

# BloodCenterOS Database Structure Overview (Phase 1)

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This document lists all tables planned for BloodCenterOS\_DB\_v3.sql, grouped by functionality. The database is designed without direct foreign keys, using hard deletes and datetime2(7) with SYSUTCDATETIME() defaults.

## A. Core Entity & Center Management

1. CenterMaster: Registered blood centers (main + collection units) with license & contact info.
2. CenterDepartment: Departments or divisions within a center (Collection, Testing, Component, Issue).
3. CenterSettings: Configurable preferences (bag number prefixes, invoice patterns, SMS settings).
4. CenterLicense: Legal licensing and renewal details for compliance.
5. CenterHoliday: Days when center is closed or limited operations.
6. CenterStorageUnit: Cold storage / refrigerator / freezer inventory for each center.
7. CenterContactPerson: Key contacts and authorized staff members.
8. CenterShiftTiming: Standard working hours, used for scheduling and camp planning.

## B. Donor Management

9. DonorMaster: Main donor registry (personal info, contact, blood group).
10. DonorMedicalHistory: Past medical conditions or donation deferral reasons.
11. DonorScreening: Pre-donation check-up (BP, Hb, weight, temperature).
12. DonorDonationHistory: Record of each donation linked to collection event.
13. DonorCommunicationLog: SMS/Email communication history with donor.
14. DonorDeferralLog: Temporarily deferred donors and reason tracking.
15. DonorEligibilityRule: Rules for donation interval or restrictions.
16. DonorConsentForm: Digital consent form references (storage link).
17. DonorCardIssue: History of donor ID card generation or renewal.
18. DonorFeedback: Feedback collected post-donation or camp.

## C. Blood Collection & Bag Lifecycle

- 19. CollectionRecord: Actual blood collection event with donor and camp details.
- 20. BloodBagMaster: Central table tracking each bag (unique number, status, expiry).
- 21. BloodBagStatusLog: Changes in bag status (collected, tested, discarded).
- 22. CollectionEquipment: Equipment used during collection (kits, bags).
- 23. CollectionStaffLog: Staff present for collection session.
- 24. CollectionComplication: Adverse donor reactions (if any).
- 25. CollectionAttachment: Attached forms or photos (scanned donor sheet).
- 26. BloodQuarantineLog: Quarantined bags due to test failure or other reasons.

## D. Testing & Screening

- 27. BloodTestRecord: Header for all tests conducted on a collected bag.
- 28. BloodTestResult: Individual test results (HIV, HBsAg, HCV, Syphilis, Malaria).
- 29. TestMaster: List of standard tests and methods.
- 30. TestKitMaster: Approved kits with lot numbers and expiry.
- 31. TestBatch: Batch of bags tested together for audit tracing.
- 32. TestRecheckLog: Retesting or QC verification results.
- 33. TestDiscardLog: Units failed in testing and discard reasons.

## E. Component Preparation & Storage

- 34. ComponentPreparation: Log of centrifugation and separation activities.
- 35. ComponentMaster: Resulting components (RBC, FFP, Platelets) with expiry.
- 36. ComponentCategoryMaster: Master list of component types.
- 37. ComponentStorage: Current location of each component (blood fridge/freezer).
- 38. ComponentTransferLog: Movement between storage units or centers.
- 39. ComponentDiscardLog: Expired or damaged components removed from stock.
- 40. ComponentQualityCheck: QC observations and temperature monitoring.

## F. Inventory & Stock Control

- 41. InventoryStock: Real-time count of components by type and blood group.
- 42. InventoryTransactionLog: All in/out movements for audit and traceability.
- 43. InventoryAdjustmentLog: Manual stock corrections authorized by admin.

- 44. InventoryRequest: Internal transfer requests between centers.
- 45. InventoryReorderLevel: Threshold values for low-stock alerts.
- 46. InventoryAudit: Periodic physical stock verification records.

