32.5% in Gujarat and Maharashtra state veterinarians (Mishra *et al.,* 2020) [23], 43.34% in Karnataka veterinarians (Prassanna *et al*., 2019) [27] and 31.8% of prevalence in Uttarakhand state veterinarians and few districts of U.P. and Punjab state (Parmar *et al*., 2021) [26]. The animal bite exposes the veterinarians to the most fatal zoonotic diseases such as Rabies. The dog animal bites breach the continuity of the outer skin that leads to the invasion the opportunistic surface microbes such as *Staphylococcus* spp., *Streptococcus* spp., *Micrococcus* spp. etc. causing the skin infections, cellulitis and septicemia in severe cases.

Kick injuries

The animal kicking is also reported to be very common in large animal practice (Fowler *et al.,* 2016) [11]. According to Parmar *et al*. 2021 [26], in India 62.8%. of all occupational physical injuries to veterinarians in the occurs from kick injuries, while accounting for up to 90.8% of all occupational physical injuries to veterinarians in Sudan (Babeiker *et al*., 2008) [2]. Cattle kick from the side and horses kick vets straight back, which can have serious consequences such as fracture, permanent deformity, open wound, septicemia, etc.

Horn injuries

The horn injury is more common among the large animal practicing veterinarians. The horn injury counts for 14% of total physical health injuries among veterinarians in Indian context (Parmar *et al.,* 2021) [26] and 34% of total physical health injuries among veterinarians of Minnesota, USA (Fowler *et al*., 2016) [11]. The consequences of horn injuries may include superficial abrasion, deep thoracic/ abdominal penetrating wound, septicemia, urethra-rectal injuries, death etc. There are 4 categories of the horn injuries, i.e. A, B, C and D. The C and D category involves the goring of the body. In the C category, there is no damage to the vital organs but in category D, there is damage to the vital organs and the prognosis is very poor. The prevalence of horn injury is reported to be maximum (96.6%) in Karnataka state veterinarians and 63.3% in Uttarakhand & Uttar Pradesh veterinarians (Prassanna *et al*., 2019, Parmar *et al.,* 2021) [27, 26].

Musculoskeletal disorders

The musculoskeletal disorders (MSD) have also been reported among the veterinarians. It is more prevalent in large animal practicing veterinarians due to physical exertion. The most common body regions affected by MSD are neck (66%), shoulder (60.5%), hands (34.5%) and elbow (24.5%) (Kozak *et al.,* 2014). The most common affected body organs of veterinarians from all the occupational physical health hazards are hands (33%) and legs in equine practice (29%) (Lucas *et al.,* 2009, Bonini *et al.,* 2016) [4]. In wildlife veterinary practice, the prevalence of physical injuries like backache, lumbar spondylitis, hypertension and allergies has been reported to be 29.2%, 15.6%, 21.2% and 11% (Nigam *et al.,* 2011).

Radiation health hazard

The term radiation has been defined as "the energy that comes from a source and travels through space at the speed of light" (CDC, 2015). The most common radiation health hazard to which veterinarians are exposed is the X-ray hazards (Bonini *et al*., 2016) [4]. The X-rays are defined as the electromagnetic waves having extremely short wavelength (10^{-8} to 10^{-12} m) and high frequency (10^{16} to 10^{20}Hz) (Stark *et al*., 2020). The dose received by the assistant is six times more than that of veterinary personnel. The most of the veterinarians have annual exposure of less than 20 mSv/year. The most commonly affected organs are reported to be eyes and thyroid gland (Bonini *et al.,* 2016) [4]. According to Parmar *et al.* 2021 [26], only 13-19% of the veterinarians are regularly exposed to the radiations as an occupational health hazard. The exposure to the U.V. rays as an occupational health hazard was reported to be 3.0% (Prassanna *et al*., 2019) [27]. The pregnant female veterinarians are at more risk to the radiation health hazard as compared to male veterinarians. The most radiation sensitive phase of pregnancy is the period of organogenesis (10 days to 06 weeks) (Scheftel *et al.,* 2017) [28]. The harmful effects of radiation can be divided into acute and chronic exposure effects. The health effects from chronic exposure are more likely to be reported as work-related health hazards than from acute radiation effects. The acute health effects of radiation are only seen at a dose of 1 Gy or more when the individual is exposed. The radiation causes nausea, headache, vomiting in the prodromal phase and during the initial phase (after 3 weeks) marked gastrointestinal bleeding, anemia, nervous and blood disorders, etc. depending on the severity of the exposure. The damage caused by the radiations are via direct or indirect mechanisms. The direct mechanism involves the breakdown of the DNA backbone causing protein modification or genome instability. The indirect mechanism involves the generation of the free radicals due to ionization of the water molecules. The free radicals bind to the H-bonds in the DNA that leads to generation of the thymine and cytosine glycols by addition or abstraction (Dizdaroglu *et al.,* 2012) [8]. The chronic exposure leads to genetic, somatic and

