



Perspective

Towards dog-free hospital campuses in India

Dogs can be classified as fully dependent (restricted dogs), semi-dependent (community owned-dogs) or free-roaming dogs (FRDs) based on their dependence on humans for food and shelter¹. The FRDs (commonly referred to as stray dogs) are not under direct human supervision/control and are not restrained from wandering around in public spaces; therefore, this term encompasses unowned-dogs, free-ranging owned-dogs, community owned dogs and feral dogs².

Of an estimated range of 700 million to one billion global dog population, more than 70 per cent are considered to be FRDs³. In comparison to high-income countries, FRDs have always been a key public health, and animal welfare issue in low- and middle-income countries of Africa, Asia and to some extent in South America^{4,6}. High-income countries are at a lesser risk of FRD menace as these have better implementation of dog population management (DPM) strategies such as well-enforced breeding laws, education and legislation for responsible pet ownership, licensing, reproductive control, removal and handling, control of dog movement and leash laws, animal welfare schemes along with pet adoption centers and shelter homes⁷. The Netherlands has recently become the first country in the world free of FRDs⁸.

India has one of the largest numbers of FRDs in the world (~15.3 million)^{3,9}. The rapidly growing numbers can be attributed to several factors such as (i) unorganized waste management, (ii) haphazard urban planning, (iii) ineffective implementation of the animal birth control programmes, (iv) flawed DPM, (v) radicalized animal rights activism not based on evidence, and (vi) absence of responsible dog ownership policies/legislation.

Health hazards due to free-roaming dogs (FRDs)

Rabies & other diseases: Free-roaming dog bites are a major cause of rabies which makes India a

substantial contributor to the global dog-mediated rabies deaths reporting an estimated 20 million dog bites and 18,000-20,000 deaths annually (36% of global rabies deaths)¹⁰. Of the total rabies deaths in India, 92-97 per cent are caused by infected dog bites, of which 62.9 per cent are from FRDs, both in urban (60%) and rural (63.6%) areas¹¹. In 2021, in line with the WHO rabies elimination roadmap, India also launched its new action plan aimed towards accomplishing 'zero human rabies deaths' by 2030, adopting a 'One Health' strategy¹².

Apart from rabies, FRDs are reported to transmit several zoonotic diseases such as brucellosis, babesiosis, campylobacteriosis, cryptosporidiosis, capnocytophagosis, echinococcosis, cutaneous and visceral larval migrans, ehrlichiosis, giardiasis, leptospirosis, Lyme disease, mange, sarcoptic yersiniosis, salmonellosis, tularemia, infections with pathogenic *E. coli* and methicillin-resistant *Staphylococcus aureus*, soil-borne helminths, ringworm and external parasites^{4,13}.

Threats to wildlife: The FRDs represent a threat to wildlife as well as livestock and can adversely impact health through the spread of diseases, predation, competition and hybridization^{4,14}. These can be potential reservoirs of infectious agents such as rabies lyssavirus, canine adenovirus, canine distemper virus, canine parvovirus, *Toxoplasma* sp. and *Neospora caninum*, which may be transmitted to endangering wildlife species^{15,16}. They may also be responsible for attacking and killing of livestock, contributing to substantial economic losses, especially in rural settings¹⁷.

Threats to public life & safety: These include road accidents, obstruction of traffic, spreading of garbage, faecal contamination, fighting, barking nuisance and physical attack on individuals, especially children¹⁸⁻²³.

Animal welfare issues: The FRDs themselves suffer from poor welfare, are bereft of any veterinary care and face high mortality, malnutrition, starvation, disease and abuse⁴. Furthermore, given the highly territorial and agonistic behaviour of dogs, the FRDs often tend to fight off and are also subjected to attacks upon entering any new territorial dog spaces²⁴. The territorial aggressive displays of FRDs, such as chasing vehicles that pass through their territory, often end up in abuse, road accident injuries and mortality²⁵.

