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Analysis of Infusion Center Operations

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Issues in the Dataset

01

EMPTY Coumn: "CHAIR_OUT"

The entire column of CHAIR_OUT is NaN, basically empty. This empty column can also make identifying bottlenecks in the infusion center and predicting wait times difficult for the iQueue application.

CHAIR_OUT
NaN
NaN
NaN

Issues in the Dataset

02

Inconsistent Date Format

The format of the date and time columns (CHECKIN_DTTM, CHECKOUT_DTTM, APPT_MADE_DATE, APPT_CANC_DATE) is inconsistent. To ensure easier calculations, the iQueue application may need to convert all dates and times to a consistent format.

CONTACT_DATE	CHECKIN_DTTM	CHECKOUT_DTTM	CHAIR_START	APPT_DTTM
10/31/21	2021-10-31 01:28PM	2021-10-31 12:41PM	1:40:00 PM	2021-10-31 02:00PM
10/31/21	2021-10-31 01:28PM	2021/10/31 12:41PM	9:20:00 AM	2021/10/31 02:00PM

Issues in the Dataset

03

Duplicate patient IDs

Duplicates can cause issues for the iQueue application as it may lead to incorrect patient information for appointment scheduling and treatment planning. Additionally, it may cause errors in tracking patient history and treatment outcomes.

INPATIENT_DATA_ID_X	DEPARTMENT_ID	DEPARTMENT_NAME	VISIT_TYPE	...
APTT012	DEPT001	INFUSION Department	Blood Product Transfusion	...
APTT012	DEPT001	INFUSION Department	Blood Product Transfusion	...

duplicates {

Issues in the Dataset

04

Discrepancies in times compared to procedure

Inconsistencies between the procedure in the infusion center and the data exist in: CHECKIN_DTTM, CHAIR_START, INFUSION_START, INFUSION_END, CHECKOUT_DTTM. This could cause issues for the iQueue application in accurately predicting patient wait times and resource utilization.

Ex:
1) Check-in
2) Patient is seated
But...

CHAIR_START	INFUSION_START
10:30 AM	10:15 AM
1:30 PM	7:00 AM

Issues in the Dataset

05 Incorrect data in columns

Rows on and after 608 in columns : Unnamed: 19, CHAIR, Order_STATUS, have their data inputted in the wrong column. This can cause issues with filtering, sorting, and aggregating data.

Unnamed: 19	CHAIR	Order_STATUS
Chair 12	Completed [5]	11/4

Appointment Date

SOLUTION

CHAIR	Order_STATUS

Completed [5] ⟶ 11/4

```
df.loc[608:, "ORDER_STATUS"]
  = df.loc[608:, "CHAIR"]
```

Unnamed: 19	CHAIR

Chair 12 ⟶ Completed [5]

```
df.loc[608:, "CHAIR"] =
df.loc[608:, "Unnamed: 19"]
```

CHAIR	Order_STATUS

Chair 12   Completed [5]

```
df =
df.drop(columns = ['Unnamed: 19'])
```

Replace

Replace data from
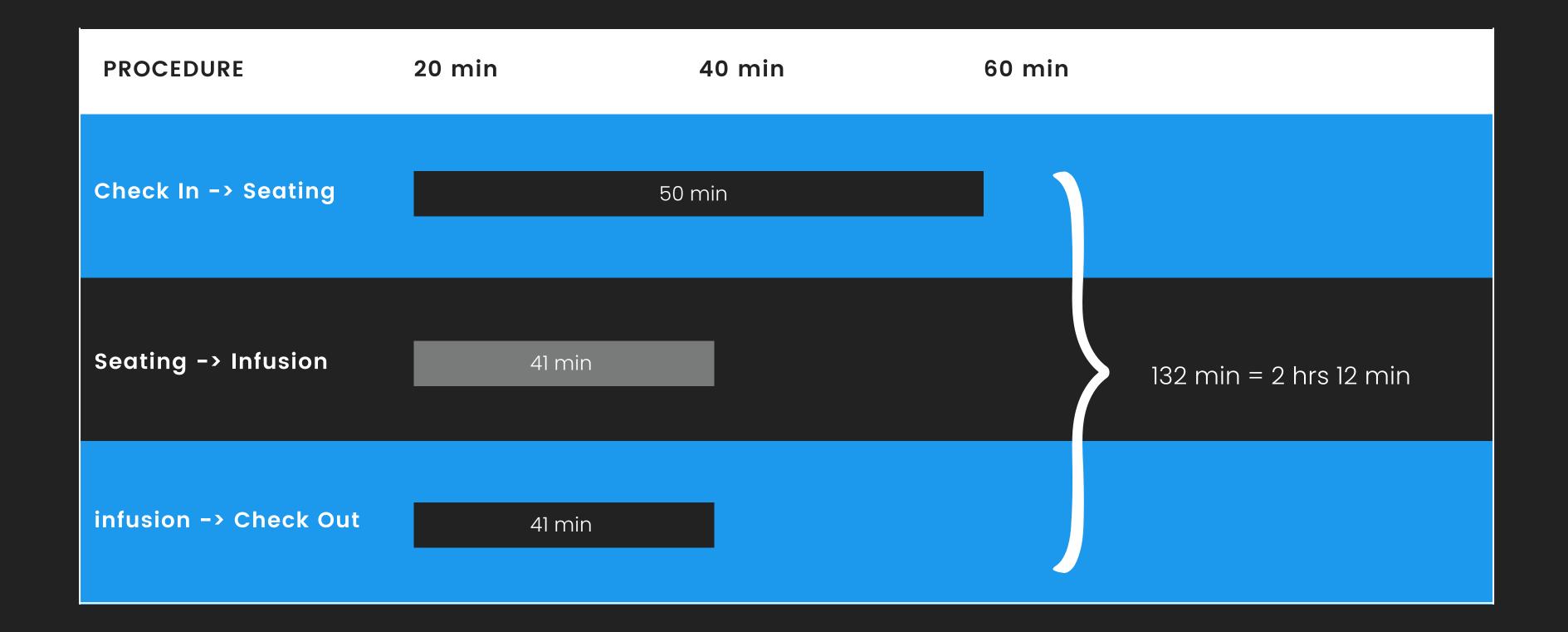rows 608 and down
from CHAIR to
ORDER_STATUS.

Replace

Replace data from
rows 608 and down
from Unnamed: 19 to
CHAIR.

Delete

Drop the unnecessary
column, Unnamed: 19

Wait Times

PROCEDURE	20 min	40 min	60 min
Check In -> Seating	50 min		
Seating -> Infusion	41 min		
infusion -> Check Out	41 min		

132 min = 2 hrs 12 min

How it Impact Operations

STAFF PRODUCTIVITY

Impact the productivity of the infusion center staff by addressing patient concerns and complaints instead of focusing on patient care.

PATIENT SATISFACTION

Patients may become dissatisfied with the care they receive, which could lead to negative reviews and decreased patient satisfaction.

RESOURCE UTILIZATION

Impact utilization of resources such as chairs, equipment, and staff, which can result in decreased efficiency and increased costs.