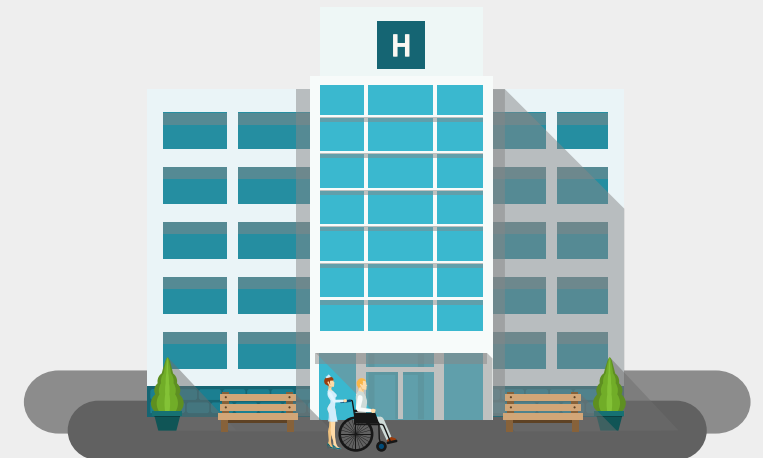


With three hospitals in different locations and different management styles

- How can we use data to evaluate each hospital's performance in a consistent and unbiased way?
- How can we use data to evaluate each hospital's performance in a consistent and unbiased way?