Threat to life in hospital premises: Hospital campuses provide good carrying capacity for FRDs in particular due to the availability of undisturbed corners for shelter, constant source of nourishment from leftover food of patients and restaurants/canteens, community feeding and improper disposal of garbage and unattended trash bins. The unrestricted movement of these FRDs infringe on the free movement of patients and hospital staff, endangering lives within the hospital premises. Hospital settings are places for patients and their families, pregnant women, young children and the elderly who are most vulnerable and generally unable to protect themselves from the aggressive behaviour of dogs and fall prey to dog bites and other injuries^{23,26-28}. The presence of dogs in wards, labour rooms and laboratories has also been observed and is a threat in more than one way. Over the years, there have been an increasing number of reports of children being attacked by FRDs in hospital spaces. Various newspaper reports have highlighted the issue of FRD nuisance in the hospital premises, with incidents of dogs being on hospital beds and in ward areas^{29,30}, biting^{26,28}, obstruction of pedestrians (patients)^{28,31}, barking³² and instances of grievous injuries even resulting in death¹⁹⁻²², these are summarized in the Supplementary Table.

Existing policies pertaining to control/restrict FRDs: Culling of dogs, though practiced in some countries, is not a rational, scientific or ethical way of reducing the FRD population³³. The only method permitted for controlling the FRD population in India currently involves the capture-neuter-vaccinate-release (CNVR), with euthanasia permitted only in rare cases of incurably ill and mortally wounded dogs³⁴. The law also mandates the release of the dogs back to their original localities as part of the CNVR strategy. Furthermore, community feeding of dogs is not only permitted, but the rights of those involved are also safeguarded.

Steps to make hospital premises as ‘no free-roaming dog zones’

Boundary walls & gates: Hospitals with proper boundary walls can help in preventing the intrusion of FRDs and complement the existing DPM interventions with better efficiency. Boundary walls, along with surveillance and guarded gates, may prevent the entry of FRD population from the vicinity of the hospital premises and surrounding neighbourhoods/areas.

Capture-neuter-vaccinate-release (CNVR) & improvised dog population management (DPM) through humane initiatives: In India, CNVR is the only permitted DPM tool for controlling the FRD population, which requires the release of the dogs back to their original locations. However, in this article, the authors suggest a deviation from the current policy to release the neutered and vaccinated dogs to holding facilities or put up for adoption/foster homes instead of releasing them back to the hospital premises. Creating awareness and advocacy can be crucial tools towards sensitizing communities for the adoption of these FRDs which may be carried out in cooperation with various stakeholders. Adoption of FRDs can also enhance the value of indigenous dogs as compared to foreign breeds which is also being promoted by the Government of India³⁵. However, this strategy addresses only the current FRD population and not the source of these dogs and thus be complemented with other measures.

Proper waste disposal: The availability of resources is one of the major factors which determine the size of the FRD population²⁵. Inefficient waste management system in hospital premises increases the access of food to FRDs, which can contribute to high breeding and survival of FRD populations². The presence of leftover food in garbage bins and biomedical waste without proper waste management can serve as the primary food source for these FRDs. Even reports of FRD scavenging on human corpses have been reported in several hospital premises^{36,37}. Restricting access to food sources/waste and protecting garbage dumps from the FRD population can be a practical and cost-effective strategy. Ensuring litter and garbage-free zones within hospital spaces with proper and efficient strategies for waste disposal can be crucial in controlling and reducing FRD and its turnover.

Use of innovative & cost-effective FRD population management interventions: The use of newer techniques can be tried on trial/pilot scale basis, such as the use of ultrasonic high-frequency sound

waves, which can be installed at strategic locations to detect and ward off FRDs by emitting ultrasonic high-frequency sound waves. Alternative strategies such as nonsurgical fertility control and oral vaccines can also be tried instead of conventional methods as these strategies are being increasingly found to be more cost-effective.

Preventing community feeding: Introducing strict guidelines along with proper signage restricting the feeding of FRDs not only within hospital premises but also within 2 km radius of hospital premises can be one of the steps for reducing the dog population around and in the hospital premises.

Community education, awareness & sensitization: Creating awareness and sensitization towards DPM strategies within hospital spaces highlighting the concerns around FRDs, and the responsibility of each citizen/patient is crucial towards achieving the goal of making hospitals free of FRDs. Proper signage displaying restrictions such as ‘No Feeding of Dogs’ and ‘Zero Garbage Zones’ can be useful in informing the patients/citizens for efficient dog control measures.

Inter-sectoral coordination with a ‘one health’ approach: The DPM is a multifaceted tool that requires considerable intersectoral coordination and support ranging from technical, financial, personnel and infrastructure. The lack of intersectoral coordination and support hinders effective policy enforcement and implementation. An intersectoral collaboration with a ‘one health’ approach involving both public and private stakeholders namely municipality/civic authorities, NGOs, veterinarians, dog catchers, sanitization staff, legal department, animal welfare board, security personnel, hospital staff, communities living in surrounding areas and patients would be required for successful implementation and sustenance of the control measures.

