

Hospital Management System - Advanced Flowcharts

This document provides an advanced textual representation of key flowcharts for a comprehensive Hospital Management System. These are designed to be detailed and reflect sophisticated workflows.

Legend for Flowchart Elements (Textual Representation):

- ((Start/End)) - Start or End point of a process
- [Process Step] - A specific action or process, potentially with (Actor: Role)
- <Decision Point?> - A point where a decision is made, leading to different paths
- --> - Direction of flow
- {Data Store/Database} - Represents data being read or written (e.g., {EHR Database})
- IO: Input/Output - Represents data input or output (e.g., IO: Registration Form)
- Sub: Sub-Process - Calls a more detailed sub-process/flowchart
- Sys: System Action - Indicates an automated system action
- Note: - Additional information or context

1. Advanced High-Level System Overview Flow (Patient-Centric)

This shows a typical patient journey with more detailed module interactions and advanced system considerations.

graph TD

```
A[Patient Arrives/Contacts Hospital/Uses Patient Portal] --> B{New or Existing Patient?};
B -- New Patient --> C[Receptionist/Patient Portal: Initiate Patient Registration];
C --> C1[Sub: Detailed Patient Registration & Insurance Verification Process];
C1 --> D[Sys: Generate Unique Patient ID, Create Comprehensive EHR Shell, Log in {Audit Trail Database}];
D --> E;
B -- Existing Patient --> F[Receptionist/Patient Portal: Search Patient (Multi-Factor) in {Patient Master Index}];
F --> G{Patient Record Found & Verified?};
G -- Yes --> E[Receptionist/Patient Portal: Access Patient Dashboard];
G -- No --> C;

E --> H{Appointment Type?};
H -- Scheduled --> I[Receptionist/Patient Portal: Confirm Appointment Details from {Appointment Scheduling Module}];
H -- Walk-in/Emergency --> J[Receptionist/Triage Nurse: Assess Urgency - {Triage
```

```
Module}};  
  J --> J1{Emergency?};  
  J1 -- Yes --> K[Triage Nurse: Prioritize & Fast-track to Emergency Services, Notify  
ER Team];  
  J1 -- No --> I; % Or direct to appropriate OPD queue  
  I --> L[Patient: Attends Appointment/Service];  
  K --> L;
```

subgraph Clinical Encounter & Core Services

```
  L --> M[Clinical Staff (Nurse/MA): Pre-Consultation - Vitals, Chief Complaint,  
Update {EHR - Encounter Data}];  
  M --> N[Doctor/Specialist: Access Patient's Full {EHR Database} (History,  
Allergies, Meds, Previous Notes)];  
  N --> O[Doctor: Comprehensive Consultation (Examination, Review Data, Discuss  
with Patient)];  
  O --> P[Doctor: Record Detailed Clinical Notes (SOAP/Structured), Preliminary  
Diagnosis in {EHR - Clinical Notes}];  
  P --> Q{Further Investigations/Procedures Needed?};  
  
  Q -- Lab Tests --> R[Doctor: Order Specific Lab Tests via {LIS Integration Layer}  
(e-Order)];  
  R --> R1[Sys: Transmit Order to {LIS Database}, Notify Lab, Update {EHR -  
Orders}];  
  R1 --> R2[Lab Technician: Sub: Detailed Lab Workflow (Sample Collection,  
Processing, QC, Result Entry)];  
  R2 --> R3[Sys: Lab Results automatically pushed to {EHR - Results}, {LIS  
Database}. Critical Value Alerts Triggered];  
  R3 --> O; % Doctor reviews results
```

```
  Q -- Imaging --> S[Doctor: Order Imaging (X-Ray, CT, MRI) via {RIS Integration  
Layer} (e-Order)];  
  S --> S1[Sys: Transmit Order to {RIS Database}, Notify Radiology Dept, Update  
{EHR - Orders}];  
  S1 --> S2[Radiology Tech/Radiologist: Sub: Detailed Radiology Workflow  
(Scheduling, Imaging, Reporting)];  
  S2 --> S3[Sys: Imaging Reports & Images (via PACS link) pushed to {EHR -  
Reports/Images}, {RIS Database}];  
  S3 --> O; % Doctor reviews reports
```