Hospital and Heart Failure Records Analysis

Group 2

Cognitia



Team



Eng. Amr Ayyad

Supervisor



Samaa Mwafi

Quality Specialist at Ministry
of Health and Population



Samar Mohamed

Medical Coordinator at
Dakahlia Health Directorate



Shima El-Metwally

Computer Engineering
Graduate & TA



Esraa Allam

Biotechnologist &
PPT Designer

Tools



Data Collection



Create database and Schema



Server, upload Database



Upload Data to Aiven



Visualization

Dataset



Appointments



Billing



Doctors



Patients



Treatments

KPIs



Performance



Doctors



Treatment



Patients
Time life



Hospital performance insights

No. of patients

50

insurance providers

4

payment method

3

total billing amount

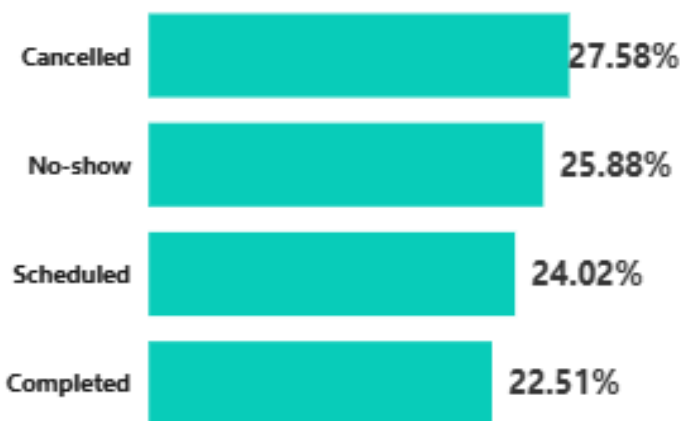
