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CM Bhadesiya

Assistant Professor,
Postgraduate Institute of
Veterinary Education &
Research (PGIVER), Kamdhenu
University, Rajpur (Nava),
Himmatnagar, Gujarat, India

VA Patel

M.V.Sc. Scholar, Postgraduate
Institute of Veterinary
Education & Research
(PGIVER), Kamdhenu
University, Rajpur (Nava),
Himmatnagar, Gujarat, India

MJ Anikar

M.V.Sc. Scholar, Postgraduate
Institute of Veterinary
Education & Research
(PGIVER), Kamdhenu
University, Rajpur (Nava),
Himmatnagar, Gujarat, India

PJ Gajjar

M.V.Sc. Scholar, Postgraduate
Institute of Veterinary
Education & Research
(PGIVER), Kamdhenu
University, Rajpur (Nava),
Himmatnagar, Gujarat, India

Correspondence

CM Bhadesiya

Assistant Professor,
Postgraduate Institute of
Veterinary Education &
Research (PGIVER), Kamdhenu
University, Rajpur (Nava),
Himmatnagar, Gujarat, India

A disquisition on telehealth and teleguidance for veterinary healthcare professionals

CM Bhadesiya, VA Patel, MJ Anikar and PJ Gajjar

Abstract

Veterinary healthcare services have seen tremendous advancements over the past several decades. Veterinarians are employed in various sectors towards betterment of the society which involve use of telecommunication media to establish effective communication for various purposes. The COVID-19 pandemic has affected all the professional platforms including veterinary healthcare services. This has led to an increase in use of different telecommunication media to perform different types of activities including telehealth, telemedicine and teleguidance. The present paper is an exegesis on telecommunication in veterinary healthcare profession.

Keywords: Telehealth, telemedicine, teleguidance, veterinary healthcare professionals

Introduction

The present era has witnessed effectiveness of the use of internet facilities, digital platform and communication media for personal communications and professional work in day-to-day life. The use of digital platform by means of different communication media and social networking applications has various positive and negative outcomes. Common communication media (such as phone calls, E-mails etc.) and/or social networking platforms (such as WhatsApp, Facebook, LinkedIn for professionals etc.) have been used by almost every individual having internet access.

Moreover, the COVID-19 pandemic has led to a steep increase in use of internet facilities and different types of telecommunication Medias for various purposes. One such aspect is use of telecommunication media for healthcare activities (*i.e.*, 'Telehealth' and 'Telemedicine') in human medicine and veterinary science. Literature suggests that teleguidance for various purposes and telemedicine have been used from a long period of time in veterinary profession also. The use of telehealth or telemedicine for veterinary patients has been described to treat minor cases ^[1] and also to manage some rare cases such as prosthesis in a bird ^[2]. The present paper highlights important aspects of teleguidance and telemedicine in veterinary healthcare profession.

Teleguidance in Veterinary Healthcare Services:

Teleguidance can be described as the provision of guidance on various aspects by use of different communication media as hereunder:

1. **Veterinary education (including para-veterinary studies) related guidance to students:** Veterinary or para-veterinary educational institutes are increasing throughout the country to meet the ever-increasing demand of skilled manpower in animal husbandry/veterinary sector. Fresh graduates or students seek guidance for admission in veterinary or para-veterinary educational institutes. Teleguidance in this regard generally includes discussion on educational aspects either with students or their parents. Generally, this process is time-consuming considering the fact that entire future of student is at stake. Veterinarians can provide necessary guidance effectively for the said purpose.
2. **Guidance to fresh veterinary graduates on higher education:** The present era is competitive and simple graduation sometimes does not guarantee direct recruitment of a veterinary graduate. Moreover, some fresh veterinary graduate often seek guidance on higher education in veterinary science because of interest in research and/or academics. Use of teleguidance for the said purpose require considerable amount of time and cautious approach.
3. **Mentorship to job-seekers (fresh veterinary graduates, colleagues and other people):** Sometimes, veterinarians are asked to provide teleguidance on placement/job opportunities by fresh graduates, colleagues and other people.

