



Contemporary Issues in Veterinary Profession for Augmenting Animal Health

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Veterinary Profession” at NASC Complex in New Delhi

Livestock Sector & Animal Health Industry

Contribution to Indian Economy

- **The annual contribution of livestock sector in total GDP is nearly 4.5% at current prices during 2015-16.**

(DAHD, Ministry of Fisheries, Animal Husbandry & Dairying)

- **Indian Animal health market is poised to increase from 39,200 MINR in 2016 to 75,000 MINR in 2020.**

(Indian Federation of Animal Health Companies)

- **World's highest livestock owner at about 512.05 million: Livestock provides livelihood to two-third of rural community.**

(19th Livestock Census)

- **Dairying and Animal Husbandry sector emerged as a primary source of income for about 7 crores rural households – most of them are either landless, small or marginal farmers.**

(GCMMF)

- **Animal Husbandry and Dairying is contributing around 30 per cent of total agriculture GDP.**

- **Milk, can be considered as “largest agriculture crop of India” as total value of milk produced is around Rs 7 lakh crores/ year which is more than the total value of all pulses and grain put together.**
- **India has remained top milk producer in the world for last 21 years with current milk production at around 176 million tonnes per year (about 48 crore liters per day) which is around 20 per cent of the world milk production.**

(Gujarat Cooperative Milk Marketing Federation)

Multi-roles of Veterinarians

OTHER THAN CLINICAL SERVICES: **multifunctional professionals**

- **Biomedical research**
- **Food quality, Food safety, food security**
- **Disease Epidemiology**
- **Zoonoses**
- **Nuclear medicine & radiology**
- **R&D of pharmaceuticals, remedies, vaccines**
- **Toxicological research**
- **Educators & trainers**
- **Policymakers**
- **Wildlife conservation & Zoo**
- **Space research**
- **Ecology, Protection of the environment and biodiversity**
- **Defence research & services**

Challenges faced by veterinary professionals

- **Low veterinarian: livestock ratio**
- **Lack of basic infrastructure and equipments**
- **Non – availability of good quality veterinary medicines**
- **Lack of proper diagnostic tools & laboratories**
- **Insufficient good quality vaccines**
- **Financial constraints**
- **Socio-economic constraints**
- **Problem of antimicrobial resistance**
- **Residue free animal products and by-products**
- **Improved animal welfare for sound animal health**

Contd...

- **Infrequent quality continuing education to veterinarians**
- **Animal treatment by quacks and laymen**
- **Prevention of zoonotic diseases**
- **Lack of R & D initiatives**
- **Meagre use of ICTs**
- **Absence of clear cut livestock extension policy**
- **Assignments of non-technical non-veterinary works**
- **Emerging diseases**