551.25K

Hospital branches

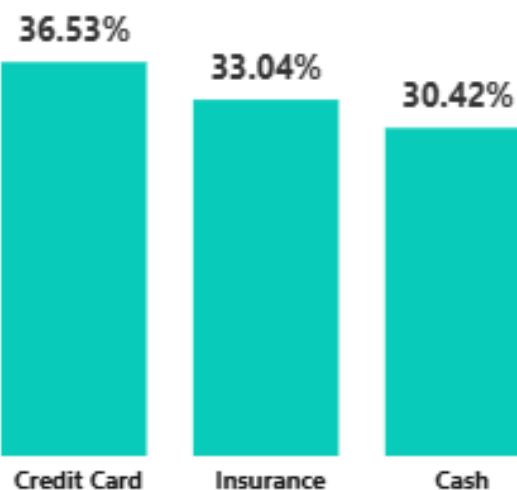
3

overall

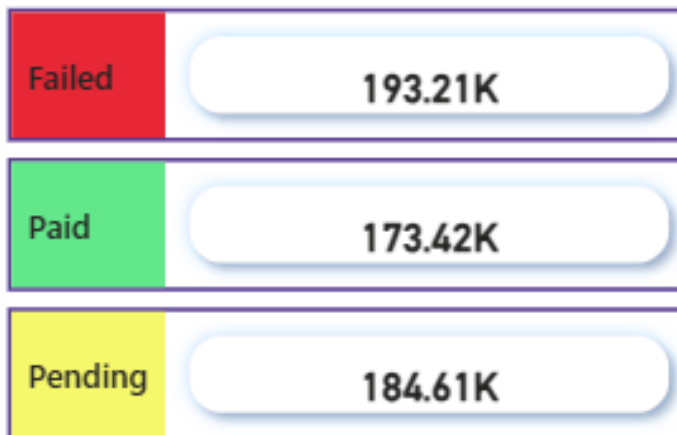
%GT Sum of cost by status



Billing by payment_method



Billing amount



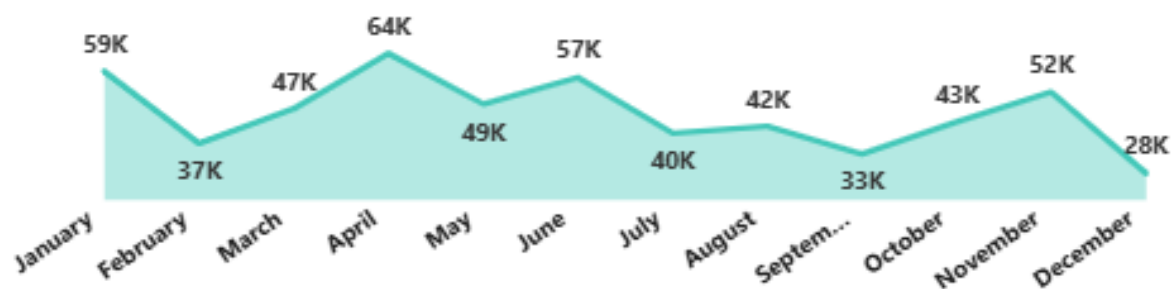
Hospital
Operations
KPIs

Doctors
insights

Treatment
insights

Patient
Lifetime
Value

Sum of amount by Month

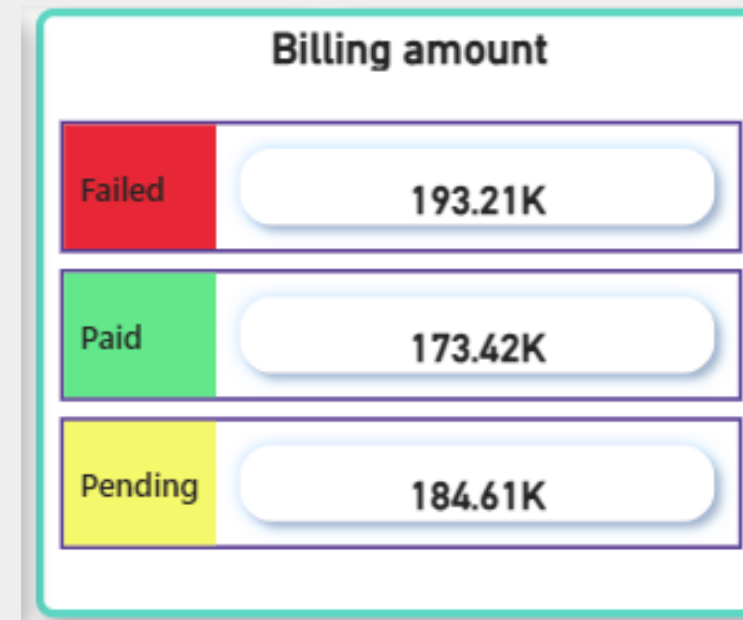
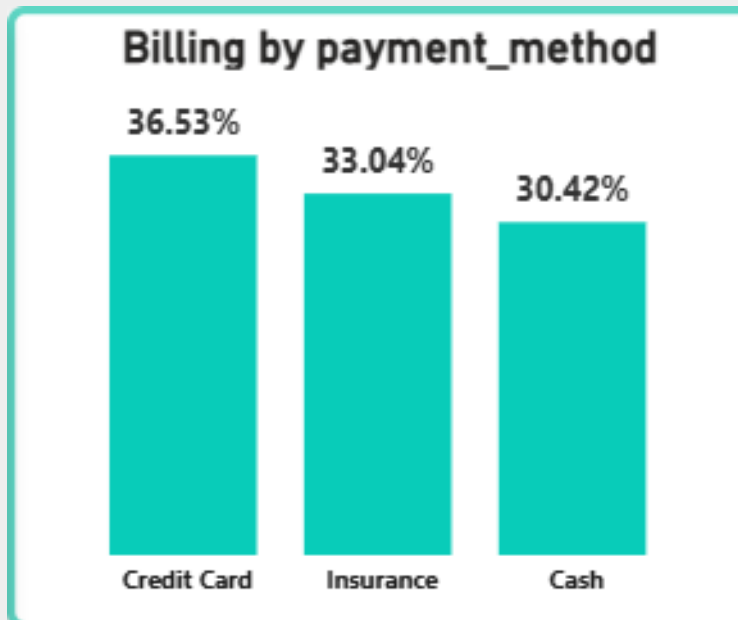
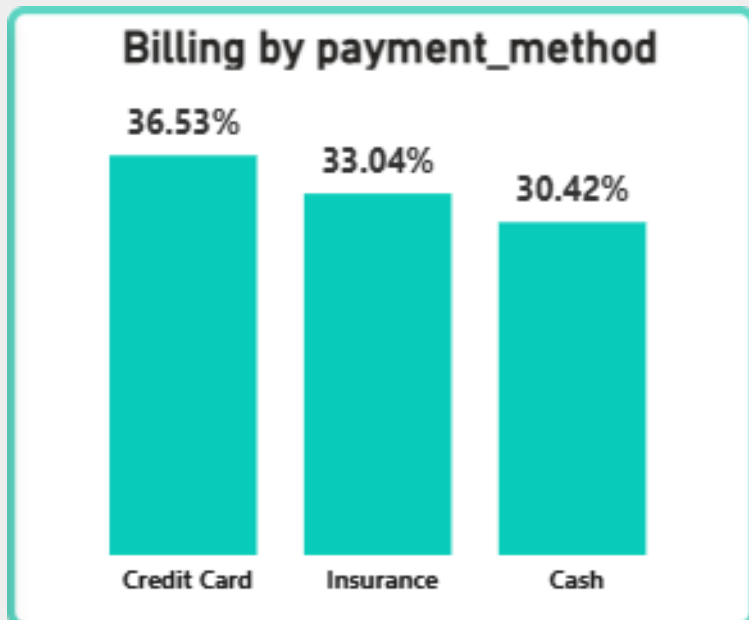


revenue of each hospital_branch



Performance

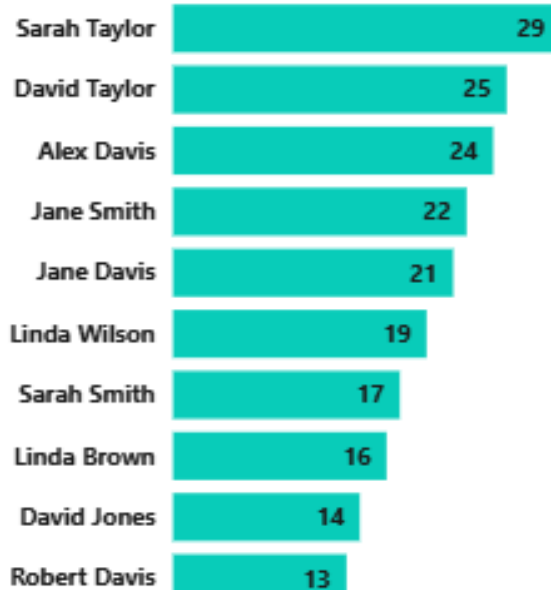
- Total billing: 551K
- Highest payment method: Credit Card (201K)
- Major issue: High failed and pending payments
- Insight: Improve billing follow-up and payment processing