Q -- Medications --> T[Doctor: e-Prescribe Medications via {PIS/CPOE Module} with Decision Support (Allergy/Interaction Checks from EHR)];

T --> T1[Sys: Prescription sent to {PIS Database}, Update {EHR - Medications}, Link to {Billing Module}];

T1 --> T2[Pharmacist: Sub: Detailed Pharmacy Dispensing Workflow];

T2 --> O; % Confirmation of dispensing / issues

Q -- Therapy/Other Services --> U[Doctor: Order Therapy (PT, OT) or other specialized services via {Service Order Module}];

U --> U1[Sys: Notify relevant department, Update {EHR - Orders}, Link to {Billing Module}];

U1 --> U2[Therapist/Provider: Deliver service, Document in {EHR - Progress Notes}];

U2 --> O;

Q -- No Further Clinical Action/Referral --> V;
end

subgraph Billing, Discharge & Follow-up

O --> V[Sys: Consolidate all charges (Consultation, Labs, Imaging, Meds, Procedures, Room) in Real-time - {Financial Management Module - Charge Master}];

V --> W[Sys: Apply Insurance Rules, Calculate Co-pay/Deductibles from {Insurance Contract Module}];

W --> X[Cashier/Billing Dept/Patient Portal: Generate Itemized Bill/Statement];

X --> Y[Patient/Payer: Process Payment (Multi-tender: Cash, Card, Insurance e-Claim via {Payment Gateway Integration})];

Y --> Y1[Sys: Update {Billing Database}, {Accounts Receivable Ledger}, Generate Receipt, Log in {Audit Trail Database}];

O --> Z{Patient Disposition?};

Z -- Outpatient Discharge --> AA[Doctor/Nurse: Provide Discharge Instructions, Patient Education Materials from {EHR - Patient Education Library}];

AA --> AB[Receptionist/Patient Portal: Schedule Follow-up Appointment if needed - {Appointment Scheduling Module}];

AB --> AC((Patient Exits / Engages via Patient Portal for Follow-up));

Z -- Inpatient Admission --> BA[Admission Officer: Sub: Detailed Inpatient Admission Process (Bed Allocation, Consents)];

```
BA --> BB[Inpatient Care Team: Ongoing Multi-disciplinary Care, Update {EHR -
IPD Records} daily];
BB --> BC[Sys: Daily IPD charges (Room, Nursing, Monitoring) auto-posted to
{Billing Module}];
BC --> BD{Ready for Inpatient Discharge?};
BD -- Yes --> BE[Doctor: Finalize IPD Care, Complete Discharge Summary in
{EHR}];
BE --> BF[Billing Dept: Finalize Inpatient Bill, Insurance Claim Submission];
BF --> BG[Patient/Payer: Settle Final Bill];
BG --> BH[Discharge Coordinator: Coordinate Discharge, Provide Meds,
Instructions];
BH --> AC;
BD -- No --> BB;
end
```

%% Cross-cutting & Supporting Modules

```
SUP1((Administrator: Advanced User & Role Management, System Configuration,
Security Policy Management))
```

```
SUP2((HR/Payroll Dept: Staff Management, Roster, Payroll Processing - {HRM &
Payroll Modules}))
```

```
SUP3((Inventory & Supply Chain Manager: Central & Departmental Stock,
Procurement, Supplier Mgt - {Inventory & SCM Module}))
```

```
SUP4((Management/Analysts: Access Real-time Dashboards, Generate Custom
Reports - {Reporting & Business Intelligence Module}))
```

```
SUP5((IT Support: System Monitoring, Maintenance, Backup & Recovery - {System
Health Module}))
```

```
SUP6((Patient Portal Access Point for Patients))
```

```
SUP7((External Systems: Insurance Clearinghouses, National Health Registries,
Payment Gateways - via {Integration Engine/APIs}))
```