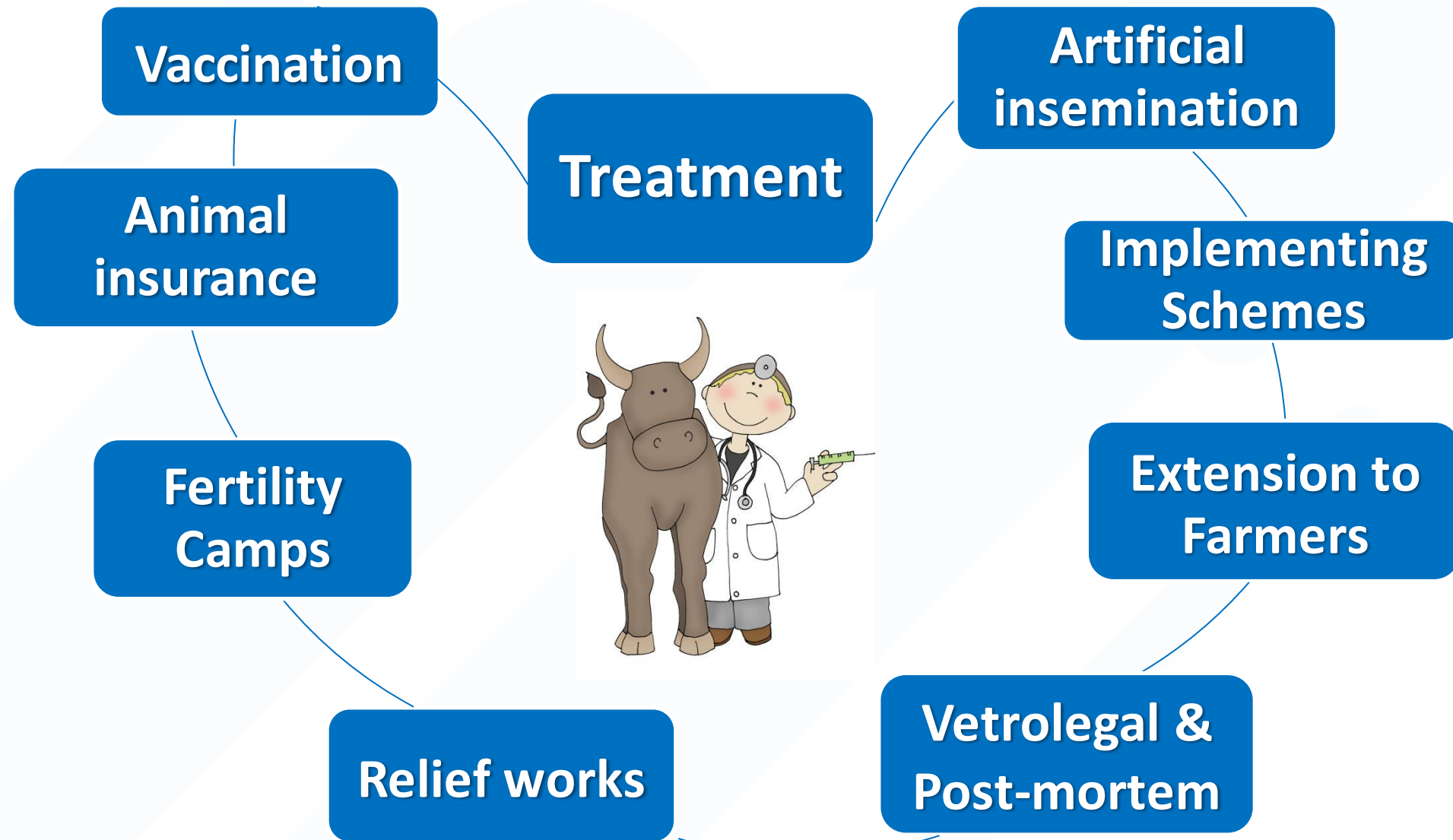
Veterinarian: Livestock ratio

Lack of strength - dwindling experienced manpower

- **There were about 63,000 registered veterinarians in India, while the requirement was in between 1.1 and 1.2 lakh.**

(Sharma, 2015)

- **There aren't enough registered veterinary colleges in country to meet the requirement of qualified doctors.**
- **In field, due to lack of staff more than one (sometimes 3-4) Veterinary Hospital or Dispensary or Sub centres are being looked out by single veterinarian which make working conditions very difficult to manage.**



Lack of basic infrastructure and equipments

Poor conditions of hospital buildings

- **Visit to most of State veterinary hospitals or dispensaries reveals lack of basic infrastructure like hospital building, furniture, surgical items, syringes, gloves etc.**
- **In many states, there is even no continuous electricity/power supply at hospitals.**
- **A vet is supposed to give door step service to the livestock owner but there are no provisions for his/her safety and conveyance neither the government is giving any travel allowance.**

Non-availability of quality veterinary medicines

@ Government Veterinary Hospitals and dispensaries

- **There is inadequate supply of good quality of veterinary medicines/ drugs to the hospitals in many of the states.**
- **Supply of low standard medicines by tenderers/ suppliers.**
- **Most of such drugs are lacking potency and are often more dangerous than spurious drugs as giving the false impression of potency.**

Lack of proper diagnostic tools & laboratories

Non-functioning status

- **Diagnostic facilities confined to district headquarters**
- **Majority of veterinary hospitals lacks mobile X-ray unit, USG and ECG machines *etc.***
- **Most of existing animal disease diagnostic labs are very primary in nature and lacks advanced tests.**
- **There are readymade kit based tests are available for many diseases but they are also not made available to field vets.**