reproductive effects like defects in spermatogenesis, defects in oogenesis, lungs cancer, thyroid cancer, breast cancer, leukemia, intrauterine fetal death, growth retardation of fetus, developmental abnormalities in fetus etc. are most common (US NRC 2020).

Chemical Health hazards

The veterinarians are exposed to various chemicals such as drugs (mainly antineoplastic, hormones), disinfectants, antiseptics, acaricides, liquid nitrogen, waste anesthetic gases (WAGs), corrosive agents, dust etc. According to NIOSH 2010, an estimated 5, 00, 000 veterinary health workers are potentially exposed to hazardous drugs or drugs waste at work in USA. The routes of exposure to chemical health hazards are primarily ingestion, inhalation, absorption through intact skin or eroded mucous membranes, and injection.

Hazards from disinfectants

The most common chemical health hazards are disinfectants such as sodium hypochlorite, hydrogen peroxide, phenol, etc., to which about 14% of veterinarians are exposed. (Prassanna *et al.,* 2019) [27]. The health effects of the disinfectants include irritation on the affected region, blisters on the skin, blisters in oral cavity (if ingested), shortness of breath, asthma, chest pain, watering of eyes, headache, carcinogenic effects, dermatitis, defective spermatogenesis etc. (Subasi *et al.,* 2020; Hyasaka *et al.,* 2001; Watt *et al.,* 2004; Yari *et al.,* 2020) [37, 13, 40, 46]. The formaldehyde has been reported to be in use extensively in the veterinary occupation for the preservation of the samples as well as the poultry sector fumigation. It is categorized as group 2A carcinogen (probable carcinogen) by FDA. It causes severe irritation in the bronchioles and causes DNA-protein inter-linkage by binding to the primary N-terminal of the polypeptides or proteins and ROS generation that ultimately lead to DNA breaks and cause the micronuclei formation which continuously rupture from time to time and cause suppression of the tumor suppressor genes and sometimes the generation of the oncogenes (Allegra *et al*., 2019) [1]. Extensive use of sodium hypochlorite in the recent COVID-19 outbreak via the spray method (1%) has also led to huge public health threats. The aerosols are inhaled by the persons, which had been reported to cause severe health effects such as chronic asthma and respiratory disorders and some cases of bronchospasm have also been reported as per apex medical institute of India (ANI, May 2020). It acts as corrosive agent upon mucus membrane or GIT tract. On the skin, it has been reported to cause dermal hypersensitivity if exposure is prolonged (Slaughter *et al.,* 2019) [34].

Hazards from antineoplastic drugs

Use of antineoplastic drugs in animals also pose a serious health risk. Exposure to these drugs is primarily caused by incorrect injections or ingestion of crushed drugs through intact skin or mucous membranes. The toxic effects of antitumor drugs have been reported primarily by pet veterinary practice. Antitumor health threats are likely to affect female veterinarians more and have reproductive health effects such as preterm birth, low birth weight, spontaneous abortion (twice the risk), stillbirth, and infertility (Fransman *et al*., 2007) [12]. The NIOSH 2016, had listed hazardous antineoplastic drugs which include mitomycin, lomustine, vincristine, paclitaxel, methotrexate etc. which have to be use with utmost care by female or male health practitioners as per guidelines by the manufacturer. The IARC Group 1 antineoplastic drugs include cyclophosphamide, melphalan, tamoxifen etc. which are definitely carcinogenic to the humans.

