

Infusion Center ABC Dataset Analysis

Customer Report

Mac Mai

March 2023

1 Potential Issues

- Many appointments have checked in, but have never been marked as completed.
 - This could lead to iQueue thinking these appointments are still ongoing or that the chairs are still in use. This could cause increased wait times as staff would have to manually check that a patient has left and that the chair is free again.
- None of the appointments have a chair out time.
 - This can lead to difficulty in calculating appointment lengths and wait times, as well as calculating what chairs are free.
- Many of the appointments don't have a check out time.
 - Similar to the previous issues, this can cause problems with knowing when a patient has actually left.
- Many of the dates and times reported used differing formats.
 - For example: DD/MM/YY, DD/MM/YYYY, YYYY-MM-DD, HH:MM, HH:MM AM/PM
 - This causes huge issues, as having mismatched data means that times cannot be compared as easily. It also can lead to miscommunication about when an event is actually meant to occur. For example: "03/04/22 8:30". This could be either March 4th, 2022 or April 3rd, 2022, and it could be occurring in either the morning or the evening.
- On November 4th, there was an extra column of data.
 - By inserting the current date in a column where it should not have been, data was pushed over. This caused multiple columns to have incorrect data, not just the one error.
- Some appointments don't have descriptions of what infusion they received.
 - This could potentially lead to a patient's death. If it is not accurately recorded what medications they have received, they could be receiving an incorrect medication.
- Some appointments' infusion descriptions have extra notes added in.

- While this is not a huge issue, it could lead to problems later on if you try to look at data for the rates of medications received. There should ideally be one value for the infusion description, and another column for additional notes.
- This could even be expanded on, with splitting it into even more columns, one for each variable. For example: Medication Name, Dosage, Type. This would allow you to group by medication and see how much you use of each.

2 Solutions

The vast majority of these issues stem from dates and times. I would recommend ensuring that every employee who enters data into this system understands the proper format for datetimes and understands why it is important. Better yet, you could have the system automatically record these values and make it the employees' job to just click the button at each step of the process and ensure that it's for the proper patient. It is also important to ensure that the time a patient leaves the chair is recorded, and that all patients get checked out and their appointment marked as completed.

3 Conclusions

After removing all the erroneous and redundant rows, I was left with 157 individual appointments. This is about .4 of the original count (769 infusions across 423 appointments). Here is what I found:

- After checking in, the average patient waits 00:49:15 before entering the chair.¹ This is a huge wait time, and it greatly reduces the operations, as less people can be treated.
- The average patient is 00:05:47 late to their appointment.² While this is an issue, it does not explain the wait time.
- The average appointment is 00:30:40 longer than scheduled.³ This is likely the cause for increased wait times. If appointments take longer, then there's not enough chairs to check people in to start their appointments on time.

¹Calculated as the difference in check in time and chair in time.

²Calculated as the difference in check in time and scheduled appointment time.

³Appointment length was calculated as the difference between entering the chair and ending the last infusion. Taking the difference of that and the appointment length column gives us this statistic.