Insufficient good quality vaccines

Problem exaggerated by poor storage conditions

- **A more stringent vaccine quality testing system is required in India.**
- **Failure of vaccine is not uncommon in field, but disease outbreaks following vaccination are discouraged for reporting.**
- **Maintenance of cold chain is also not proper especially in remote areas.**

Financial constraints

Ignored Animal Sector

- **Livestock sector always faced lack of attention at time of budgetary allocation to different sectors in spite of major contribution to the National GDP.**
- **Most of schemes are related to set up a small livestock unit but then no budgetary provisions for there maintenance in initial stage.**
- **Animals' owner are often in financial crisis.**
- **Animal husbandry a side business not a main business, integrated with agriculture (Sastry and Raju, 1992).**

Ignored Animal Sector

- **Very few incentives/ allowances are given to field professionals, only few states are offering NPA/NPPA to field vets.**
- **Large discrepancy observed in salary structure of veterinary professionals across the states.**

Socio-economic constraints

Marginalized animal's owner

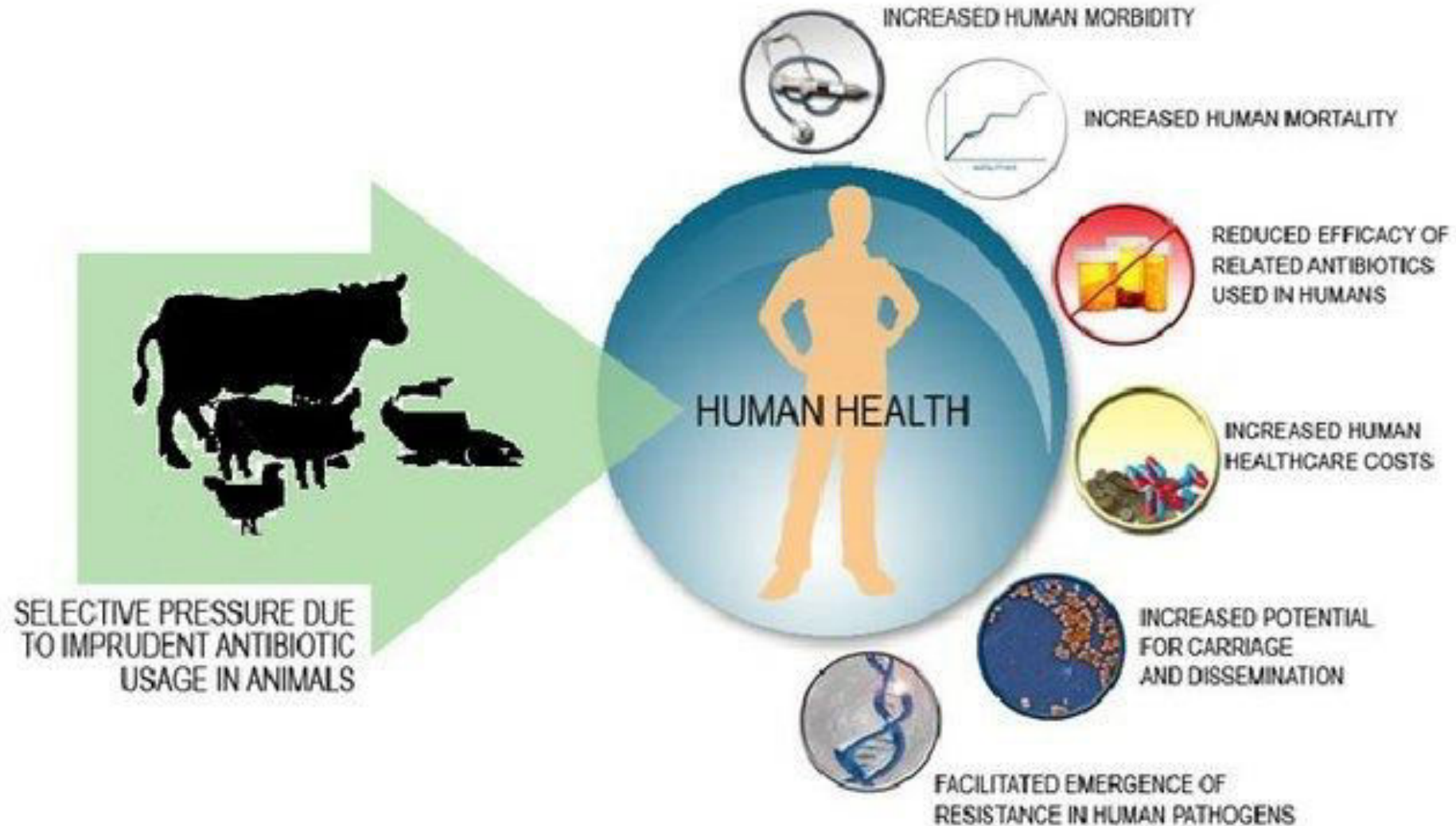
- **More than 60% of farmers engaged in Agriculture are landless, marginal or small farmers (Raju *et al.*, 2006).**
- **High Illiteracy rate in the farmers (Verma, 2012).**
- **Reluctant to adopt the scientific way of animal keeping and rearing, and follow the their own traditional methods.**
- **No due social respect to the veterinarian given by the society.**
- **More nuclear family trends is a challenge for livestock rearing in terms of labour and time.**