- Veterinarians, especially those appointed in academic/teaching institutes/colleges can provide effective teleguidance to job-seekers. This type of teleguidance often involves discussion on interest of the job-seeker, financial requirements, workplace related discussion, future scopes etc.
4. **Guidance to professional colleagues for career advancements:** Veterinarians use teleguidance to share or guide professional colleagues regarding opportunities for career advancements including organization of technical events (e.g., seminars, webinars, workshop, conference, symposia, training etc.), availability of short offline or online courses etc. which can be helpful for a colleague for career advancement. This aspect does not take considerable amount of time, but takes proper sharing of media/resources.
 5. **Research related discussions with funding agencies inviting research projects in institutes:** Continuing research is very important for veterinary sector. Veterinarians employed in teaching or research institutes are involved in research activities. On certain occasions, they have to communicate with research funding agencies (government or private) to encourage, invite and conduct veterinary research in their institute. Such types of teleguidance takes considerable amount of time because the discussion may involve explanation about individual interests, funding requirement, scope of research, time requirement, planning, layout of project, manpower requirement, available facilities, expected outcome etc.
 6. **Research related discussion with postgraduate students:** Postgraduate students (Masters and Doctorate) visit collaborating institute, hospitals, clinics, research centers etc. after approval of their research projects. For this purpose, they may communicate with their peers or advisors or stalwarts regarding smooth conduct of the research. Teleguidance with postgraduate students on their research can also take considerable amount of time and cautious approach.
 7. **Guidance to postgraduate students for scientific and technical writing:** Postgraduate students often require guidance on scientific and technical writing for their thesis/dissertation, research manuscripts, review articles, case studies, short communication etc. Teleguidance on such aspect is generally given by veterinarians employed at research stations or academic institutes.
 8. **Communication about publication of research manuscripts:** Preparation of manuscripts (e.g., research papers, review articles, mini-review, short communication, case reports or case studies etc.) is an important part of work for researchers and academicians. This often require considerable amount of time. Communication (*i.e.*, correspondence) is generally made with publishers regarding status of manuscripts starting from submission, review, corrections, payment of publication charges and final publication. This type of telecommunication also involves discussion with professional colleagues or co-authors of manuscripts. This is a time-consuming task, but it is of immense importance for scientific community and society.
 9. **Guidance and/or assistance to state or central governing bodies on various matters pertaining to veterinary sector:** State or central government bodies (e.g., forest officials) may communicate with veterinarians about assistance in certain official procedures (e.g., quarantine of newly arrived wild animals at a zoo). In such cases, veterinarians have to provide guidance with utmost care. Such a communication generally takes reviewing of literature or communicating with other official bodies to arrive at a proper suggestion/guidance regarding certain procedures.
 10. **Assistance to superior staff and guidance to subordinate staff for routine office work:** Veterinarians involved in clinical works along with office work often face 'multitasking' situations because of their superior officers and subordinate staff. They may need to communicate with office staff members about various office works which is time consuming. Therefore, record keeping is also advisable under such circumstances.
 11. **Guidance to members of the forest department, non-government organizations (NGOs) etc. for wild animals:** Members of the forest department and other NGOs may seek guidance from veterinarians regarding certain procedures (e.g., establishment of rescue centers, animal care centers, legal aspects, registration, post-mortem examination, laboratory diagnostics, expert advice in relevant matters etc.). Therefore, veterinarians may require communicating with concerned authorities in such cases. Record keeping for such communication will generate an idea about the need of guidance from a particular area at different places throughout the country or world.
 12. **Guidance on safe rescue and release of any healthy mammal, bird, or reptile:** Expert veterinarians are often approached by staff of forest department or NGOs seeking guidance on a rescued species. Rescue of a clinically healthy animal is more frequent as compared to sick individuals. Under such circumstances, veterinarians can guide the concerned persons about general wellbeing, methods of gentle physical handling, finding a suitable habitat to release a rescued individual, considerations and use of tranquilizing agents, availability of tranquilizing agents etc. This type of discussion may require referring the case to an expert or reviewing certain literature before second communication. Record keeping for such types of communication with regards to date, place, time, species, person involved etc. can generate a strong database.
 13. **Guidance on matters pertaining to rescue, release and manage mental aspects for exotic mammals, birds and reptiles:** Veterinarians may be approached to seek guidance on rescue, release and management of exotic species brought from other countries. It becomes difficult for most of the veterinarians to get details pertaining to exotic species in time. Therefore, this type of communication may also require referring different resources before providing necessary guidance. This practice is also helpful for veterinarians as veterinarians become aware about many aspects pertaining to exotic animal species which are not native to the country. Record keeping on type of species, date, place, condition/requirement and other remarks will be helpful for fellow veterinarians also.
 14. **Expert advice for forensic investigations upon seizure of illegally possessed parts/trophies made from protected species:** On many occasions, search and seizure of illegally owned/kept items made from animal body parts are reported. Veterinarians are often approached for expert guidance on forensic investigations in such cases. Keeping a record of such instances become