Hospital performance insights

overall

No . of treatments by each doctor



Avg year experience

21.50

Specializations

3

Doctors

10

Hospital
Operations
KPIs

Doctors insights

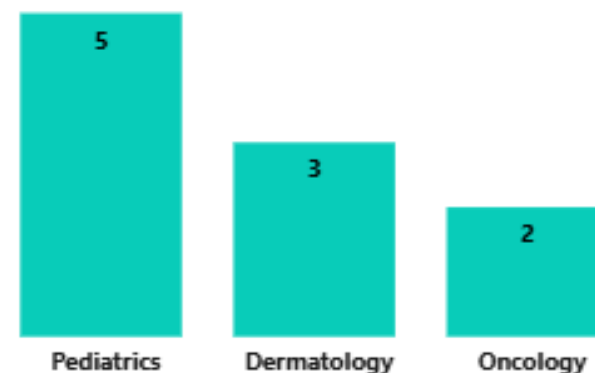
Treatment
insights

Patient
Lifetime Value

patients per each clinic

Dermato...	Oncology	Pediatrics
70	32	98

No of doctors per each specialization



Average of years_experience by specialization



Doctors in each branch





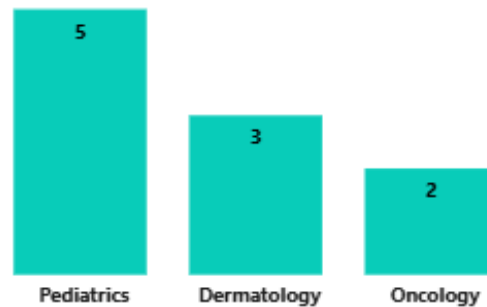
Doctors

- Ten doctors across 3 specialties
- Average experience: 21.5 years
- Pediatrics has the largest team
- Insight: Strong, experienced workforce with balanced distribution

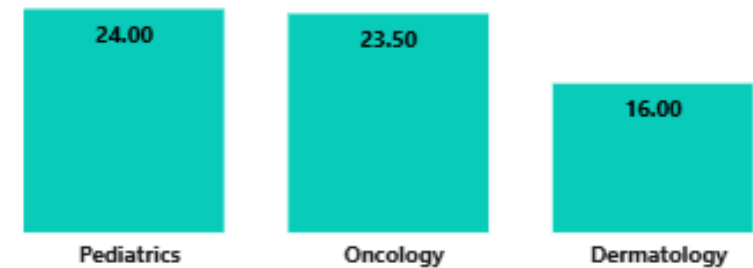
patients per each clinic

Dermato...	Oncology	Pediatrics
70	32	98

No of doctors per each specialization



Average of years_experience by specialization





Hospital performance insights

min. treatment cost

695.36

Max. treatment cost

4.96K

Avg. cost

2.70K

Completed Treatments

46

overall

Hospital
Operations KPIs

Doctors insights

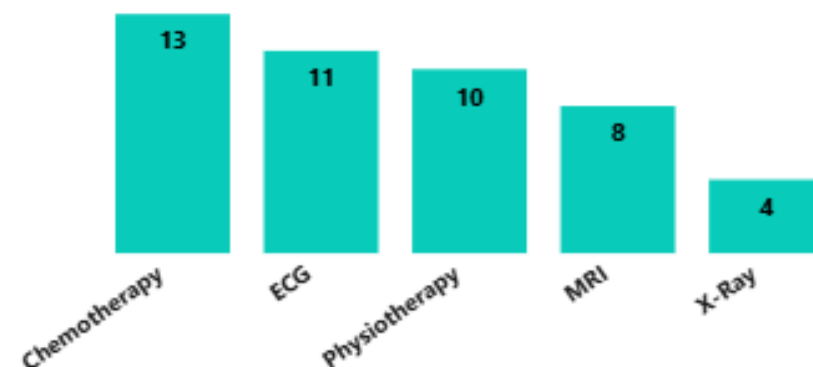
Treatment insights

Patient Lifetime
Value

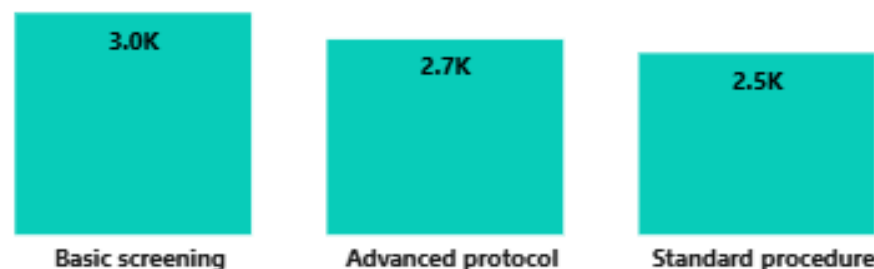
description level by doctors

David Taylor	Alex Davis			Robert Davis			David Jo...
Basic screening		Basic scre...	Standard ...	Ad...	Advanced pro...	B...	St...
Advanced protocol	Jane Davis			Linda Brown			Advanced...
Jane Smith	Advanced...	Basic scre...	Sta...	Advanced protocol	Bas...		
Standard proc...	Linda Wilson			Sarah Taylor			Sarah S...
	Basic screening	Advanced...	Advanced ...	Standard p...	Basic scre...		