%% Data Flows to Central Analytics

```
D --> {Data Warehouse/Analytics Platform};
```

```
R3 --> {Data Warehouse/Analytics Platform};
```

```
S3 --> {Data Warehouse/Analytics Platform};
```

```
T1 --> {Data Warehouse/Analytics Platform};
```

```
U2 --> {Data Warehouse/Analytics Platform};
```

```
Y1 --> {Data Warehouse/Analytics Platform};
```

```
BB --> {Data Warehouse/Analytics Platform};
```

(Note: This Mermaid diagram is significantly more complex, reflecting advanced interactions. Visual rendering tools will be essential.)

2. Advanced Detailed Flowchart: Patient Registration & Appointment Scheduling

Actors: Patient, Receptionist/Registration Clerk, System, (Optional: Insurance Coordinator)

((Start: Patient Initiates Registration/Appointment (Walk-in, Phone, Patient Portal)))

|

V

[Actor (Patient/Receptionist): Selects 'New Registration' or 'Existing Patient Appointment']

|

V

<New Patient Registration?>

|-- Yes --> [Receptionist/Patient Portal: IO: Collect Core Demographics (Name, DOB, Gender, Contact)]

|

|

|

V

| [Sys: Real-time Duplicate Check against {Patient Master Index} using probabilistic matching]

|

|

|

V

| <Potential Duplicate Found?>

| |-- Yes --> [Receptionist: Review potential duplicates, confirm if new or existing. If existing, merge/update.] --> [Existing_Patient_Path]

|

| |-- No --> [Receptionist/Patient Portal: IO: Collect Extended Demographics, Emergency Contacts, Communication Preferences]

|

|

|

V

| [Receptionist/Patient Portal: IO: Collect Insurance Information (Provider, Policy ID, Group #)]

|

|

|

V

| [Sys: (If online) Real-time Eligibility & Benefits Check via {Insurance Gateway Integration}]

|

|

```

|           V
|           <Insurance Valid & Active?>
|           |-- Yes --> [Sys: Store Eligibility Response in {EHR - Insurance
Info}, Note Co-pay/Deductibles]
|           |-- No/Error --> [Receptionist: Inform patient, discuss self-pay
options or manual verification. IO: Insurance Issue Flag]
|           |
|           V
|           [Receptionist/Patient Portal: IO: Capture Patient Photo (optional),
Scan ID Documents, e-Signature for Consents (Privacy, Treatment)]
|           |
|           V
|           [Sys: Validate all mandatory fields, data formats]
|           |
|           V
|           <All Data Valid & Complete?>
|           |-- Yes --> [Sys: Generate Unique Patient ID (MPI compliant)]
|           |           |
|           |           V
|           |           [Sys: Create New Patient Record in {Patient Database},
{EHR Core Profile}, Log in {Audit Trail}]
|           |           |
|           |           V
|           |           [Receptionist/Sys: Inform Patient of ID, Provide Welcome
Kit/Portal Access Info (IO: Patient ID Card/Info)]
|           |           |
|           |           V
|           |           [A_ProceedToAppointment]
|           |           |
|           |-- No --> [Receptionist/Patient Portal: Highlight errors/missing
info, guide correction] --> [Sys: Validate all mandatory fields]
|           |
|           |-- No (Existing Patient) --> [Existing_Patient_Path]
|           |           [Receptionist/Patient Portal: Search Patient (ID, Name+DOB, Phone)
in {Patient Master Index}]
|           |
|           V
|           <Patient Record Found?>
|           |-- Yes --> [Receptionist/Patient Portal: Verify Patient Identity