useful for veterinarians about existing illegal activities/crimes pertaining to veterinary patients. The data generated from such records can be used for teaching and research in future.

15. **Guidance to pharmaceutical companies, veterinary medical stores etc. regarding availability of suitable drugs for different types of cases:** Sometimes, veterinarians receive calls from a distributor/seller of veterinary medicines regarding prescriptions. Veterinarian may receive calls from marketing agents of different pharmaceutical companies who want to either sponsor clinical camps or conduct a trial on their drug/preparation. Under such circumstances, veterinarian has to spend considerable amount of time while discussion. Also, he/she needs to be cautious not to unknowingly promote any preparation for commercial purpose without appropriate pre-clinical trials.
16. **Guidance pertaining to legal aspects of keeping mammals, birds and reptiles of Indian origin or exotic species:** Many of the mammalian, avian and reptilian species are not permitted to be kept as pets or to be subjected to international travel as per the laws. However, many species of exotic individual species may have arrived in the country before implementation of certain rules or before providing protection. Under such circumstances, veterinarians may be communicated on legal aspects of keeping exotic or indigenous species of animals. Veterinarians have to be aware of existing national and international laws before providing guidance on legal aspects of animal keeping.
17. **Guidance for development of extension/awareness material to content developers (e.g., guidance to YouTube content developers to create a video):** As a technical expert, all veterinarians are not sound in preparation of extension/awareness media. Under such circumstances, veterinarians may communicate with expert content developers or digital media persons to develop awareness materials for people and animal owners. This task involves multiple communications, referring to literature, collection of photographs and recording videos of important clinical cases to create material for extension education.
18. **Guidance to pet-shop owners or authorized sellers/distributors regarding general care, certification, legal aspects etc.:** Increasing interest has been observed in rural and urban areas to keep different types of pets at home. This has resulted in increasing number of authorized or unauthorized pet shops. Therefore, veterinarians are often contacted by pet shop owners or sellers/distributors to discuss about general care, certification, legal aspect of selling live species, toys, house, cages etc.
19. **Guidance to biologists or zoologists on various aspects:** Veterinarians, especially those hired by zoo authorities or forest department often communicate with biologists or zoologists regarding anatomy, physiology, biochemistry and behavioral aspects of some animals. Information of diseases and disorders are not available for all types of native and exotic wild animals. Therefore, biologists or zoologists often discuss with veterinarians about such aspects. Veterinarians may also require referring to standard books or literature for the same. A record keeping on such communications is crucial.
20. **Guidance to prevent fraudulent veterinary practices being performed by unauthorized private practitioners:** There is a need to increase manpower for treatment of sick animals in India. Qualified veterinarians and para-veterinary staff must be available to meet this demand. However, some fraudulent practitioners take advantage of the poor animal owners and their emotions by treating their sick animals without consulting any qualified veterinarian or without having proper knowledge of disease condition and therapeutic strategies. This type of practice is disastrous for animal health and society and can also lead to unnecessary economic loss to the animal owners. Therefore, veterinarians may require communicating for prevention of fraudulent veterinary practices at remote places.
21. **Guidance on establishment of veterinary hospital, laboratory setup, diagnostic instrumentation etc.:** Number of different animal and bird population is increasing on daily basis. Moreover, the propinquity of animals and birds to human activities may also affect their health and overall well-being. With this scenario, some enthusiasts and animal lovers or charitable trusts seek advice from veterinarians to establish veterinary hospitals in some areas. Moreover, veterinarians working in a newly established hospital may also seek advice from expert veterinarian to establish a laboratory for disease diagnostics.
22. **Guidance on establishment of temporary rescue centers, list of commonly used medicines and equipments for emergency response:** On certain occasions, enthusiasts and activists seek advice from veterinarians regarding establishment of temporary rescue and veterinary care facilities (e.g., bird rescue camps during kite-flying festival), guidance on list of required veterinary medicines and equipments. This type of communications regarding temporary setups is less common and is limited to a specific period of time. However, veterinarians are required to be cautious while providing information and may require long communication to give proper guidance.
23. **Guidance on healthcare and management during disasters (including planning):** Veterinarians play a crucial role in prevention of diseases during disasters [3]. Not all veterinarians are employed at places where disasters affect. Therefore, some of the veterinarians employed in academic or research institutions are frequently called to provide guidelines on preventive measures to be taken during disasters. This type of communication is also limited to a certain period of time depending on type, time and duration of the disaster but has more significant role to be played for the society.
24. **Creating awareness among people to avoid conflicts with free-living mammalian, avian and reptilian species:** The propinquity of human and mammals, birds and reptiles has different advantages and disadvantages. Occurrence of conflicts (e.g., snake-bite, attack by carnivorous mammals such as lions and leopards etc.) is a common issue because humans and animals both try to prevent themselves from lethal injuries. Therefore, veterinarian can play a crucial role to communicate with local rescuers or residents by creating awareness on prevention of unnecessary conflicts in any given region. These types of communications are not too frequent, but take cautious approach while providing instructions.
25. **Communicating various scientific or government**

