

Technological Innovations in Veterinary Services

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Amul is the pioneer in the milk cooperative sector in India which has presented the world's most successful model of cooperation in dairy sector. The farmers across entire nation are gratified with the fruits of "Anand Pattern". The staff members strive continuously to strengthen this model by introducing the system so as to make the livelihoods of milk producers better than yesterday. The prompt services offered by Amul to milk producers with innovations have become an integral part of our DNA.

Technological innovations play an ever growing role in the growth of economy of the member milk producers by moving away from traditional way of milk business towards modern ways of dairying and innovation policy.

Technological innovations have spurred exponential use of electronic resources by learners of all ages over the last decade. Consequently, it has given us an impetus to create opportunities for the milk producers to find immediate solutions to their needs and utilization of available resources, which are now at their fingertips.

The milk producers in the operational areas are receiving doorstep veterinary services since 1950. Day by day these services are getting improved. Now this service is being executed with fullest use of technology and automation.

In the past Amul had multiple veterinary centers across the milk shed, having facilities like, telephones

with operators for booking visit calls in 3 shifts. One or two telephone devices at the centers were not enough and kept the milk producers in the queue to book their calls. Registered calls were allocated to the veterinarians moving on different routes emerging from respective centers. Veterinary Doctors used to carry printed visit schedules and prepared case papers in hard copies after treating the animals, wasting tons of stationery as the case paper copies were also provided to the members and DCS.

Local problems did not reach to HO unless they were put in to black and white by the members. Data entry operators made entries of case papers manually in Excel workbooks. Data were locally saved on the computers at individual centers.

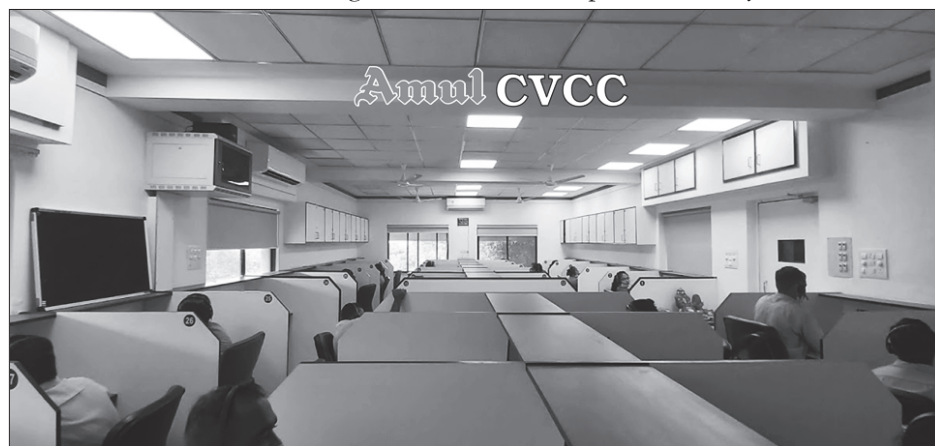
Later, SAP system was adopted but for pretty long time data needed to be entered by the operators in SAP, as online entry by doctors was not possible due to lack of mobile integration with SAP. Daily visit reports were available only after data entry by the operators. Data operators were non-technical and the entered data of veterinary cases were having errors and wrong entries. Due to power supply failure at the centers, network issues or computer system failure caused problems in saving or retrieving the data.

It was not possible to know the working status of the field staff, one had to believe on their verbal reporting only. It was difficult to distribute work uniformly based

on the pendency of the work with individual veterinarians. During special visit, allowance duty to OT ratio was beyond control as real time work was not identifiable.

During 1969-70 VHF wireless sets were introduced for communication with the field veterinarians.

The only means of communication with the veterinarians was VHF wireless sets and depending on the range of these devices,



Groundbreaking technological advances are rapidly transforming our veterinary services. While these developments are creating new possibilities, veterinary service providers that are slow to adapt may fall behind and miss good opportunities.

The cooperative organization offers premium veterinary care services to the milk producers to increase their overall profitability. Low production, high expense, unorganized data and unproductive periods directly affect profitability of the milk producers. Being the custodian of the milk business of the milk producers, leveraging technology to track the areas of losses enabled Amul to significantly increase opportunities to curb expenses and improve productivity.

veterinarians needed to move from one place to other for receiving strong signals and establish their contact with the centers. Frequently, allocating emergency cases to the veterinarians was posing a great problem due to lack of broken contacts. As a consequence, additional veterinarians needed to run on the same routes.

In the year 2000 WLL telephone sets were provided to veterinarians replacing VHF wireless sets but network issue was major constraint in remote areas and the sets were not handy.