```

(e.g., DOB, Address, Security Q)]

| |
V

<Identity Verified?>

|-- Yes --> [Receptionist/Patient Portal: Review/Update
Demographics, Insurance, Consents if needed] --> [A_ProceedToAppointment]

|-- No --> [Receptionist: Escalate for identity verification. IO:
Security Flag] --> ((End: Process Halted))

|

|-- No --> [Receptionist: "Record not found. Proceed with New
Registration?"] --> <New Patient Registration?>

[A_ProceedToAppointment]

|
V

[Actor (Patient/Receptionist): "Book/Confirm Appointment?"]

|
V

<Book/Confirm Appointment?>

|-- Yes --> [Actor: Specify Reason for Visit, Department, Preferred Doctor(s),
Date/Time Range]

| |
| V

| [Sys: Access {Appointment Scheduling Module} - Display Doctor Schedules,
Availability, considering rules (New vs. Follow-up slots, procedure duration)]

| |
| V

| [Sys: Filter options based on insurance network compatibility if applicable]

| |
| V

| [Actor: Select Available Slot (IO: Calendar Interface)]

| |
| V

| [Sys: Tentatively Book Slot, Check for conflicts]

| |
| V

| <Pre-Authorization Required for Service/Insurance?>

| |-- Yes --> [Sys: Flag for Pre-Auth. Insurance Coordinator: Initiate Pre-Auth
Process with Payer.]

```

|           |           |
|           |           V
|           |           <Pre-Auth Approved?>
|           |           |-- Yes --> [Sys: Record Auth #, Confirm Appointment in
{Appointments Database}]
|           |           |-- No --> [Insurance Coordinator/Receptionist: Inform Patient,
Discuss Options (Reschedule, Self-Pay)] --> ((End: Appointment Pending/Cancelled))
|           |
|           |           |-- No --> [Sys: Confirm Appointment in {Appointments Database}]
|           |
|           V
|           [Sys: Link Appointment to Patient Record, Update Doctor's Schedule]
|           |
|           V
|           [Sys: Send Automated Confirmation & Pre-Visit Instructions
(SMS/Email/Portal Notification) with option to (IO: Add to Calendar)]
|           |
|           V
|           [Receptionist/Sys: Provide Appointment Details, Any Prep Instructions]
|           |
|           V
|           ((End: Registration/Appointment Process Complete))
|
|-- No --> [Receptionist: Provide other assistance or direct patient]
|
V
((End: Patient Directed/Assisted))

```

3. Advanced Detailed Flowchart: Outpatient Visit (Post-Registration/Appointment)

Actors: Patient, Receptionist, Triage Nurse, Clinical Support Staff (MA/Nurse), Doctor, System, (Optional: Lab Tech, Pharmacist, Cashier, Referral Coordinator)

((Start: Patient Arrives for OPD Visit - Already Registered & Appointment Confirmed (or Walk-in)))

```

|
V
[Receptionist/Kiosk: Patient Check-in (Verify ID, Appointment, Update Arrival Status in

```


{Appointment Scheduling Module}}]

|

V

[Receptionist: Collect Co-payment if applicable (based on {EHR - Insurance Info}),
Issue Receipt]

|

V

<Walk-in or Unscheduled Urgent Care?>

|-- Yes --> [Receptionist: Direct to Triage Station]

|

|

|

V

| [Triage Nurse: Rapid Assessment (Vital Signs, Chief Complaint, Severity
Scoring using {Triage Protocol Module})]

|

|

|

V

| [Triage Nurse: Prioritize Patient in Queue, Assign to appropriate OPD
Doctor/Service. Update {EHR - Triage Notes}]

|

|

|

V

|

[B_WaitForConsultation]

|

|-- No (Scheduled) --> [Receptionist: Guide Patient to Waiting Area for specific
clinic/doctor]

|

V

[B_WaitForConsultation]