No of patient in each service



avg. cost by description level



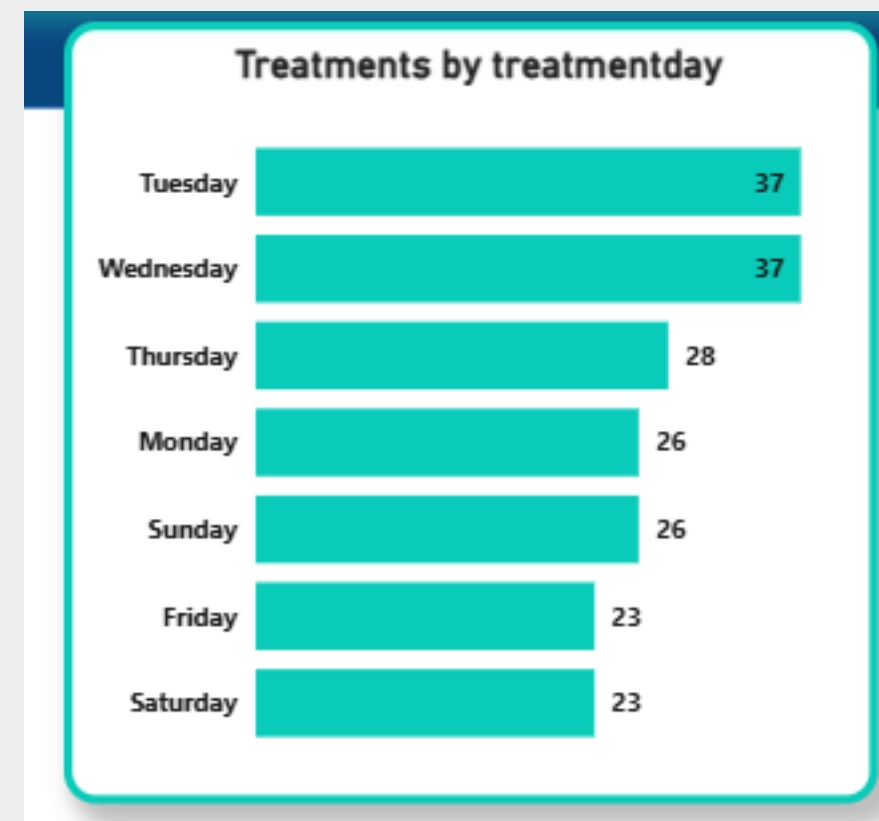
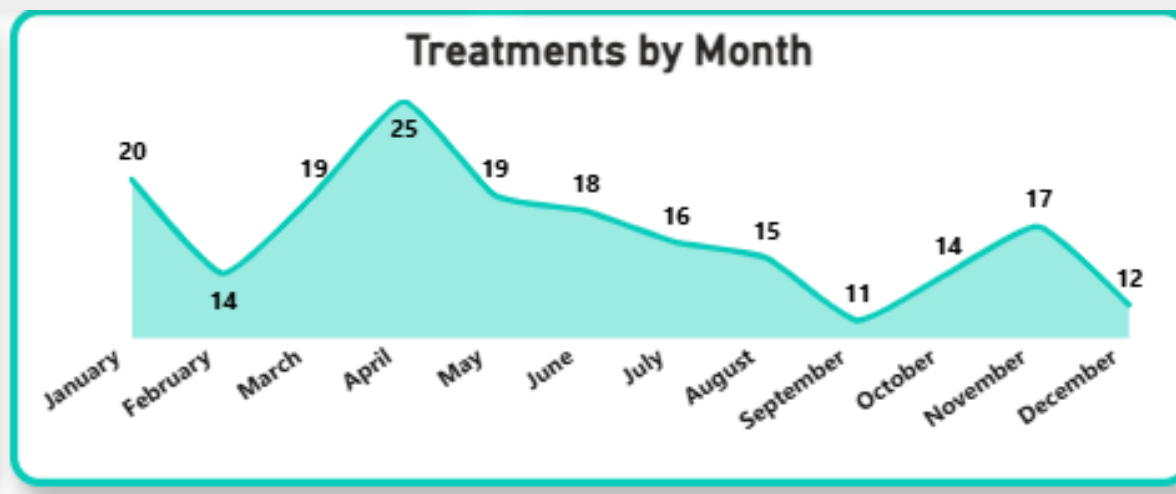
patients according to description level





Treatment

- Peak treatment days: Tuesday & Wednesday
- Central Hospital leads in treatment volume
- Treatment peak month: April
- Insight: Mid-week and April demand more resources.