Later in 2004, mobile technology was gaining popularity as an easier way of communication which replaced the WLL telephone sets and communication system got improved day by day. Today the smart phones have enabled ease of delivering the services through highly effective communication due to widening of mobile networks by the service providers.

In 2013, inspired by '108' call service of the Gujarat Government; the concept of fastest veterinary services to the milk producers with centralized control over the services was conceived.

It was decided to establish a call center at the head quarter of Amul Dairy at Anand. The goal for setting up of the call center was to provide faster veterinary services to the milk producers of the union.

Making use of technology to minimize the problems faced by milk producers in receiving the services was given due emphasis. To reduce non-traceability of the member in the remote areas, their phone numbers were saved to bring about transparency and total control over the work done by field staff.

To control expenses through paperless work and go eco-friendly, real time control over data and monitoring of field staff with the use of integrated systems enabled real time data entry in place.

Centralized Veterinary Call Center (CVCC) is the state of the art call center established at Amul Dairy, Anand for the farmers and first of its kind in India as it is fully dedicated to the veterinary services meant for the milk producers.

The call center is well equipped with all modern amenities, run with the capacity of 40 operators working 24x7 and 365 days. The door step veterinary service is provided to the milk producers for which they book their calls at the call centers. The information of members like member code, name, address, the details of animal along with tag number and ailment are registered by the operators.

The service calls pertaining to Bulk Milk Chillers (BMC) of VDCA and farms are also handled at CVCC. The plant machinery service related calls of our dairy plants across country are also booked and processed for further action by different types of service providers.

The milk producers are also provided with mobile application "Amul Pashu Seva" to book their calls for treatment of their sick animals & artificial insemination.

All the village dairy cooperative societies (VDCA) in the operational areas are affiliated with different veterinary centers so that the members can avail the veterinary services quickly. The affiliated villages are assigned to different routes emerging from the place of veterinary centers. These are mapped in the software named CVCC, being used at the call center.

The registered calls are allocated online to the doctors assigned to allocated routes who are provided with the CVCC mobile application. While booking, the calls are marked as emergency or normal based on the seriousness of the cases mentioned by the members and veterinarians endeavor to attend the emergencies within two hours and normal calls within five hours from the booking

time. At the same time, they confirm “no pendency” of the registered calls for the next day. The dialer software is integrated with CVCC software wherein milk producers’ mobile numbers are copied in the booked calls. The numbers thus saved are useful to doctors for finding the addresses of the milk producers where traceability is difficult. Also these saved numbers retrieve the names of the members when they call again from the same mobiles.

Mobile Application CVCC (Online & Offline)

The mobile application is incorporated with different functions like,

Visit allocation: List of allocated calls to veterinarians with details like ailment, animal owners name, address, normal or emergency tags & mobile link to call the animal owners as and when needed.

The calls allocation to the veterinarians assigned to particular routes is automated with the timing for auto-allocation. Later, the allocation work can be done manually by communicating with individual veterinarians.

Veterinary visit data capturing: Online case paper format includes mandatory information like owner's name, animal description and ailment that appears directly from the booking details recorded by operators.

Other mandatory inputs are:

Animal Identification

Separate user friendly mobile application for tagging is provided to veterinarians for animal registration. Tagging database is integrated with the CVCC & AI software.

Tag numbers are entered in case data and validated while attending to the visits. As and when necessary, master data are changed if the animals are found migrated from one place to other.

Other animal related data entered includes, species breed, gender and age group.

Diagnosis: Disease list is filtered based on input data of species, breed, gender and age group selection. This eliminates the errors in manual selection of diseases e.g. male specific diseases are never selected for gender female & vice versa.

Medicines: The list of medicines displayed is filtered based on the “type of treatment” selected by veterinarian i.e. antibiotics, other allopathic, EVM, homoeopathic or ayurvedic formulations e.g. if the veterinarian desires to treat animal with Ethno Veterinary Medicines (EVM) then antibiotics are excluded from the list. Similarly, for other types of treatment, the list is filtered. This has enabled the doctors to curb the usage of antibiotics which was given earlier in undesirable combinations. It is important to note that we are restricting the usage of antibiotics from the food products’ quality point of view. Antibiotics are used by veterinarians only when their usage is inevitable for saving the life or productivity of the animal. We restrict the usage of milk for human consumption till the withdrawal period of the antibiotics used is over.

Medicine Indent: Veterinarians can submit their indents online from mobile app.

Medicine Stock: Opening stock, issued quantity, consumption and closing stock of medicines is at the fingertips of the veterinarians.