bodies on different aspects: Some of the scientific bodies or societies often communicate and seek guidance from eminent veterinarians on setup, establishment, vision, mission of respective societies. They often discuss regarding the scope for establishment of a society or body for the benefit of veterinarians. These types of communications are less frequent, but crucial for the entire veterinary profession.

26. *Any other matter except those pertaining to veterinary patient's health:* Teleguidance for veterinary health sector may also involve any other matter except those pertaining to any patient's health.

Literature does not exist on use of teleguidance by veterinarians at length. The above-mentioned points may also include various other aspects in which veterinarians are required to provide guidance. These activities are crucial for veterinary professionals and are of immense importance to the receiver of information; however, they consume considerable amount of time. It is advisable to keep an up-to-date record of these activities with specific details such as date, place, time, person/receiving end, type of teleguidance and any other remarks.

Telehealth and Telemedicine in Veterinary Healthcare Services

'Telehealth' is a general term which covers diagnosis, treatment, health monitoring, cure delivery, administration and education while 'Telemedicine' is a type of practice which is being used to provide remote diagnostic services and monitoring. Both, telehealth and telemedicine are practiced by use of different communication media and social networking applications. Veterinarians can use different technologies to provide veterinary medical information. Use of telemedicine does not replace the traditional methods; however, it can be used responsibly to provide high quality remote veterinary care in mild cases. This can be accomplished by use of different communication media, social networking applications, video consultations (e.g., FirstVet as mentioned by Waters ^[4]), by development of special smartphone or desktop applications and software (e.g., Jooi, a pet care application as mentioned by Waters ^[4]). The American Veterinary Medical Association (AVMA) suggests that telemedicine should be practiced within and existing Veterinary-Client-Patient-Relationship (VCPR) ^[5]. A veterinarian using telemedicine in regular practice is responsible for decision making and must possess sufficient knowledge for diagnosis and treatment of common health issues in animals.