Problem of Antimicrobial Resistance (AMR)

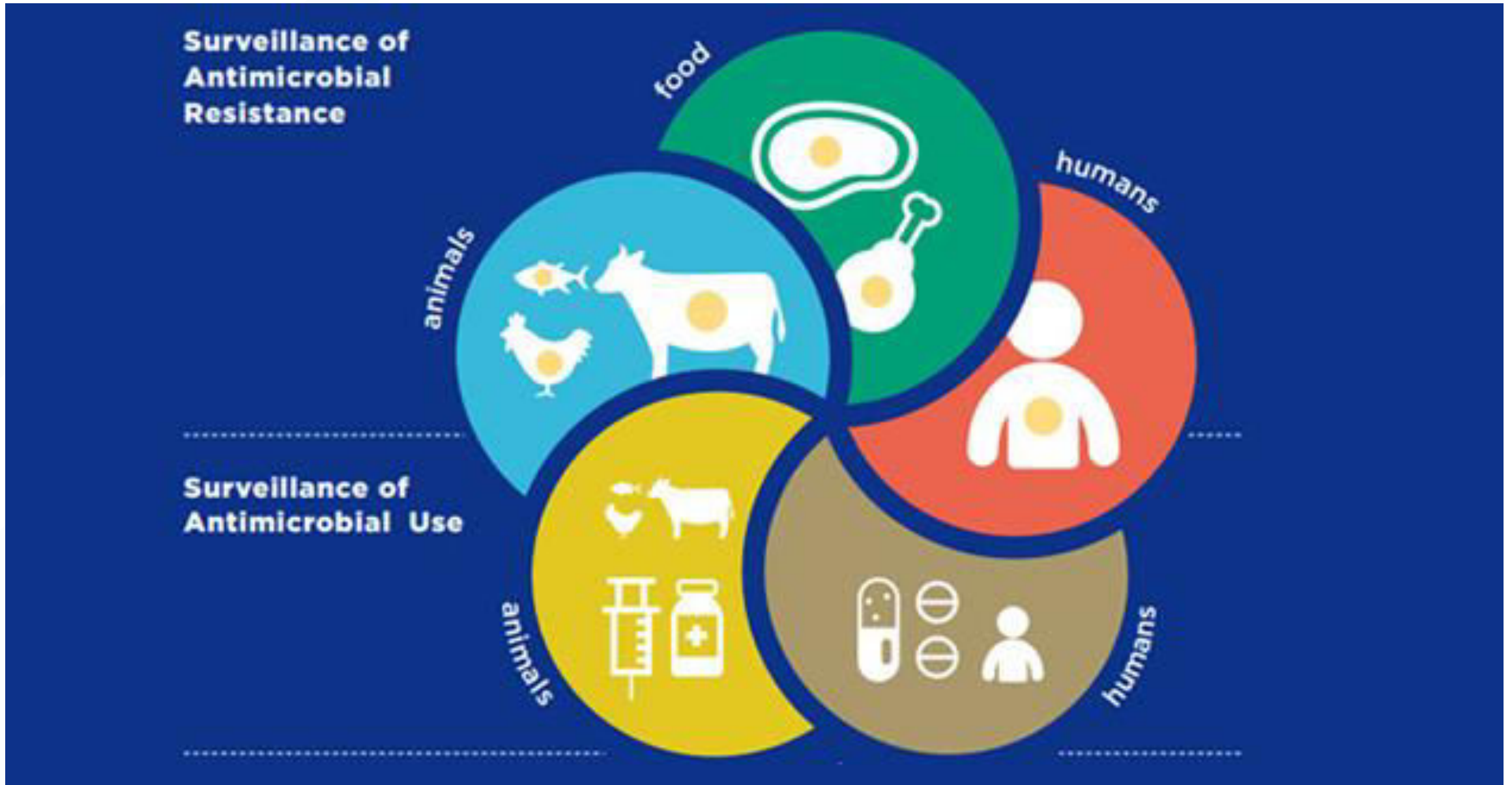
Reciprocate with improper drug usage

- **There is no proper pharmaco-epidemiological data-set of veterinary drugs available in India except some scanty reports. Such data are useful for combating AMR related concerns.**
- **Veterinary professionals have an crucial role to play in curbing AMR problem.**
- **Education and awareness, regarding problems and prevention of AMR, to stakeholders involving both livestock owner and animal healthcare providers is inevitable.**

The Human Health Impact of Antimicrobial Resistance in Animal Populations



- **Surveillance of both antimicrobial resistance and use is needed.**



- **OIE (WOAH) recommends the FIVE 'ONLY' RULES for prevention of AMR.**

FOLLOW THE FIVE "ONLY" RULES

- 1  Only use antimicrobials **when prescribed by a veterinarian**
- 2  Only use when needed, **antimicrobials do not cure every infection**
- 3  Only use the **dosage and follow length of treatment** and withdrawal period as prescribed
- 4  Only obtain antimicrobials **from authorised sources**
- 5  Only use when associated with **good animal husbandry, vaccination and hygiene practices**



WE NEED YOU

“ WE ALL HAVE A ROLE TO PLAY, AND YOU, AS ANTIMICROBIAL USERS, CAN HELP ”



Ban on 'Last Hope' antibiotic in veterinary medicine

Govt bans use of antibiotic Colistin in animal feed, poultry, aqua farms

ENSECONOMIC BUREAU
NEW DELHI, JULY 21

THE HEALTH Ministry has ordered a ban on using antibiotic Colistin in food-producing animals, poultry and aqua farms, in a move to curb the growing problem of antimicrobial resistance (AMR) in humans through animals here.