Medicine Consumption: Medication is the major part of the cost of veterinary services. Consumption of different medicines by veterinarians is very precisely handled in CVCC software. Medicines issued in SAP in issuing UOM are integrated with CVCC thereby veterinarians

The screenshot displays the Mobile Application CVCC interface, which is divided into several functional panels:

- CVCC DASHBOARD:** Includes buttons for BACK, SYNC OR UPDATE MASTERS, REFRESH DATA, and UPDATE MASTER.
- SEARCH HERE:** A search bar for navigating through the application.
- MEDICINE INDENT (426032120113920):** A form for entering medicine indents, including fields for SELECT MEDICINE, QUANTITY, UOM, and ISSUE UNIT. It also features a LIST OF MEDICINE ENTRY table.
- MEDICINE SUMMARY:** A table listing various medicines with columns for MED NAME, QNTY, INC QTY, USE QTY, and CL QTY. The table lists items like SHEATH (0.0, 0, 0.0, 0.0), ANTI-BIOTIC (2.0, 0, 1.0, 1.0), and others.
- CASE DETAIL:** A section for managing cases, with buttons for PENDING CASE, COMPLETED CASE, and FETCH CASE.
- CAMP DETAIL:** A section for managing camps, with buttons for PENDING CAMP and COMPLETED CAMP.
- INDENT DETAIL:** A section for managing indents, with buttons for ADD INDENT, COMPLETED INDENT, and INDENT VS ISSUE.
- OTHER DETAIL:** A section for managing other details, with buttons for RATION BALANCE, UPDATE APP, and STOCK UPDATE.
- ENTER DATA FOR RATION BALANCING:** A form for entering data for ration balancing, including fields for TAG NUMBER, CATTLE, BUFFALO, WEIGHT, and MILK PRODUCTION.

At the bottom of the interface, there are utility buttons such as REFRESH LIST, PENDING CASE: 13, CLOSE MEDICINE INDENT ACTIVITY, and FETCH MEDICINE STOCK.

get the stock in CVCC immediately in consumption UOM. The consumption of medicines is booked via case papers.

Reports provide the consumption details *i.e.* UOM of medicines consumed by the vets, which is the base for periodic physical stock verification and audits. It also provides information on extravagant usages of medicines which can be controlled in turn. Strictly following this process, huge wastage of the materials and medicines is controlled.

Infertility Management

For fertility improvement in animals showing temporary infertility, programs like General camps (Union sponsored) & FIP camps (GCMMF sponsored) are organized. The data of treated animals are entered in the CVCC software whose reports are helpful in assessing overall fertility improvement in animals and cost of treatments too.

Feed/Fodder Library

Along with animal treatment, the veterinarians collect data of feed and fodder variants offered to the animals by individual milk producers to identify area wise feeding patterns and corrective measures to be taken for further productivity enhancement. Based on the information collected from individual milk producers, veterinarians prescribe feed additives and feeds to be incorporated in animal diet. These data are correlated with area wise nutritional disease incidences in the animals.

Ration Balancing

Ration balancing is an optional part and veterinarians perform it as and when needed or on demand of milk producers; side by side to animal treatment.

To balance the levels of various nutrients received by the animals, from the available feed resources, to meet their nutrient requirements for maintenance and production; ration balancing is incorporated in CVCC software.

Other input data like milk production, quantity of water offered to animals and land holding of milk producers are captured through the case entries. Land holding data are used to know availability of land for fodder production.

Types of cases: System identifies fresh, repeat or follow up cases attended based on the tag number entries of the animals during preceding 8 days of the current date. Diseases which need compulsory treatment for more than 1 day are marked for follow up e.g. surgical cases, mastitis, etc. Remaining diseases are considered as repeat cases if attended again within stipulated range of preceding days' period.

Digitalization of Veterinary Transport System

CVCC software is incorporated with veterinary

transport activities. All the logbook entries of the vehicles being used by the veterinarians and other field staff are made online.

Besides, this the transport system is supported with GPS tracking system to monitor the movement of the vehicles for their pinpoint usage and manage veterinary emergency cases. The comparative Km report based on log book entries and GPS distance are available in integration mode with CVCC software. To economize the veterinary transport activities we generate transport bills based on GPS Km.

Reporting

360° major reports available in CVCC are, Call Report-(master report), Camp entry Report Center Report, Center wise Feed Analysis, Daily Visit Summary, Date wise Vendor wise Vehicle Report, Vehicle Kilometer Report, Vehicle & GPS Comparison Report, Disease Report, Doctor wise Report, Doctor OT Duty Report, Feed Library (Disease wise), Lab Report, Medicine Issue Report, Medicine consumption Report, Daily and Monthly MIS Report, Village wise tag Report and many more.