[B_WaitForConsultation]

|

V

[Clinical Support Staff (MA/Nurse): Call Patient, Escort to Exam Room]

|

V

[Clinical Support Staff: Record/Update Vital Signs, Allergies, Current Medications,
Chief Complaint, Reason for Visit in {EHR - Encounter Form}]

|

V

[Clinical Support Staff: Perform any standing orders/pre-consultation screening based
on clinic protocol]

```
|
V
[Doctor: Notified Patient Ready. Accesses Patient's Comprehensive {EHR Database}
(incl. past visits, problems, meds, labs, imaging, alerts, decision support prompts)]
|
V
[Doctor: Conducts Consultation (Detailed History, Physical Examination, Review of
Systems)]
|
V
[Doctor: Utilizes {Clinical Decision Support System (CDSS)} for diagnostic
suggestions, evidence-based guidelines if applicable]
|
V
[Doctor: Records Structured Clinical Notes (e.g., SOAP), Working/Differential
Diagnosis, Assessment & Plan in {EHR - Clinical Notes}]
|
V
<Lab Tests Required?>
|-- Yes --> [Doctor: Electronically Orders Lab Tests via {CPOE/LIS Integration},
specifying priority, clinical indication. Order linked to encounter.]
|      |
|      V
|      [Sys: Order transmitted to {LIS}, Specimen Collection Instructions generated
(IO: Labels, Instructions). {EHR - Orders} updated.]
|      |
|      V
|      [Patient: Directed to Phlebotomy/Lab. Sub: Detailed Lab Workflow. Results
auto-populate {EHR - Results}. Doctor notified of criticals.]
|      |
|      V
|      [C_PostInvestigation]
|
|-- No --> [C_PostInvestigation]

[C_PostInvestigation]
|
V
<Imaging Required?>
```

|-- Yes --> [Doctor: Electronically Orders Imaging via {CPOE/RIS Integration}. Order linked to encounter.]

| |

| V

| [Sys: Order transmitted to {RIS}. {EHR - Orders} updated. Patient scheduled or directed to Radiology.]

| |

| V

| [Sub: Detailed Radiology Workflow. Reports/Images auto-populate {EHR - Reports/Images}. Doctor notified.]

| |

| V

| [D_PostInvestigation2]

|

|-- No --> [D_PostInvestigation2]

[D_PostInvestigation2]

|

V

<Medication Required/Changed?>

|-- Yes --> [Doctor: e-Prescribes via {CPOE/PIS Integration} with allergy/interaction/formulary checks. Dose calculations if pediatric/weight-based.]

| |

| V

| [Sys: Prescription logged in {EHR - Medications}, sent to {PIS} or printed if necessary. Linked to {Billing Module}.]

| |

| V

| [Patient: Directed to Pharmacy (On-site/External). Sub: Detailed Pharmacy Dispensing Workflow.]

| |

| V

| [E_PostMedication]

|

|-- No --> [E_PostMedication]

[E_PostMedication]

|

V

[Doctor: Finalizes Treatment Plan, Discusses with Patient, Provides Patient Education (materials from {EHR - Patient Education Library})]

|

V

<Referral to Specialist/Other Service Needed?>

|-- Yes --> [Doctor: Initiates e-Referral via {Referral Management Module}, specifying reason, attaching relevant EHR summary.]

|

|

|

V

| [Referral Coordinator/Sys: Process referral, schedule with specialist, notify patient.]

|

|

|

V

|

[F_FinalizeVisit]

|

|-- No --> [F_FinalizeVisit]

[F_FinalizeVisit]

|

V

<Follow-up Visit Required?>

|-- Yes --> [Doctor/Clinical Staff: Schedule Follow-up Appointment via {Appointment Scheduling Module}. Instructions provided.]

|

|

|

V

[Doctor: Completes and Signs Encounter Note in {EHR}. This triggers charge capture.]

|

V

[Sys: Automatically Captures all billable charges for visit (Consultation, Procedures, Supplies) based on coding from {Charge Master} and links to {Billing Database}.]

|

V

[Patient: Proceeds to Check-out/Cashier (or online payment via Patient Portal)]

|

V

[Cashier: Review charges, explain bill, collect outstanding co-pay/self-pay portion. Process payment via {Payment Gateway Integration}.]

|
V
[Sys: Update Bill Status in {Billing Database}, Generate Final Receipt/Visit Summary (IO: Printed/Portal Summary).]
|
V
((End: Outpatient Visit Concludes. Patient data available for reporting/analytics.))