The Ministry, in its notification, has prohibited "with immediate effect" the manufacture, sale and distribution of Colistin and its formulations for this purpose. The Ministry has also directed manufacturers of Colistin to specify "in conspicuous manner" on the labels, package inserts and promotional literature that these products are "not to be used in food producing animals, poultry, aqua farming and animal feed supplements".

According to the World Health Organisation (WHO), Colistin is a "reserve" antibiotic, which means it is supposed to be considered a "last-resort" option in treatment and used only in the most severe circumstances, when all other alternatives have failed.

However, this strong antibiotic has been "highly misused" in India's livestock industry to prevent diseases and as promote growth of such animals, said a senior Health Ministry official on condition of anonymity.

"One of the reasons for antimicrobial resistance in India is due to unwanted use of Colistin in the poultry industry," the official said, adding that the notification will help prevent this.

The development comes months after the Drugs Technical Advisory Board (DTAB), India's apex drug advi-

sory body, recommended that the drug's use be banned in animal farming industries.

A 2017 global study on antibiotic use in farm animals projected the consumption of antibiotics through animal sources to nearly double during 2013-2030.

This means India's AMR problem is expected to worsen due to the consumption of antibiotics through animal sources.

The study ranked India the fourth largest consumer of antibiotics in food animals globally after China, the United States and Brazil.

AMR is "jeopardising" global health security and is of particular concern in countries like India, which has a high burden of infectious disease and requires antibiotics to limit morbidity and mortality, according to WHO.