## **G. Patient / Hospital / Issue & Billing**

- 47. PatientMaster: Direct patients receiving blood.
- 48. HospitalMaster: Registered hospitals and clinics using services.
- 49. PatientRequest: Blood/component request raised by hospital/patient.
- 50. CrossMatchRecord: Cross-match testing details before issue.
- 51. IssueRecord: Final issuance transaction linking to bag/component.
- 52. IssueAttachment: Prescription or crossmatch file uploads.
- 53. BillingTransaction: Invoice and payment summary.
- 54. InvoiceDetail: Line-item charges (service/component fees).
- 55. ServiceChargeMaster: Price catalog for blood components and services.
- 56. PaymentReceiptLog: Records of received payments (mode, reference no.).

## **H. Camps & Outreach**

- 57. CampMaster: Main blood donation camp details (location, sponsor).
- 58. CampSchedule: Planned camp dates and assigned staff.
- 59. CampDonorMap: Donors participated in specific camp.
- 60. CampInventoryLog: Units collected and dispatched from camp.
- 61. CampSponsor: Sponsors and partner organizations.
- 62. CampExpense: Expenses incurred during camp (transport, food, materials).
- 63. CampFeedback: Post-camp evaluation and reports.

## **I. Staff / User / Role Management**

- 64. EmployeeMaster: Staff working in the blood center.
- 65. DesignationMaster: Role titles (Technician, Medical Officer).
- 66. AppUserMaster: Application login users linked to employees.
- 67. RoleMaster: Role definitions (Admin, Technician, Accountant, etc.).
- 68. UserRoleMap: Mapping users to roles.
- 69. UserLoginHistory: Log of user logins (IP, device, timestamp).

## **J. Notification / Communication**

- 70. NotificationLog: System-generated alerts or reminders.
- 71. SmsQueue: Pending SMS messages for donors or patients.
- 72. EmailQueue: Outgoing emails for notifications and reports.
- 73. OutboxLog: Delivery status of sent SMS/Emails.
- 74. NotificationTemplate: Message templates with placeholders.

## **K. Master / Lookup Data**

- 75. LookupCategory: Defines categories for lookup values.
- 76. LookupValue: General lookup values for statuses and types.
- 77. BloodGroupMaster: A+, A-, B+, B-, O+, O-, AB+, AB-.
- 78. CityMaster: City list.
- 79. DistrictMaster: District list.
- 80. StateMaster: State list.
- 81. CountryMaster: Country list.
- 82. PincodeMaster: Postal codes linked to areas.
- 83. ReasonMaster: Common reason repository (deferral/discard).
- 84. StorageTypeMaster: Freezer, Refrigerator, Platelet agitator.
- 85. EquipmentMaster: Approved equipment used in labs and collection.
- 86. UnitOfMeasureMaster: mL, L, °C, bag, test kit, etc.

## **L. Analytics / Reports / Compliance**

- 87. MonthlyReportLog: Consolidated summary for State or NACO upload.
- 88. DashboardSummary: Cached statistics for dashboard tiles.
- 89. ReportSchedule: Automated report generation plan.
- 90. ReportExportLog: Log of PDF/Excel exports.
- 91. GovtPortalUploadLog: Record of data uploaded to State/Central portals.

## **M. Security / Audit / System Logs**

- 92. AuditLog: Action-level audit trail (Old / New values).
- 93. ErrorLog: Exception logs from API or app.
- 94. ActivityLog: User-activity logs (non-data changes).

- 95. LoginHistory: Application login/logout audit.
- 96. SystemHealthLog: Background job and system health records.
- 97. DataBackupLog: Backup operation records.

## **N. Utility / System Support**

- 98. SequenceCounters: Maintains running numbers for bags, invoices, etc.
- 99. AttachmentStore: Common repository for uploaded files or documents.
- 100. ApiRequestLog: Logs incoming API calls for audit.
- 101. ApiResponseLog: Outgoing API responses for trace.
- 102. JobScheduler: Background job metadata and intervals.
- 103. JobExecutionLog: Each execution instance log.