Hazards from pesticides

Another important group of chemical health hazards includes bactericidal compounds (pesticides) that are very common in the current era of vector-rich populations. However, greater risk has been reported in veterinarians. In pets, these compounds have been used as flea preparations or collars, etc. to which veterinary personnel are exposed through direct skin contact or indirectly by various diagnostic aids used in animals. In large animals, these chemical compounds are used as spray in the barn. The major chemicals used include organophosphates, carbamates, synthetic pyrethroids, neonicotinoids etc. The major health effects on the veterinarians may include the following such as decrease in male fertility, endocrine disruptors, CNS dysfunction, breast cancers in humans etc. (Waddell *et al*., 2001; Jamel *et al*., 2015; Mnif *et al*., 2011) [39, 24].

Hazards from hormone preparations

The occupational health hazards posed by chemicals including hormone preparations primarily have adverse effects on pregnant veterinarians. The synthetic PGF2alpha, progestin, synthetic estrogen compounds, GnRH analogues, etc. mainly affects healthcare workers by injection or by percutaneous absorption. The adverse health effects include prolongation of pregnancy, disruption of normal menstrual cycle, abortion, carcinogenic effects, etc. (Shirangi *et al*., 2009; Scheftel *et al*., 2017) [31, 28]. The finasteride drug which is commonly used to treat the benign prostatic hyperplasia in male dog to restore the fertility falls under FDA pregnancy category 'X'.

Hazards from anaesthetic agents

The discharge of anesthetic gases, i.e., WAGs (Waste Anesthetic Gases), which are residual or spilled anesthetic gases (nitrogen oxide, isoflurane, halothane, etc.) The female veterinarians are more exposed than male veterinarians to the toxic effects of WAGs. Short-term health side effects include fatigue, headaches, nausea, depression, and more. while in the long term can cause organ damage (liver/kidney), reproductive health disorders such as decreased male or female fertility, increased frequency of abortions, central nervous system dysfunction, hematopoietic disorders such as bleeding, coagulation failure, etc. (Scheftel *et al*., 2017; Shirangi *et al*., 2009) [28, 30]. The NIOSH recommendation for exposure of health personnel should always be less than 02 ppm at once.

Hazards from antimicrobials

The antimicrobial drugs group of the chemicals also pose the occupational hazard to the veterinarians. The major route of the hazard is through the injection. The penicillins are responsible for causing skin rashes, wheezing, allergic patches and in severe cases, it may cause anaphylactic reaction in 1-2 cases per 10,000 cases (Bhattacharya *et al*., 2010; Cerbo *et al*., 2019) [4, 7]. The metronidazole group is responsible for the vomition, diarrhea and other GIT signs as health hazard. The chloramphenicol group has been banned by USA due to its severe toxic effects such as CNS disorders, hepatic dysfunction, grey baby syndrome etc. (NIOSH, 2016). The quinolones group is associated with the musculoskeletal

deformities, hepatic toxicity etc. (Oreagba *et al*., 2017) [25]. The tetracyclines group having blanket activity against pathogens are linked with the adverse effects on human health such as photosensitivity, muscle pain, neck eczema and chromic conjunctivitis etc. (John *et al*., 2019).

Psychological health hazards

In the present time, the concept of psychological (mental) health is gaining much importance. Psychological stress is defined as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus and Folkman, 1984) [20]. The psychological stress among the veterinarians was first reported by Jeyeretnam in 1993 in Australia. The psychological stress in Indian veterinarians is ranging from low level of stress (45%), moderate level of stress (34%) and high level of stress (21%) as per a study conducted by Parmar *et al.*, 2021 [26]. The various risk factors for psychological stress may include work overload, physical exhaustion while handling and treating the animals, public dealing, long working hours, contextual effects such as attributes to death & euthanasia etc. (Smith *et al*., 2009; Shirangi *et al.*, 2013) [35, 31]. This pressure leads to mental health hazard over the veterinary personnel. The lack of veterinarians, infrastructure in veterinary field in India and lack of para-veterinarian staff put much burden on the working veterinarian force (DAHD, GOI, 2020).