4. Advanced Detailed Flowchart: Pharmacy Dispensing

Actors: Pharmacist, Pharmacy Technician, System, Patient, (Sometimes Doctor for clarifications)

((Start: Prescription Received (e-Prescription from {PIS/EHR}, Fax, Phone (verify per policy), or Valid Paper Rx)))

|
V
[Pharmacist/Technician: Enter/Verify Prescription in {PIS - Prescription Processing Queue}]

| - Patient Demographics (Verify with {EHR} if integrated)
| - Prescriber Information (Verify DEA/License if needed from {Prescriber Database})

| - Drug Name, Strength, Dosage Form, Quantity, SIG (Directions)
| - Date Written, Refills
|
V

[Sys: Perform Initial Checks:]

| - Duplicate Prescription Check
| - Formulary Check (Preferred drug? Prior Auth needed?)
| - Basic Completeness Check
|
V

[Pharmacist: Clinical Review of Prescription (The "DUR - Drug Utilization Review")]

| - Therapeutic Appropriateness (Indication vs. Drug)
| - Drug-Disease Contraindications (from {EHR - Problem List})
| - Drug-Allergy Check (from {EHR - Allergies})
| - Drug-Drug Interaction Check (from {PIS - Drug Database} & {EHR - Current Meds})
| - Drug-Food Interaction Check

- | - Correct Dose, Route, Frequency, Duration
- | - Potential for Abuse/Misuse (especially controlled substances)
- |
- V

<Clinical Issues Identified or Clarification Needed?>

|-- Yes --> [Pharmacist: Contact Prescriber for clarification/recommendation.

Document communication in {PIS/EHR}.]

- |
- |
- V

<Issue Resolved & Prescription Modified/Approved by Prescriber?>

| -- Yes --> [Pharmacist: Update Prescription in {PIS}.] -->

[G_ProceedToFill]

| -- No --> [Pharmacist: Counsel Patient, Explain issue. Prescription cannot be filled as written.] --> ((End: Rx Halted/Returned))

- |
- | -- No (Clinically Sound) --> [G_ProceedToFill]

[G_ProceedToFill]

- |
- V

[Sys/Pharmacist: Insurance Adjudication (If not done at MD office)]

- | - Transmit claim to Payer via {Pharmacy Benefits Manager (PBM) Switch}
- | - Receive Real-time Response (Approved: Co-pay Amount; Rejected: Reason

Code)

- |
- V

<Insurance Claim Approved?>

|-- Yes --> [Sys: Record Co-pay, Payer Info in {PIS - Billing Log}.]

|-- No (Rejection) --> [Pharmacist/Technician: Troubleshoot Rejection (e.g., Prior Auth, incorrect info, refill too soon). Contact Payer/Doctor if needed.]

- |
- V

<Rejection Resolved?>

|-- Yes --> [Resubmit Claim] --> <Insurance Claim Approved?>

|-- No --> [Pharmacist: Inform Patient of Self-Pay Price or options.]

--> <Patient Agrees to Self-Pay?>

|-- Yes --> [Sys: Mark as Self-Pay in {PIS - Billing Log}.]

|-- No --> ((End: Rx Halted due to Payer/Cost Issue))