The categories of telehealth in human healthcare include its use for psychiatry, neurology, cardiology, general surgery, ophthalmology, pathology, oncology, gastroenterology, trauma care, emergency care, nutrition, dermatology, dentistry, genetics, geriatrics, pediatrics, rehabilitation, neuropsychiatry etc. ^[6, 7] Telemedicine in veterinary practice may also involve all such aspects; however, detailed investigation or documentation does not exist on individual scopes of telehealth and telemedicine in veterinary healthcare sector. Telemedicine in veterinary healthcare services generally involves following aspects;

- 1. Imparting information on general healthcare and management of pet/domestic and domiciliated species:** Veterinarians are often communicated seeking guidance on general healthcare and management of pet/domestic

mammals, birds and reptiles. For example, guidance on deworming, vaccination, housing, feeding, grooming, bathing, outdoor activities for animals, exposure to sunlight for basking etc. Pet species may also involve exotic species. This type of communication does not include use of specific drugs against major infectious conditions; however, such communication may take considerable amount of time for proper explanation depending on understanding and knowledge at the receiver's end.

- 2. Minor and major healthcare issues in domiciliated/stray species:** People may seek guidance for management of domiciliated or stray species (e.g., street dogs, pigeons, squirrels etc.) to prevent them from various health issues. For example, volunteers of a residential society may communicate with veterinarians to seek information on deworming, skin diseases, primary wound dressing, feeding, shelter development for street dogs etc. This type of communication can consume considerable amount of time depending on knowledge level, understanding, economic aspects, interest of other society members etc.
- 3. Minor and major healthcare issues in captive and free-living/wild mammals, birds and reptiles:** Wildlife care centers or rescue centers are equipped with diagnostic and therapeutic facilities. However, fresh veterinary graduates are generally recruited at such places and they may seek suggestions from experienced veterinarians. Therefore, veterinarians may be communicated regarding minor and major healthcare issues in captive and/or wild species. This type of communication can also consume considerable amount of time because veterinarians may require referring to standard literature before providing any information on some rare animal species.
- 4. Communication with veterinarians who are working in different areas regarding clinical case management at their respective workplaces:** Fresh veterinary graduates who are newly appointed at different facilities may seek information from senior and experienced veterinarians regarding treatment of animals. For example, telemedicine for zoo animals by discussing about disease diagnosis, treatment and preventive measures is a common practice. This type of communication may involve use of different types of media to receive and provide appropriate information and is often time-consuming.
- 5. Discussion on availability and use of veterinary healthcare services at different locations:** People from remote areas may communicate with veterinarians and seek help to communicate with veterinary practitioner nearby their locality. This type of communication is generally related with ease of access to veterinary healthcare services in remote areas and economic constraints.
- 6. Interpretation of health reports:** Veterinary diagnostic instruments are costly and are available at certain places only (e.g., veterinary colleges). All veterinary practitioners do not have well-developed infrastructure for all types of veterinary patients. Therefore, animal owners are generally told to visit laboratory facilities for sample analysis. Sometimes, they send a copy of the health reports (e.g., blood reports, serum biochemistry, radiographs, ultrasound images etc.) to another

veterinarian for interpretation and confirmatory diagnosis. This type of communication is time-consuming and veterinarian has to be cautious about interpretation of the findings. Veterinarians may also communicate with the fellow veterinarian who had referred a particular case for laboratory examination.

7. **Post-treatment or post-operative care/follow-up in cases which are treated at hospital:** Telemedicine is an important practice to assess post-treatment and post-operative health status of cases which have been treated at veterinary hospitals. This reduces the travelling stress to patient and cost associated with transport. Moreover, the owners can also reassure protocol on use of post-treatment medications for effective clinical outcome of any given case before second visit to the hospital.
8. **Care and management of mammals, birds and reptiles during travel:** Telemedicine is helpful while any mammalian, avian or reptilian species is being transported from one place to another. This type of communication always requires specific instructions for quick actions. For example, telemedicine for motion sickness during transport.
9. **Matters pertaining to isolation of sick animals and quarantine of newly imported species:** Isolation and quarantine are important for disease prevention. Any species which has been introduced to a new environment will require quarantine for a period specified by authorities. Isolation is generally done for sick animals. Telemedicine is important for fellow veterinarians who are working at such facilities.
10. **Use of herbal plants or ethnoveterinary medicine for treatment of common health issues in different species:** People also communicate about use of commonly available herbs for treatment of health issues in animals. Veterinarians have to be cautious while providing guidance on use of herbal/ethnoveterinary medicine. This type of communication is time-consuming as veterinarians may require reviewing of available published literature on herbal medicines since herbal medicines take time to bring complete clinical recovery in animals.
11. **Use of alternative veterinary medicine for treatment of diseases and disorders:** Increasing interest has been observed among veterinarians and para-veterinary staff/veterinary assistants to use alternative methods such as physiotherapy for clinical management in veterinary patients. Use of homeopathy in veterinary patient is also a new subject. Veterinary researchers or academicians may be communicated about use of such alternative therapies. However, reviewing literature and provision of appropriate guidance through telemedicine is important.
12. **Post-mortem examination and report writing:** Veterinarians frequently receive calls from fellow veterinarians seeking guidance on interpretation of post-mortem findings as well as report writing. This aspect is very important because it may involve some vetero-legal cases.
13. Any other matter pertaining to the healthcare and management of mammalian, avian and reptilian species.