Residue free animal products and by-products

Important for public health

- **Drug and chemicals residues in meat and milk is not only coming through use of feed additives but also due to medication without observing proper withdrawal period.**
- **Other reasons are contaminated feed and water, and post harvest contamination during product processing.**
- **The problem of drug residue and antimicrobial resistance are intermingled with each other and have a greater impact on public health.**

• Public health hazards of veterinary drug residues.

Drug specific toxicities

Drug Allergies

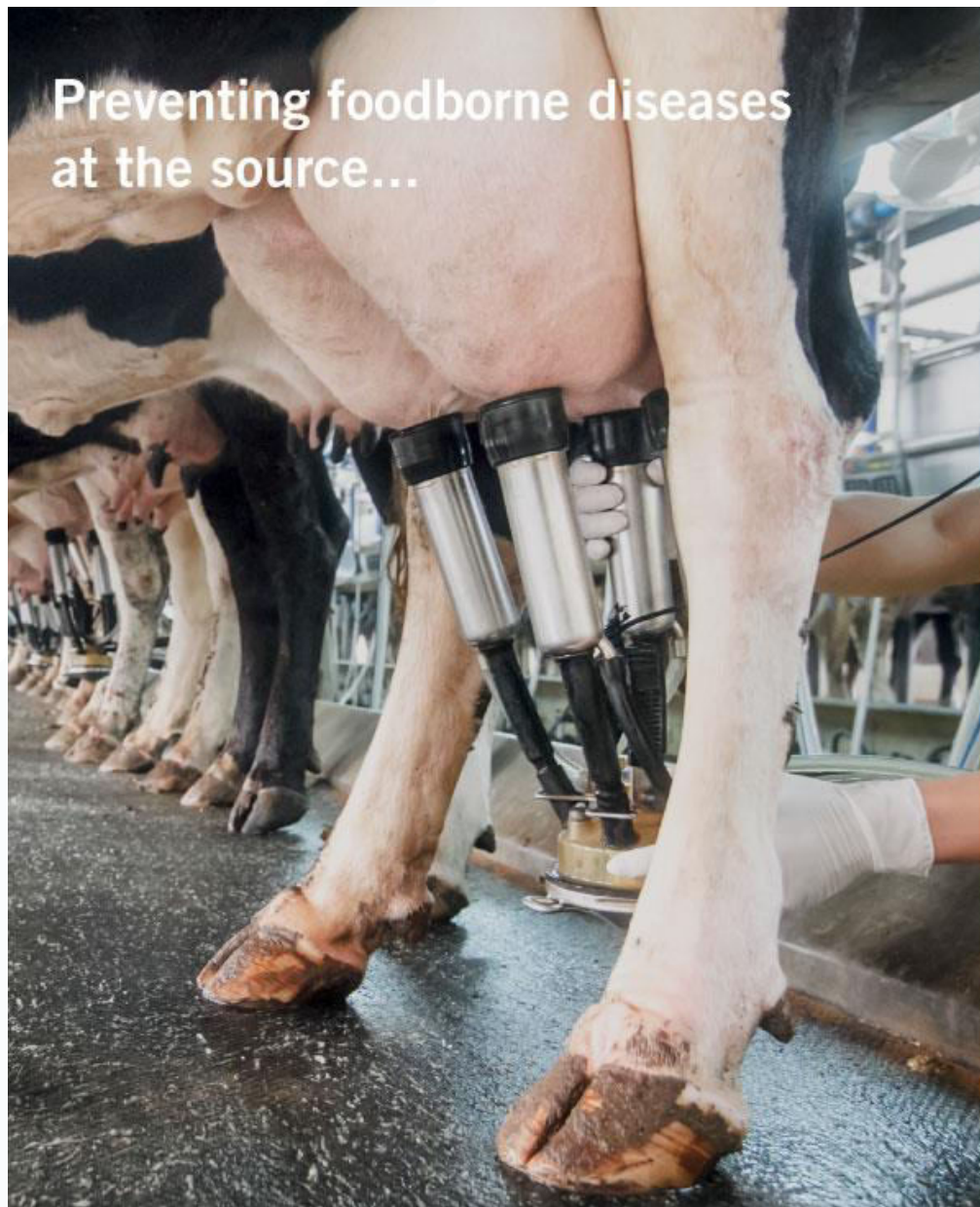
Antimicrobial resistance

Cancer

GI upsets

Trade/Export Failure

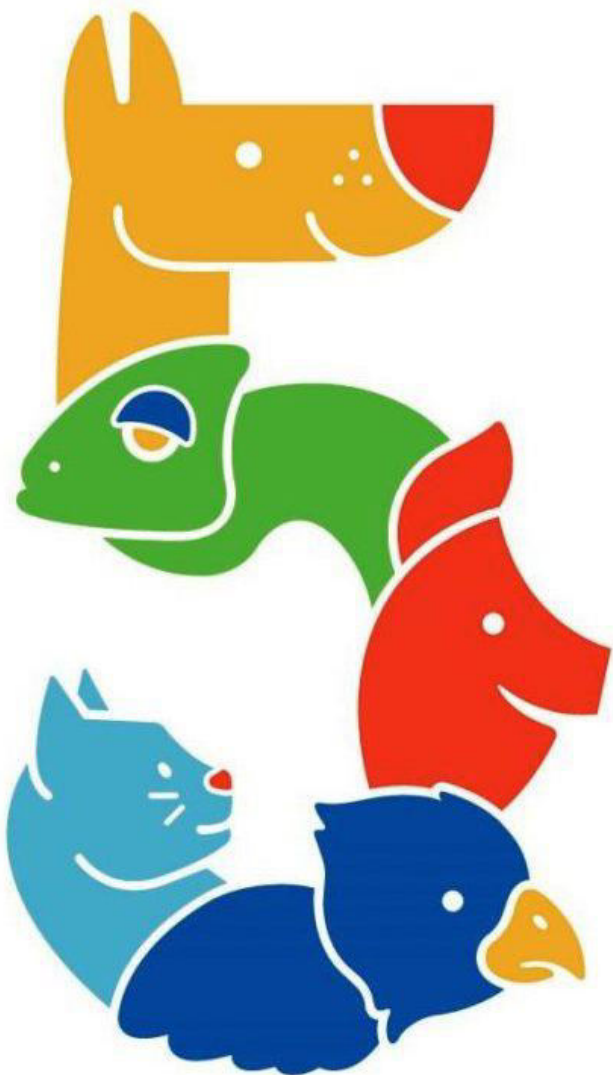
- **IMPROVED ANIMAL HEALTH IS IMPROVED FOOD SAFETY**



Improved animal welfare for sound animal health

- **Poor animal health in turn negatively influences animal welfare and also poor animal welfare affects animal health negatively.**
- **Over the years veterinary professionals have played significant and contributory roles in animal and human health and welfare.**
- **As challenges have risen, veterinarians have found ways to adapt given that their knowledge and training makes them multifunctional professionals.**

• FIVE FREEDOMS FOR ANIMAL WELFARE



Freedom from hunger & thirst



Freedom from discomfort



Freedom from pain, injury & disease



Freedom to express normal behaviour



Freedom from fear and distress