- |

V

[Pharmacy Technician (under Pharmacist supervision) / Robot: Prepare Medication]
| - Select Correct Drug (NDC verification via Barcode Scanning from {PIS - Drug Database})

| - Select Correct Batch/Lot #, Check Expiry Date from {Pharmacy Inventory Database}

| - Count/Measure Correct Quantity

| - Label Prescription Container (Patient Name, Drug, SIG, Rx#, Doctor, Pharmacy Info, Aux Labels - IO: Rx Label)

|

V

[Pharmacist: Final Verification (The "Product Check")]

| - Compare Dispensed Drug & Label against Original Prescription & {PIS} Display

| - Ensure Correct Patient, Drug, Strength, Quantity, Directions

|

V

<Verification Passed?>

|-- Yes --> [Sys: Update {Pharmacy Inventory Database} (Decrement Stock for specific NDC/Lot#)]

|

|

V

[Sys: Update Prescription Status to "Filled/Ready for Pickup" in {PIS}]

|

|

V

[Sys: Log dispensing activity in {Dispensing Log Database} & {Audit Trail}]

|

|

V

| [Sys: If controlled substance, report to {State Prescription Drug Monitoring Program (PDMP)} if applicable]

|

|

V

| [Sys: Check if stock level for drug is below Min. Threshold in {Pharmacy Inventory Database}]

|

|

V

<Below Min. Stock?>

| |-- Yes --> [Sys: Trigger Automated Reorder/Add to Purchase Order in {Inventory Management Module}]

|

|

```

|          |-- No --> [H_PatientInteraction]
|
|-- No (Error Found) --> [Pharmacist: Correct Error, Re-prepare/Re-label if
necessary.] --> [Pharmacy Technician: Prepare Medication]

[H_PatientInteraction]
|
V
[Pharmacist/Technician: Notify Patient (SMS/Call/Portal) that Rx is Ready]
|
V
[Patient: Arrives for Pickup / Delivery Arranged]
|
V
[Pharmacist/Technician: Verify Patient Identity (Name, DOB, Address)]
|
V
[Pharmacist: Counsel Patient (Mandatory for New Rxs, offer for Refills)]
| - Purpose of Medication
| - How and When to Take
| - Common Side Effects & Management
| - Storage Instructions
| - Importance of Compliance
| - Answer Patient Questions
|
V
[Patient/Pharmacist: Sign for Prescription (especially controlled substances, or for
counseling acknowledgement - IO: Signature Log)]
|
V
[Technician/Cashier: Collect Co-pay/Payment (if not prepaid) via {Point of Sale
System} linked to {PIS}]
|
V
[Sys: Update Prescription Status to "Dispensed/Picked Up" in {PIS}. Update {Billing
Database} or {Accounts Receivable}.]
|
V
((End: Pharmacy Dispensing Complete. Medication provided to patient.))

```


5. Advanced Detailed Flowchart: Inpatient Admission, Care, Billing & Discharge

Actors: Admission Officer, Insurance Coordinator, Ward Nurse, Doctor (Attending/Consulting), Clinical Support Staff, Pharmacist, Lab/Radiology Tech, Dietitian, Discharge Planner, Billing Specialist, Patient/Representative

graph TD

subgraph Admission_Process

A[[(Start: Patient Requires Inpatient Admission (ER, Direct, Transfer))]] -->

B[Attending Doctor: Determines Need for Admission, Writes Admission Orders in {EHR - Orders}];

B --> C[Admission Officer/Ward Clerk: Receives Admission Request/Orders];

C --> D[Admission Officer: Verify Patient Demographics & Insurance in {EHR}/{Patient Master Index}];

D --> E[Insurance Coordinator: Check Insurance Eligibility, Benefits for Inpatient Stay, Obtain Pre-Authorization from Payer if required];

E --> F{Pre-Authorization Approved/Not Required?};

F -- Yes --> G[Admission Officer: Assign Bed based on Clinical Need & Availability from {Bed Management Module}];

F -- No --> H[Insurance Coordinator/Doctor: Discuss alternatives with Patient/Family (Self-pay, different level of care, appeal denial)];

H --> H1{Proceed with Admission?};

H1 -- Yes (e.g. Self-Pay Confirmed) --> G;

H1 -- No --> I[(End: Admission Halted/Alternative Care Arranged)];

G --> J[Admission Officer: Complete Admission Paperwork, Obtain Consents (Treatment, Financial, Privacy - IO: e-Forms/Paper)];