Advantages

Following are the major advantages associated with use of telemedicine in veterinary healthcare services;

1. **Effective and rapid exchange of information:**

Teleguidance and telemedicine provides a strong platform for congregation of clients, veterinarians, academicians, scientists and other stakeholders for rapid exchange of ideas, information and techniques.

2. **Effective provision of remote diagnosis and treatment in minor cases:** Minor cases such as coat shedding in dogs, minor wounds etc. can be effectively managed at home or nearby veterinary dispensaries. Minor cases from distant places can be given appropriate guidance on diagnosis and therapeutics by use of telemedicine ^[1].
3. **Noticeable improvement can be monitored in minor cases:** Improvement in minor cases can be effectively monitored on regular basis by telemedicine. The recovery or improvement or deterioration is generally reported by the animal owners to the veterinarian. Veterinarians can take proper judgment regarding the same. Veterinarian may ask the animal owner for physical checkup of their animal at veterinary hospital, if required.
4. **Better decision making by veterinary colleagues at distant places for successful case management:** Veterinarians practicing in remote locations or those who do not have proper diagnostic facilities often communicate with their peers or fellow veterinarians for assistance. In such cases, experience-based suggestions given to the veterinarian are crucial to facilitate easy and rapid decision making at his/her respective place of work.
5. **Reduced chances of travelling stress in veterinary patients with health issues:** Telemedicine can be very helpful for management of minor cases. Traveling of patient can be avoided if the patient is responsive to the treatments suggested by means of telemedicine ^[1, 2].
6. **Reduced chances of unnecessary delay in referral:** Some of the owners may communicate regarding availability of veterinary care in nearby localities. Therefore, the conveyer of information can easily reduce the communication gap between owner and veterinary care centers nearby his location, *i.e.*, timely access to locally available veterinary healthcare service center in serious health issues.
7. **Cost effective by preventing unnecessary travel to veterinary hospital for minor cases which can be managed at home:** Telemedicine provides a rapid consultation platform and removes geographical distance for veterinary care. Minor cases can be effectively managed by use of telemedicine. Recovery or improvement in such cases reduce or remove the need of travel to a veterinary hospital if the patient is responsive and owners are strictly following the guidance.
8. **Reduced chances of spread of nosocomial or zoonotic infection:** Nosocomial infections can be transmitted to animals and humans. Veterinarians deal with a wide variety of animal species which generally require physical examination in all cases brought to a hospital. Therefore, veterinarians are more susceptible to develop zoonotic infection. On the other hand, nosocomial infection can also be transmitted to animals or humans at a veterinary hospital. Hence, the chances of spread of nosocomial or zoonotic infections reduce significantly when telemedicine is used in veterinary patients.
9. **Reduced anxiety in overprotective/overly concerned animal owners:** People generally develop affection towards their animal over a period of time. Some of the common people also rescue stray animals and bring them to veterinary hospital for treatment due to humane

reasons and their affections. In such cases, they often undergo panic or feel anxious when a sick animal is not able to get treatment even for minor cases. Telemedicine can reduce the level of anxiety and panic in such persons by providing necessary guidance on veterinary healthcare services.