Occupational risk to veterinarians

Zoonotic diseases

- **Work-related accidents and occupational diseases in veterinarians and their staff a major challenge (Nienhaus *et al.*, 2005).**
- **Zoonosis: methicillin-resistant staphylococcus aureus, *Coxiella burnetii* and *Brucella* spp were the most common infections for vets (Bonini *et al.*, 2016).**
- **Rabies, anthrax are other important fatal zoonoses.**
- **Injuries, trauma and even death of veterinarians occurs due to road - accidents.**

- **Chemical risk, in particular anaesthetics and drugs remained an important risk (Epp and Waldner, 2012).**
- **Also, allergic risk related to bio-aerosol in particular, but also to drugs, detergents and disinfectant exposure (Bonini *et al.*, 2016).**
- **Proper disposal of animal carcasses at hospitals as well as dead bodies of stray animals on roads is a big challenge which requires a urgent policy for their disposal to prevent spread of zoonotic and other diseases.**

Continuing Veterinary Education (CVE)

Regular and Quality CVE veterinarians

- **Provision of high quality veterinary education is key to equipping potential veterinarians with the necessary knowledge to perform efficiently and to support Veterinary Services effectively.**
- **To fulfil the requirement of veterinarian in India, VCI recognized Veterinary Colleges must be increased.**
- **Implementation of CVE should be looked after by respective state councils and must be for field veterinarians.**