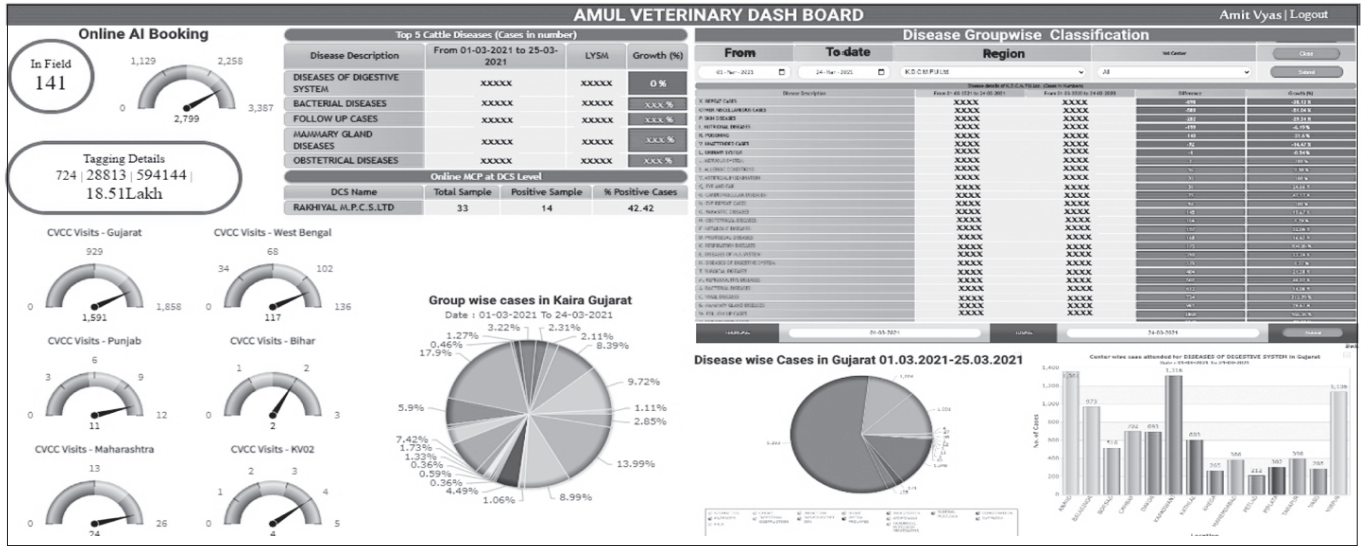
Messaging Facility: Once the call booked by the milk producers is attended by the veterinarian, a message pertaining to attended case is delivered to them with a link to access the online case paper prepared by the veterinarians.

In case of the call booked for artificial insemination, the message is delivered to an AI worker who attends the call after receiving such message. Once an AI worker attends the call, a confirmation message is sent to the milk producer regarding attended call.

After 21 days a reminder message is sent to milk producers to check if the animal has returned to heat or not. If his animal is not again inseminated then second reminder message is sent after completion of 3 months for performing pregnancy diagnosis and if the animal is registered pregnant then last message is sent during full term pregnancy period to watch for calving on due date.

Visit charges (Revenue): The visit charges are very negligible & levied just to avoid misuse of the services. Prepaid coupons are sold to the VDCCS and individual milk producers purchase them from their own VDCCS. Veterinarians attend the cases by collecting these coupons from the milk producers. Coupons sold to VDCCS have 7 digit number ranges, which are maintained in the CVCC master; thereby, when entry of such coupon numbers is made in case papers; system validates it for the VDCCS issuing the same.

Very soon we are going to implement a process



for online deduction of visit charges directly from the milk bill accounts of the milk pourers. This process involves identification of pouring members' codes and check for their milk data of current milk bill cycle for deduction of charges. This checking will occur at the very instance the visit call is being registered. Once the check is successful, system will trigger to generate a command for updating a message to the veterinarians for attending the visit either through online deduction of charges or cash collection based on the milk data of the milk pourer during current milk bill cycle.

In case of online deduction, an OTP will be generated and sent to the registered mobile number of the member. Members/non-members without OTP will pay visit charges in cash. In certain conditions like death of animal before treatment, owner's location is not traceable, the status updated earlier during booking time for online deduction or cash payments will be changed with the selection of the codes for these conditions and no charge will be deducted online or collected in cash.

In case of online deductions, the VDCCS secretary will receive a statement of online deductions at the end of the day which will help him to deduct the charges from individuals' milk bills on daily basis.

Integration with Amul Dashboard

Specially designed Amul dashboard is fully integrated with SAP, Amul AMCS, CVCC and other applications generating real time data on a single screen making information at the fingertips of higher management that can be drilled down for detailed information on Veterinary visits attended, Medicine Consumption, Disease Classification, Animal AI and Tagging, Animal Feeds and Fodders fed by milk producers and other vital

information of other departments.

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