10. **Developing trust between veterinarians and owners:** Trust issues are very common in veterinary practice. Owners generally favor and recommend a veterinarian to a friend based on his/her positive experience with a particular veterinary practitioner. Use of telemedicine in a proper manner can help to develop trust between owners/rescuers/people and veterinarian. However, veterinarian should have cautious approach while dealing with notorious persons.
11. **Increased access to new research outcomes at global level and effective sharing of clinical findings:** Veterinarians can have access to research-based data/information from experts round the globe. Veterinarians can also share their findings with the veterinary practitioners by use of telemedicine.
12. **Ease of record keeping:** Telemedicine can ease the traditional methods of record keeping as most of the data will be available in digital formats with ease-of-access to other staff members or colleagues.
13. **Effective extension activities:** It is important that research outcome of any institute/research project reach to the society in need. Use of telemedicine also ensures rapid sharing of research outcomes by serving as an extension platform. There is an increased connectivity between client, veterinarian, researcher, academicians, field veterinarians and eminent scientists while practicing telemedicine.
14. **Effective use of social networking applications:** Social networking applications are used by almost every veterinarians and client in the present era. Such types of applications or software can be effectively used for telemedicine in veterinary practice. This may also divert the interest and attention of veterinarians towards use of such media for better purpose.
15. **Maintaining social distancing in times of pandemic diseases:** Some of the zoonotic diseases (e.g., COVID-19) have rapid transmission rate if social distance is not maintained. Telemedicine facilitates treatment of veterinary patients at remote places. Therefore, owner does not have to take his patient to a veterinary hospital. This aspect of telemedicine helps to maintain social distancing protocol in order to avoid person-to-person transmission of zoonotic diseases ^[1, 2].

Considerations and Limitations

- Development of economic models and suitable instruments should be considered before creating a large telehealth and telemedicine platform at a veterinary professional institute. Moreover, telehealth and telemedicine use internet/network connectivity to establish proper communication at significantly distant places. Both, veterinarian and owner should ensure proper access to internet/network connection during the telehealth practice. Technical issues should always be looked after in cases where software or phone-calls are being used for telemedicine.
- Legal considerations of use of telehealth and telemedicine in veterinary profession: Rules and

regulations may be developed or strengthened to monitor telehealth and telemedicine practices to avoid malpractices or misuse of communication media.

- Ethical aspects should be considered before advocating telehealth and telemedicine at veterinary hospital.
- Confidentiality of owners, matter and applicability of the process should be considered before practicing telehealth and telemedicine.
- Security issues while using internet facilities for telemedicine should be considered.
- Knowledge level of veterinarians is very important to practice successful telehealth and telemedicine in field.
- Behavioral and psychological issues while communicating with clients should be considered to avoid any complications. Excessive use of telecommunication media may or may not have adverse effects on users.
- Use of telemedicine should be harmonized throughout the nation and should be governed by a legislative body. There should also be a regulation for monitoring the use of telemedicine and should have procedures for rectification/remedies in case of potentially harmful suggestions.
- Use of telehealth and telemedicine should be limited to authorized veterinary practitioners only.
- Practicing telehealth and telemedicine should ensure patient and public safety.
- Veterinarian practicing telemedicine should update his knowledge on regular basis because this practice reduces physical contact between veterinarian and patient leading to an increased chance of errors. Veterinarian can always refer to standard literature or books or published scientific reports while practicing telehealth and telemedicine.
- Physical treatment can be provided immediately while there may be a delay in providing immediate treatment using telehealth. This aspect should be considered before dealing with serious healthcare issues.
- A veterinarian practicing telehealth and telemedicine may be able to take charges for his expert services. This aspect depends on individual veterinarian's interest.

Conclusion

Practicing telehealth and telemedicine governed by rules and regulations should be encouraged in veterinary profession on regular basis. Teleguidance is a time-consuming procedure while telemedicine is less time-consuming, target specific and cost-effective for veterinarians as well as clients. Telemedicine is useful for clients and patients who have poor access to veterinary healthcare services and it ensures continuous care and optimum use of available resources.

Conflict of Interest

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