J --> K[Admission Officer: Generate Inpatient Account, Update Patient Status to 'Admitted' in {EHR}, {ADT System}, {Billing System}];

K --> L[Ward Nurse: Notified of New Admission, Prepares Room/Bed];

L --> M[Patient: Transferred to Assigned Ward/Room];

end

subgraph Inpatient_Care_Cycle %% This is an iterative cycle

M --> N[Ward Nurse: Initial Nursing Assessment, Care Plan Development in {EHR - Nursing Module}];

N --> O[Attending Doctor: Initial Assessment on Ward, Review Admission Orders, Develop/Refine Treatment Plan in {EHR - Progress Notes}];

O --> P[Daily Routine & As-Needed Care:];

P --> P1[Doctors' Rounds: Daily assessment, progress review, order modifications in {EHR}];

P2[Nursing Care: Medication Administration (eMAR via {PIS Integration}, barcode scanning), Vitals, Wound Care, Monitoring, Documentation in {EHR - Nursing Notes}];

P3[Consultations: If ordered, Consulting Doctors assess & document in {EHR}];

P4[Investigations: Lab Tests (via {LIS}), Imaging (via {RIS}) ordered, performed, results back to {EHR}];

P5[Pharmacy Services: Review new drug orders, dispense to ward, IV admixture - {PIS Integration}];

P6[Dietary Services: Dietitian assessment, meal planning & delivery based on orders in {Dietary Module}];

P7[Therapies: PT, OT, Speech Therapy sessions as ordered, documented in {EHR}];

P8[Sys: Real-time Charge Capture for all services, procedures, medications, supplies, room & board in {Billing Module} via integration with departmental systems and {Charge Master}];

P --> P9[Multidisciplinary Team: Regular Care Coordination Meetings, Update Care Plan];

P9 --> P10{Patient Condition Improving & Meets Discharge Criteria?};

P10 -- No --> P; %% Loop back for continued care

P10 -- Yes --> Q;

end

subgraph Discharge_Planning_and_Process

Q[Attending Doctor: Writes Discharge Order in {EHR}, Initiates Discharge Planning];

Q --> R[Discharge Planner/Case Manager: Coordinates Discharge];

R --> R1[Assess Post-Discharge Needs (Home Health, Equipment, Follow-up Appts)];

R2[Arrange Referrals, Home Care, DME as needed via {Referral Management Module}];

R3[Patient/Family Education on medications, self-care, warning signs];

R --> S[Pharmacist: Reconcile Medications, Provide Discharge Medications & Counseling];

S --> T[Doctor: Completes Final Discharge Summary in {EHR} (Diagnosis, Hospital Course, Procedures, Meds, Follow-up Plan)];

end

subgraph Final_Billing_and_Administrative_Discharge

```
T --> U[Billing Specialist: Receives Notification of Impending Discharge];
U --> V[Billing Specialist: Conduct Final Review of Accumulated Charges in {Billing
System}, Ensure all services coded & billed];
V --> W[Billing Specialist: Prepare Final Itemized Bill, Submit Claim to Insurance
(e-Claim)];
W --> X[Billing Specialist/Cashier: Discuss Final Bill with Patient/Representative,
Collect any outstanding patient responsibility];
X --> Y{Financial Clearance Obtained?};
Y -- Yes --> Z[Administrative Staff: Update Patient Status to 'Discharged' in {EHR},
{ADT System}, {Bed Management Module frees bed}];
Y -- No --> XA[Billing Specialist: Work with Patient on Payment Plan or Financial
Assistance. May delay administrative discharge.];
Z --> XB[Patient: Receives Copy of Discharge Summary, Final Instructions,
Follow-up Appointments];
XB --> XC((End: Patient Discharged from Hospital. Post-discharge follow-up may
occur.));
end
```

These advanced flowcharts provide a more granular and comprehensive view of the system's operations, incorporating details crucial for a sophisticated Hospital Management System. They are designed to guide the development of a robust and efficient system.