Animal treatment by quacks and laymen

Non-judicious use of drugs by non-degree holders

- **Para-veterinary workers should assist a veterinary physician**
- **Quacks - they are not legally authorized to do practice. But no firm action is being taken.**
- **For money they are adopting multidrug or non-selective/ indiscriminate drug therapy irrespective of the type of the disease.**
 - **Quackery further worsen the condition of ailing animal (Idowu and Babalobi, 2010).**
 - **Increase the phenomenon of drugs resistance against the microbes (Usha *et al.*, 2010).**

Meagre use of ICTs

Developing apps and use of social media

- **Technology is increasingly playing a central role in supporting health and well-being of farm animals.**
- **Smartphone Apps help the farmer to better care for their farm animals.**
- **Overseas, many app are available which help to accurately measure the body condition of dairy cows and early detect possible metabolic diseases.**
- **Veterinary telemedicine has a great prospects in India where experts at headquarters/ university can help a remote area vet./ livestock owner.**

Meagre use of ICTs

Developing apps and use of social media

- **Combining infrared sensors and multi-spectrum high-definition cameras, the latest drones continuously capture real-time images and video of herds and flocks no matter the season, can keep both the cattle and the farmer safe.**
- **Robotic shepherds, reduction of labour cost, and can have a big impact on animal well-being.**
- **Automated milking robots, dairy cows can be milked according to their own biorhythms. This has been found to have a positive effect on their well-being and thus on their health and milk production (Tse *et al.*, 2018).**

Developing apps and use of social media

- **Precision Livestock Farming systems, allow farm animals to be observed 24/7 through a wide variety of monitoring devices and sensors include livestock wearable such as E-tags, which clip on a cow's ear and constantly measure body temperature, to Bluetooth-enabled sweat monitoring strips that can measure levels of sodium, potassium, and glucose in the animal (Neethirajan, 2017).**
- **Social media tools such as WhatsApp, Curofy, twitter or you tube have remarkable ability to reduce the transaction cost as well as increase the coverage of extension services. But proper use of social media platforms in India for animal health is lacking.**

Unclear Livestock Extension Policy

Changing policies with political change

- **Sound veterinary extension system for improving the livestock production (Sheikh *et al.*, 2018).**
- **In developing countries like India, the major focus remains in the agricultural sector while livestock production and animal health has rarely been a priority for centralized extension services.**
- **The annual reports of existing KVKs clearly reveal a crop bias, have largely ignored animal husbandry component (Singh *et al.*, 2014).**
- **Now, its time to think about PVK (Pashu Vigyan Kendra) on the patterns of KVKs.**

Assignments of non-technical non-veterinary works

Veterinary services must be treated emergency services

- **Other than mainstream roles, other roles has been imposed to veterinarians ..**
- **They are also engaged in the election duty, exam duty and other non-technical duties like social auditing of various government welfare schemes.**
- **A veterinarian in field is also supposed to complete all the records, maintaining stock of medicine and do all the online entries which in other departments are done by computer operators or clerks.**
- **Vet must be treated at par with the medical**

Conclusions/ What can be done?

- **A dedicated Veterinary Extension apparatus in the field.**
- **National Policies for Eradication of ignored but important diseases like Rabies, Tick infestation & Haemoprotozoan infections etc.**
- **National Research Centres for Emerging Diseases in Livestock.**
- **National Policy for Rehabilitation and Management of Stray Animals.**
- **A task force for quality (potency and safety) of veterinary vaccines.**
- **Strict regulations and task force for prevention of overuse of antibiotics.**
- **Reducing non-technical burden of vets in line departments.**

- **Separate Regulatory Authorities for animal feed, medicines, feed supplements.**
- **Use of ICTs and other advances in livestock sector.**
- **Application of Animal Health Card to generate Livestock Registries and minimize data gap.**
- **Strengthening of diagnostic facilities at sub-centres.**
- **Set up of telemedicine units at remote veterinary dispensaries.**
- **Proper Policy require for disposal of animal Carcasses.**
- **Strengthening of VCI.**



THANK YOU.

Your valuable feedback are invited....

