Business Intelligence design & analysis methodology – Abridged

Patient Costing Analysis – Solution Requirements

Points of Interest based on discussions with the user(s) …

* Patient counts

* Revenue received

* Costs

* Practioner profitability

The analyst during discussions has established that a single dashboard should be designed and built to provide insight...

Dashboard Scope: Patient Costing Analysis

Sheet inventory   :   CEO summary page

GEO Analytics

Behaviour

Delivery Medium :   Interaction at the healthcare facility via the desktop

<u>Patient Costing Analysis – Solution Requirements</u>

With this in mind the analyst and user have established the questions that need to be answered on this dashboard...

Dashboard: Patient Costing Analysis

The broad metrics that the user requires are...

- Patient count
- Averages for length of stay (LOS), Age
- Highlight Revenue, Cost and Profit, Previous Year & Month Cost for comparison
- Year based profitability
- Practitioner Profitability
- Patient activity (e.g. Country of origin, Admission type, LOS etc.)
- Gender ratio
- Average length of stay (LOS) by specialty and cost
- Average length of stay (LOS) by age group and profitability
- Time since discharge
- GEO Analytics patient origins showing Counts, Revenue, Cost, LOS, profitability, average age using Maps

Other considerations for dashboard interaction are the use of appropriate dimensions...

- Admission Date drill down capability e.g. Year >>> Month >> Date
- Age Group Drill Down e.g. Age Group >>> Age
- Filter selections by Admission year, Specialty, Gender

See business rules page for rules clarification of complex metrics

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The analyst will then pose these questions to the user representative(s)...

1:       Any idea how you want the layout for this dashboard?

==Yes!==

1a: BA to draft this if possible using a tool or even a piece of paper!

==See the Layout page!==

2:       Where is the data?

==It is maintained in the patient management system, contact System Admin folks for access or extracts!==

3:       We use a few different data visualisation products here in this health care facility due to the varied data analysis we do...

* Qlik Sense

* Qlikview

* Tableau

* Microsoft Reporting Services

Do you have preference?

==Yes we want to use Qlik Sense!==

Business Rules

1: Length of stay is calculated as patient discharge date subtract admission date resulting in days

> *This value does not exist in the data per se, we need to calculate at load time*

2: Patient count should consider there are duplicates due to the admission history contained in the table, hence eliminate these when counting

3: Revenue derived from multiple columns in the patient data set...

IncomeChildTopup	- pediatric revenue additions (Non aggregatable)
IncomeExcessBedDays	- patient overstay revenue (Non aggregatable)
IncomeTariff	- Tariffs levied for various reasons (Non aggregatable)
IncomeTopUp	- Top ups are transactional e.g. may represent periodic payments during a stay (Aggregatable)

> *Handling non aggregatable values requires that they are only used in the Revenue aggregation once*

4: Cost is represented by aggregating the patient cost of care, denoted by column Cost

5: Profitability is derived by aggregating revenue and subtracting cost

6: Ratios regarding Gender are the proportion of a gender population to the overall population

> *The calculation will need to test the gender when counting*

7: Days since discharge is calculated as todays date subtract patient discharge date resulting in days

> *This value does not exist in the data per se, we need to calculate at load time*

8: Age group is calculated based on the discretization of ages within the patient data set

> *This value does not exist in the data per se, we need to calculate at load time*

> Bucket as follows...

> 0-12, 12-18, 18-30, 30-50, 50-65, 65-75, 75-85, 85+

9: Last year and last month cost should be calculated on cost based on the current Year & Month selected by the user else previous year value as default

Formatting Guidelines

1: Profitability by year is a shaded area line chart

2: Revenue highlight should be blue when > $999999 else yellow indicating awareness of the value

3: Cost highlight should be blue

4: Profit highlight should be red when <0 and green when >0

5: Gender ratio can be represented as a vertical bar with 10% increments

6: Geo maps should reveal a global map with zoom in capability and filter responsiveness