Hospital performance insights

patients lifespan

11

Active patients growth %

-14.29%

average visit per patient

4.17

Average Patient LTV

11.48K

Active patient

12

overall

Hospital
Operations
KPIs

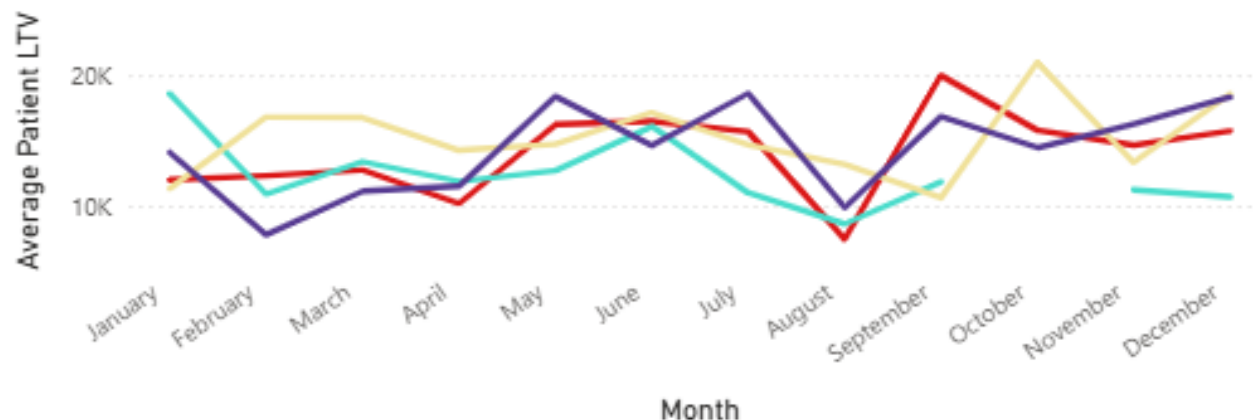
Doctors
insights

Treatment
insights

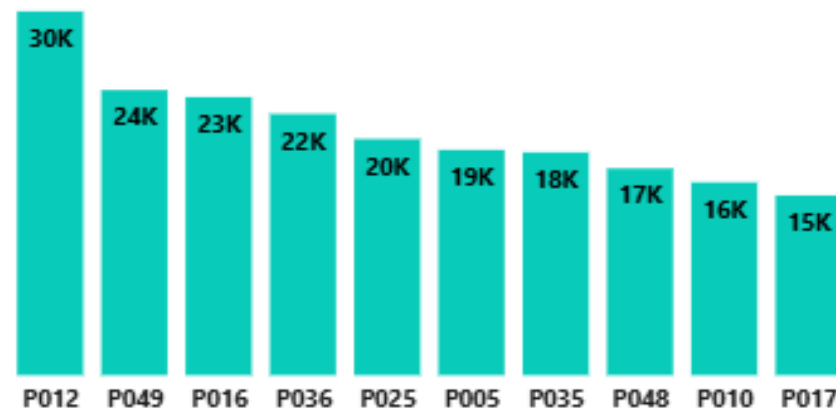
Patient Lifetime
Value

Patients LTV over the year

status ● Cancelled ● Completed ● No-show ● Scheduled



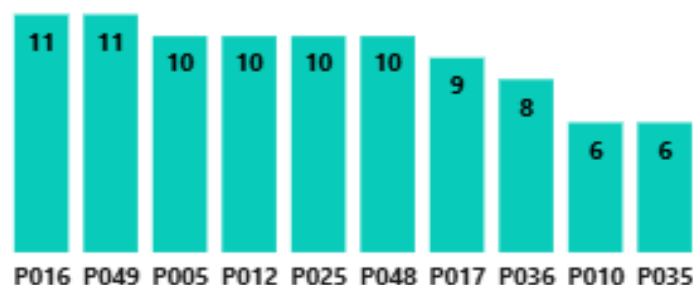
Top 10 patients LTV



Active Patients Growth % by
hospital_branch



Patient Lifespan for top 10 patients ltv



Patient LTV in each branch





Patients Time life