Biological health hazards

The occupation of veterinarian exposes the personnel to a lot of diseases causing agents. The occupational zoonoses has been defined as "the infections which are transmitted from animals to human beings by nature of their occupation are described as occupational zoonoses". The zoonoses put a heavy burden over the economy of any country and is largely responsible for the development pace of the country. It weighs more in the developing and poorly developed countries. According to WHO 2014, there are globally one billion cases of illnesses and billions of deaths annually are there due to zoonoses.

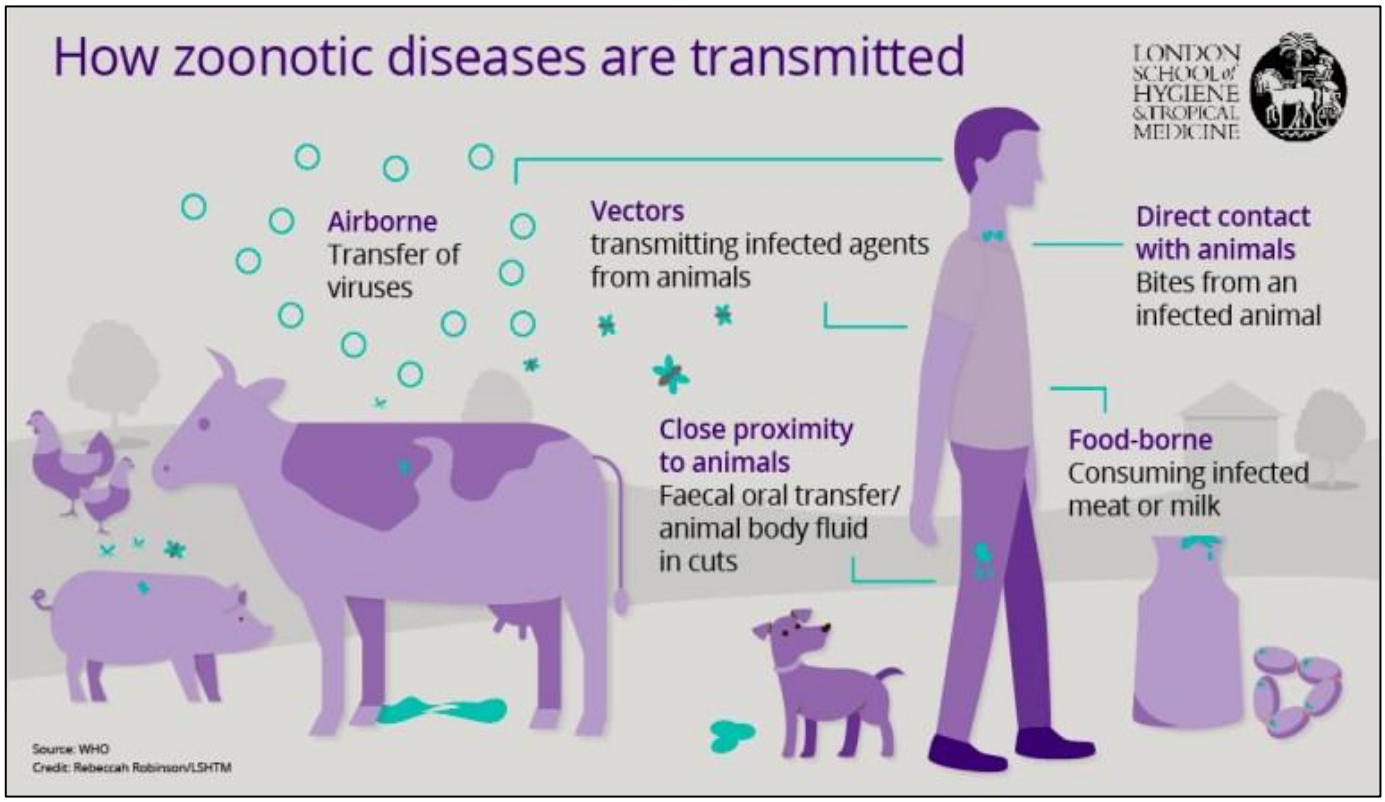

Fig 1: The various pathways through which the veterinarians get exposed to the occupational health hazards.