Need to bring in policy-level changes to minimise the risks in hospital campuses

In light of the potential threats caused by FRDs to human life mentioned above, we propose that hospital premises be made ‘no free-roaming dog zones’, which can be leveraged along with the existing NAPRE programme towards achieving India’s target of rabies elimination by 2030. The above-cited incidences of physical harm and mental trauma to the patients and caregivers may be averted by making the hospital premises free-roaming dog-free zones. Hospitals may be mandated by law to keep their premises free of

FRDs and compliance with this policy be monitored periodically.

Although there would be several challenges to bring in the above changes; however, awareness substantial financial support, inter-sectoral coordination and advocacy at the community level would be crucial to overcoming any resistance. Political will and engagement with multiple stakeholders would be extremely crucial in surmounting any potential roadblock to converting these establishments into ‘No Free-Roaming Dog Zones’.

Hospital campuses as ‘No Free-Roaming Dog Zones’ are necessary to ensure patient and family safety. Institutionalizing the concept of hospital zones as ‘No Free-Roaming Dog Zones’ is a step in that direction and bringing a law to enforce the same would act as a catalyst to ensure hospitals are safe from the threat of an unbridled dog population.

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Supplementary Table. Incidents in medical establishments related to free-roaming dogs

Location/hospital	Type of injury	Year	Reference
Deaths			
Private Hospital, Panipat, Haryana	2 day old baby mauled to death by a free-ranging dog after dragging from the hospital ward	2022	1
Civil Hospital, Godhra, Gujarat	Newborn mauled to death by stray dogs after taking from labour room	2020	2
Farrukhabad, Uttar Pradesh	3 h old baby mauled to death by dogs inside an operation theatre	2020	3
Private Hospital, Bengaluru, Karnataka	Two and a half yr old sleeping within hospital premises mauled to death	2011	4
Bites			
Government Chest Hospital, Erragadda, Hyderabad	Female doctor attacked by a pack of stray dogs sustaining level 3 bite	2022	5
Government hospital, Vizhinjam, Thiruvananthapuram, Kerala	Woman bitten by stray dog on visiting hospital for anti-rabies vaccine	2022	6
Government Rajaji Hospital, Madurai, Tamil Nadu	8 health-care workers and staff bitten within the hospital campus in five hours	2021	7
Gandhi Hospital, Hyderabad	Road accident, injured patient attacked near the emergency ward	2015	8
Guru Tegh Bahadur Hospital, New Delhi	4 patients bitten by a dog in post-operative ward	2014	9
All India Institute of Medical Sciences, New Delhi	22 incidents of dog bite cases in a month	2011	10
Barasat District Hospital, Kolkata, West Bengal	14 people bitten within hospital premises	2011	11
Feeding on corpse			
District hospital, Ashok Nagar, Madhya Pradesh	Dog fed on the corpse of a stillborn baby	2021	12
Rourkela Government Hospital, Odisha	Dead body mutilated by stray dog in the mortuary	2021	13
District hospital, Sambhal, Uttar Pradesh	Dog fed on the corpse of the girl kept on a stretcher	2020	14
Hosur government hospital, Tamil Nadu	Dogs fed on the corpse of a newborn baby	2019	15
District hospital, Aligarh, Uttar Pradesh	Dog bit the corpse of an adult at a hospital mortuary	2018	16
New Civil Hospital, Surat, Gujarat	Dogs bit a corpse within hospital premises	2012	17
District Hospital, Shahdol, Madhya Pradesh	Dog fed on newborn's corpse	2017	18
Dr Ram Manohar Lohia Hospital Lucknow, Uttar Pradesh	Body parts of a woman eaten up by dog in the hospital morgue	2017	19
Sub-divisional hospital, Jeypore, Odisha	Dog fed on infant's corpse	2017	20
Barking/howling and obstructing free movement			
Civil Hospital, Jalandhar	Dogs were found roaming in women and childcare wards and disturbing sleep by barking. They also obstructed the movement of patients within hospital premises	2022	21
Rajendra Institute of Medical Science, Patna, Bihar	Patients were not able to sleep due to the barking of dogs	2018	22
Bara Hindu Rao hospital, New Delhi	Patients hounded by dogs seeking anti-rabies shots near the anti-rabies department	2017	23

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