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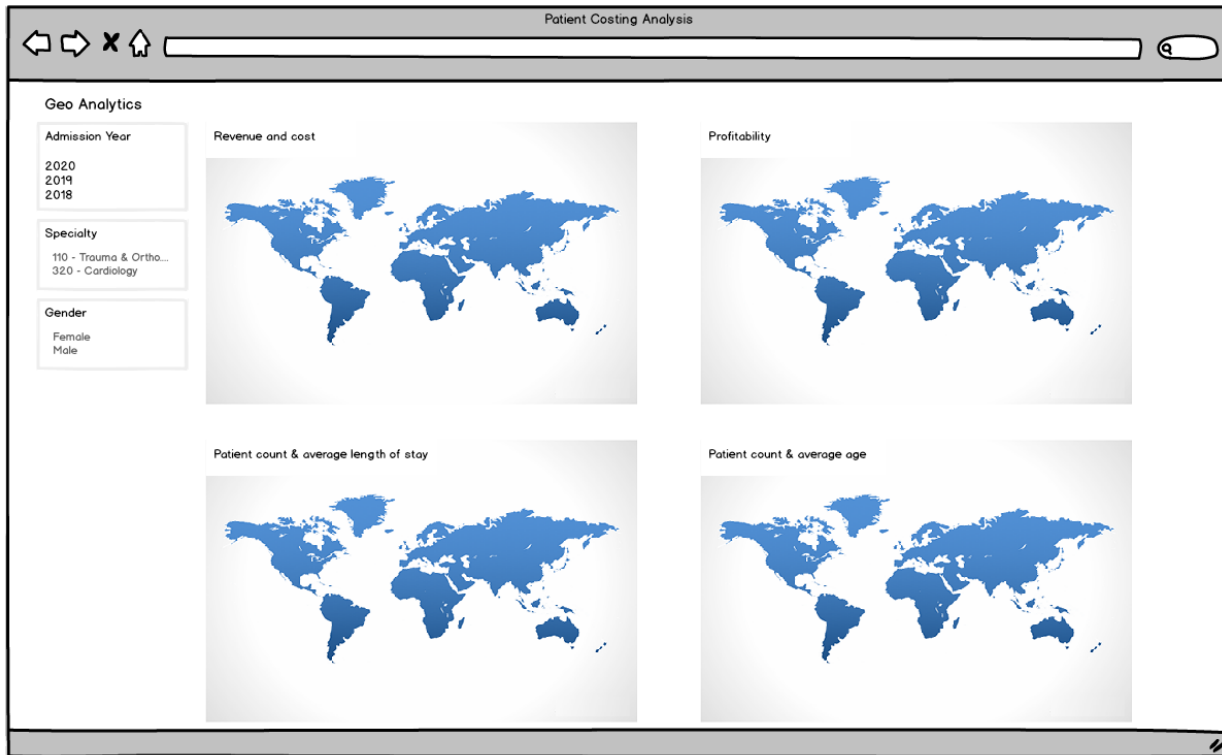**Patient Costing Analysis dashboard proposed layout**
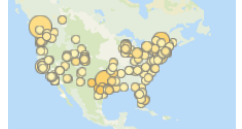
CEO Overview
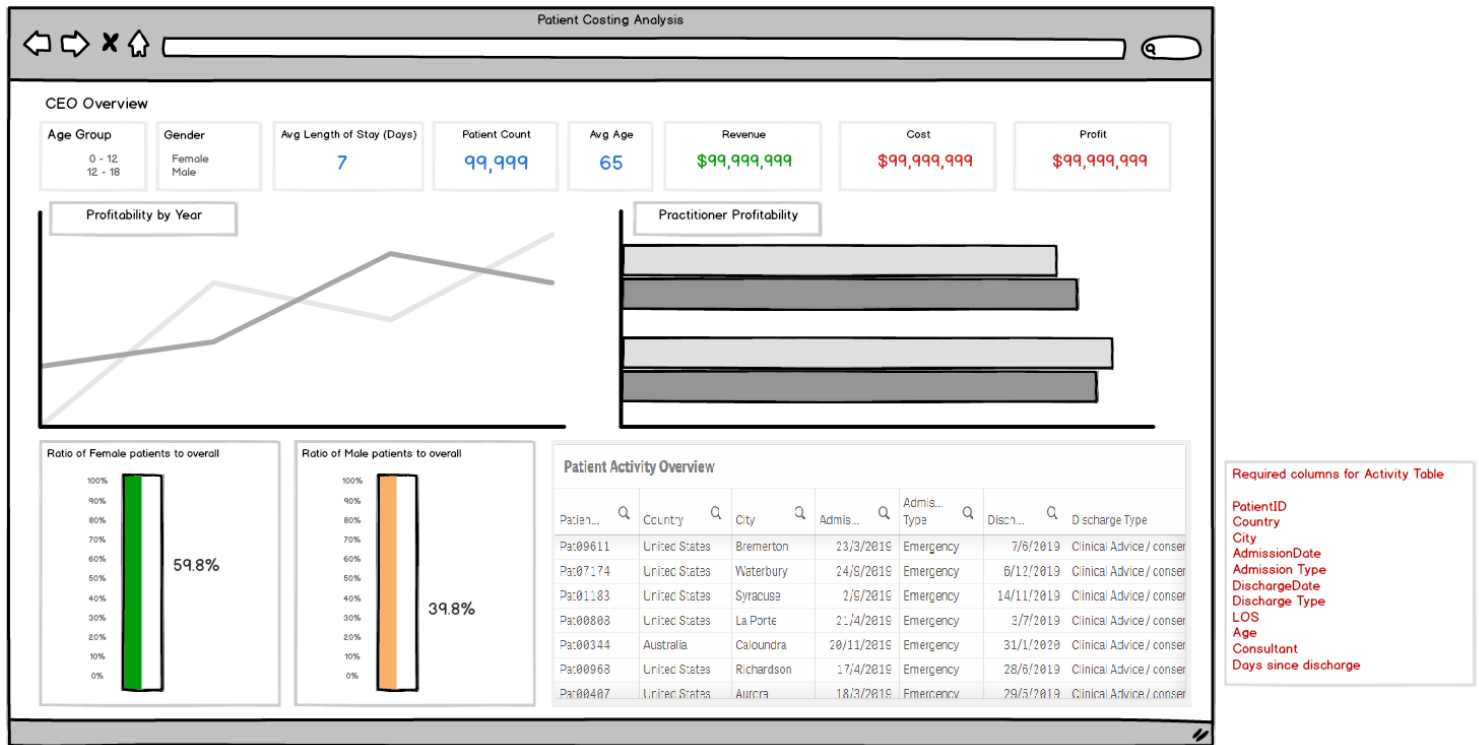
Patient Costing Analysis dashboard proposed layout

GEO Analytics

Patient Costing Analysis – Solution Requirements

Patient Costing Analysis dashboard proposed layout

Behaviour