The exact burden of the zoonoses in terms of loss of DALYs is not available still. But we can access the burden of zoonoses by analyzing the current scenario of various diseases. The severity of zoonoses can be assessed by the statistics of the SARS 2003 that caused loss of USD 50 billion of world economy. Similarly, the RVF outbreak in Kenya in 2006 caused the average loss of USD 500 to each household. The COVID-19 had caused a huge loss of USD 4.0 trillion to the global economy only due to affected tourism (UNCTAD report, 2021). The situation in India is also worse in terms of two major zoonoses such as rabies and brucellosis. The total human pathogenic agents are 1415 out of which 868 (61%) are of zoonotic nature and out of 175 emerging infectious diseases, 132 (75%) are of zoonotic nature (Taylor *et al*., 2001) [38]. Out of the 868 zoonotic pathogens, the viruses, bacteria, fungi, protozoa and helminths are 217, 538, 307, 66 and 287 respectively (Taylor *et al*., 2001) [38]. The major routes of transmission of the zoonotic agents are airborne, vector transmitted, faeco-oral route, direct contact with animals and food borne mainly as shown in the figure 1 and 2 below.

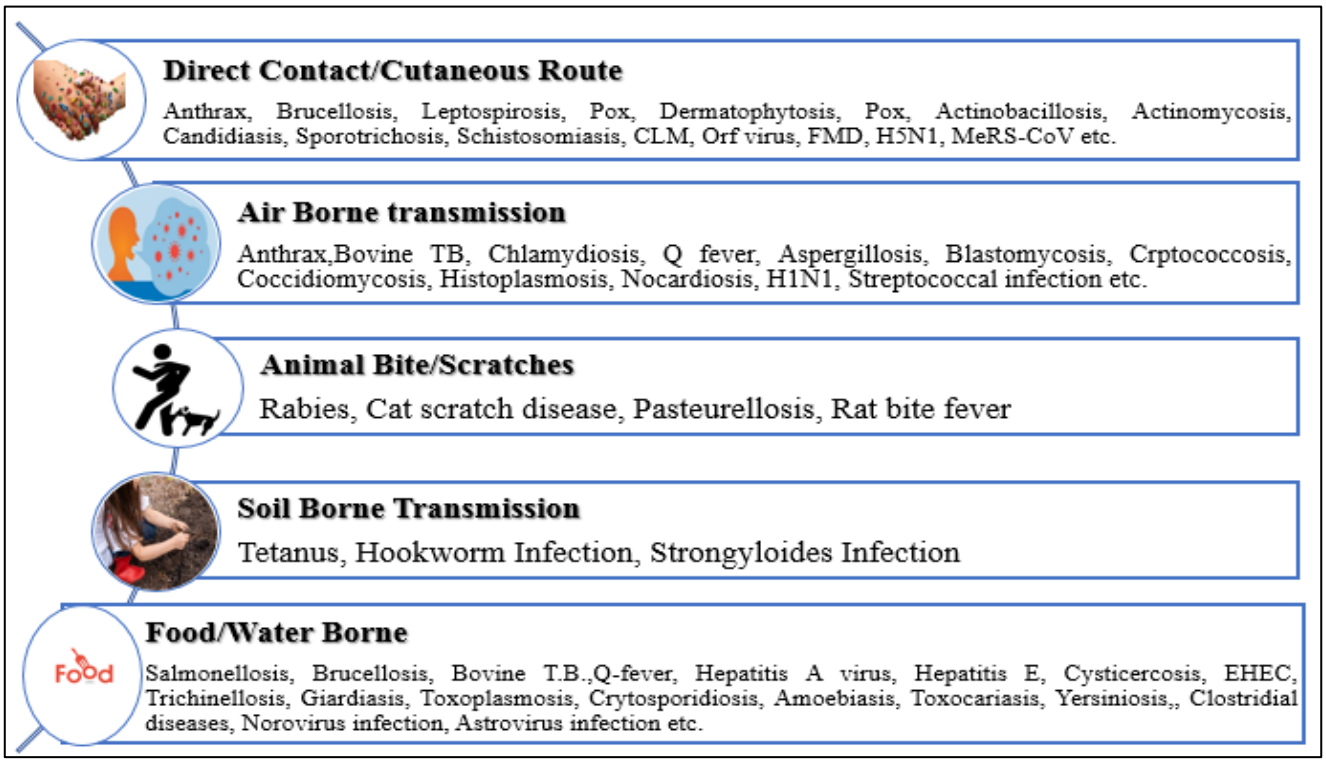

Fig 2: The various diseases or causative agents transmitted via various routes in the veterinary profession.

Table 1: Various important zoonotic diseases, their causative agents, and their relative losses/ burden

Sr. No.	Disease	Etiology	Burden/losses
1.	Rabies	Rabies virus G. Lyssavirus	Loss of disability adjusted life years (DALYs) Globally- 3.7 million India-1.3million (John *et al*., 2021) [18]
2.	Brucellosis	*Brucella* spp.	Human brucellosis (India) – USD 9.07 million loss, Loss of DALYs- 0.29 per thousand persons per year in occupational groups. (Singh *et al*., 2018)
3.	Zoonotic T.B.	*M.bovis*	South-east Asia region- 46,700 cases reported (WHO, 2016)
4.	Leptospirosis	*Leptospira interrogans*	Median incidence in S.E. Asia region – 4.8 per 1,00,000 persons, Loss of DALYs in India – 50-60 per 1,00,000 per year (Costa *et al*., ,2015) [6]
5.	Taeniasis	*T. solium*(major), *T.saginata, T.asiatica*	Loss of DALYs (*T. solium*) – 2.8 million, Human neuro cysticercosis cases – 2.56-8.30 million (Key facts WHO, 2021)