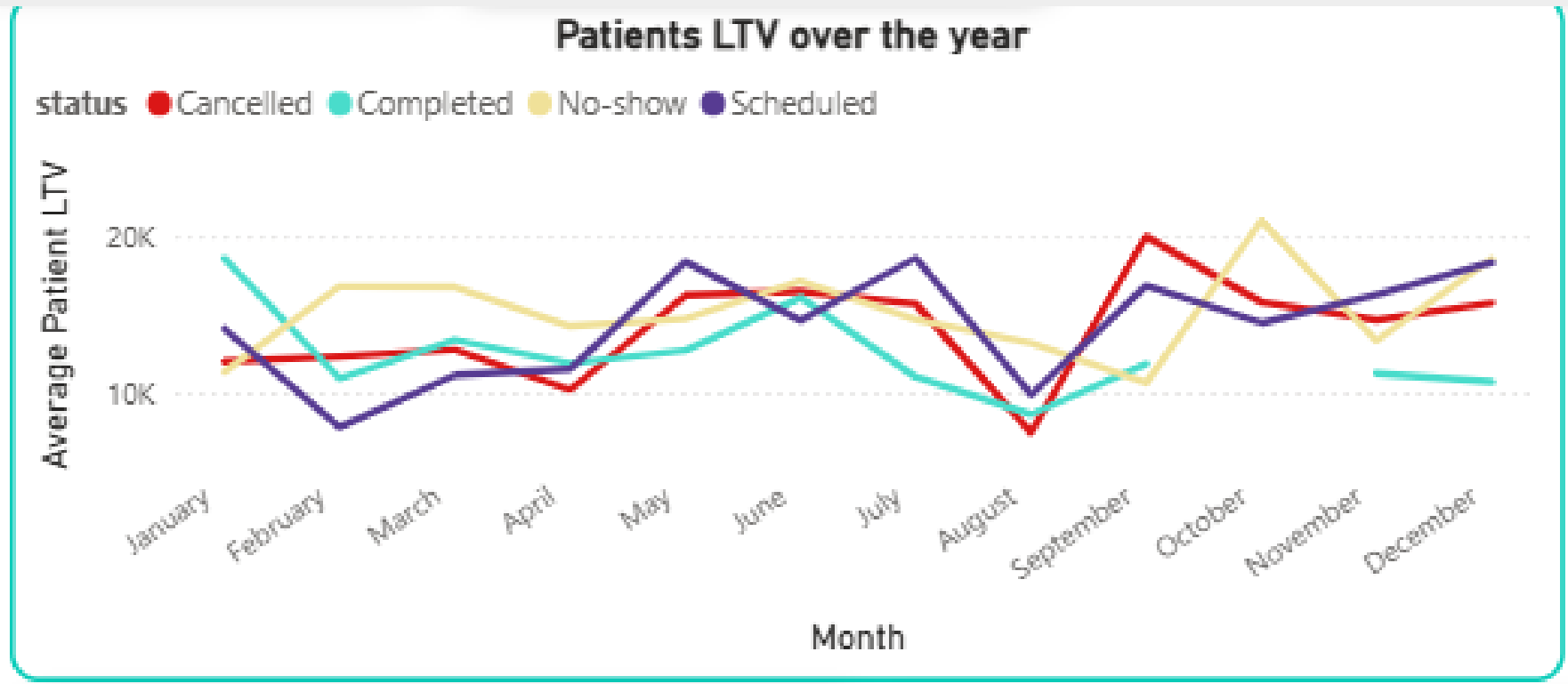
- Patient growth rate is negative due to rising cancelled and no-show appointments over the months.
- Completed appointments are decreasing, reducing overall patient activity.
- The shift from completed visits to cancellations and no-shows directly drives the negative growth trend.

patients lifespan

11

Active patients growth %

-14.29%



Conclusion |

- Central Hospital drives most revenue and activity.
- No-shows and cancellations are major operational losses.
- Billing processes need improvement
- Staffing should align with PM and mid-week demand.



Thank You!

**We need your feedback to
improve**