6.	Echinococcosis	*E.granulosus*(cystic) *E.multilocularis*(alveolar)	Loss of DALYs – 8,71,000 globally each year and USD 3 million of cost for treatment of cases and losses to livestock industry (Key facts WHO ,2021)
7.	Japanese encephailitis	JE virus G. Flavivirus	3 billion people at risk(world) and 375 million (India), In India, In 2019- 2496 cases reported (Key facts WHO ,2019)
8	Swine influenza	Influenza Virus (H1N1)	Prevalence had been reported 19.8% (Parmar *et al*., 2021) [26].
9	Scabies	*Sarcoptes* spp.	Prevalence had been reported upto 5.0% in Indian veterinarians (Parmar *et al*., 2021) [26].

Prevention and control measures

Prophylactic immunization: There are certain zoonoses which are 100% preventable from the effect of prophylactic immunization such as Rabies. At least, 70% of human as well as dog population should be vaccinated with the anti-rabies vaccine. One health approach is required to achieve the goal of "rabies free work environment". The highly effective approach in the rabies prevention is to give more emphasis on the vaccination of the stray dogs particularly. Vaccinating as few as 7% of dogs annually, could be very cost effective and reduce the human rabies deaths by 70% within 5 years and vaccinating 13% of stray dogs can prevent the human rabies by almost 90% (Fitzpatrick *et al.*, 2016) [10]. For veterinarians, the pre-bite vaccination of rabies is recommended. The mass immunization against rabies has been carried out using HDCS vaccine in humans and with LEP or HEP flurry strains or inactivated CVS strain vaccine for dogs (Sherikar *et al*., 2020) [29]. The vaccination against tetanus and JE is also advisable in endemic prone areas. The tetanus is 100% preventable with the vaccination of the susceptible ones. The immunization of the humans against tetanus has been carried out with the tetanus toxoid only or tetanus toxoid along with human IGH. The tetanus immunization for the animals should be carried out with alum precipitated tetanus toxoid. The vaccine for JE available in India is Jenvac, an inactivated vero cell line derived from an Indian strain Kolar-821564XY which provides cross protection against JEV genotype 1-4 in a single dose.

Proper protective gears: The veterinary profession is highly hazard prone profession in terms of all kinds of severe hazards such as physical injuries. The protective measures include gloves, goggles, apron, lead apron, lead sleeves, pocket dosimeter, thyroid protector (US-NRC, 2017). The preventive steps against the protection of the sharps injuries includes the proper disposal of the needles at appropriate

places after re-capping them after their use (NIOSH, 2010). The appropriate disposal of used vials, syringes. The fumigation and hygiene at the workplace should be maintained as much as possible to minimize the propagation of the vector population. The veterinarians working with the radiation facility must opt the necessary measures to protect themselves against the radiation health hazards

Routine deworming and ectoparasitic treatment: The proper and scheduled deworming of the livestock and pet animals especially the dogs against cestodes prevent the transmission of the zoonotic agents to the veterinarians from Echinococcosis, *Taenia saginata*, Fascioliasis etc. The deworming of the humans is also advisable as a precautionary measure. Adequate hygienic measures should be taken for the hygiene and health purpose by the veterinarians such as hand wash, foot dips, hair grooming etc.

Health education, personnel hygiene, and sanitary practices: The concept of the health education, personnel hygiene as well as sanitary practices among the veterinarians even at the stage of their under-graduation itself could prevent a lot of the occupational health at the starting phase of their practice or profession. The health education awareness among the owners of the animals like pet owners is also very critical and plays an important role in preventing the spread of the zoonoses. The animal owners should be encouraged to report the outbreak of any disease and should be motivated towards the proper vaccination of their livestock or pet animals. The veterinarians should be encouraged to follow the appropriate sanitary practices like hand wash after each case, foot dips, cleaning of the work area, cleaning, and disinfection of the instruments etc. The sanitary practices should also be encouraged among the livestock owners to follow to achieve the concept of "One Health".

Proper treatment: Appropriate treatment of all asymptomatic and clinical cases of livestock should be carried out to reduce the time to remove the pathogen. It is necessary to carry out treatment for zoonotic diseases by a veterinarian. Appropriate treatment involves using the most appropriate antibiotics for the effective period after being properly diagnosed and finally confirming the individual's condition at the completion of treatment. Appropriate quarantine or quarantine measures should be taken against the affected animal. The above exercises should be performed on both counterparts, i.e., humans and animals.

Surveillance: The systematic surveillance of all the subclinical diseases prevalent in a particular country or geographical region provides a better picture of the prevalent zoonoses in that area. It leads to better utilization of the available resources as well as funds particularly in the poor and developing countries. The active and passive surveillance should be carried out from time to time.

Abbreviations: ANI- Asian News International, CDC- Centre for disease control and prevention, IARC- International Agency for Research on Cancer, ICMR-NIOH- Indian council for medical research-National Institute of Occupational health, ILO- International Labour Organization, NIOSH- The National Institute for Occupational Safety and Health, UMASH- The Upper Midwest Agricultural Safety and Health Center, UNCTAD- United Nations Conference on Trade and Development, US-BLS-United States- Bureau of Labor Statistics, HSA- Health and Safety Authority, Ireland, USNRC- United States Nuclear Regulatory Commission, WHO- World health organization

Conclusion

The veterinary profession exposes the personnel to a lot of health hazards. The major ones include physical health hazards (physical injuries), chemical health hazards and biological health hazards. These occupational risks increase the loss of the DALYs. In conclusion, the physical health hazards are most prevalent among veterinarians. The preventive measures among the veterinarians are near optimal level but there is need of improvement in it. The zoonotic diseases are an increasing concern in present era. The vaccination of the stray dogs against rabies is still lagging the much-needed point. The hygiene and safety measures prevent a lot of the occupational health hazards. The veterinarians are exposed to a lot of health hazards mostly during early part of their career or later stages of under graduation, so, there is a need of increasing the awareness among veterinarians regarding the occupational health hazards.

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