

Patient Costing Analysis – Solution Requirements

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

- \* Patient counts
- \* Revenue received
- \* Costs
- \* Practitioner 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

## Patient Costing Analysis – Solution Requirements

**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 Cost is calculated by testing the current selection Year and subtracting 1 year before aggregating the values (i.e. Sum)

10: Last year Patient Count is calculated by testing the current selection Year and subtracting 1 year before aggregating the values (i.e. Count)

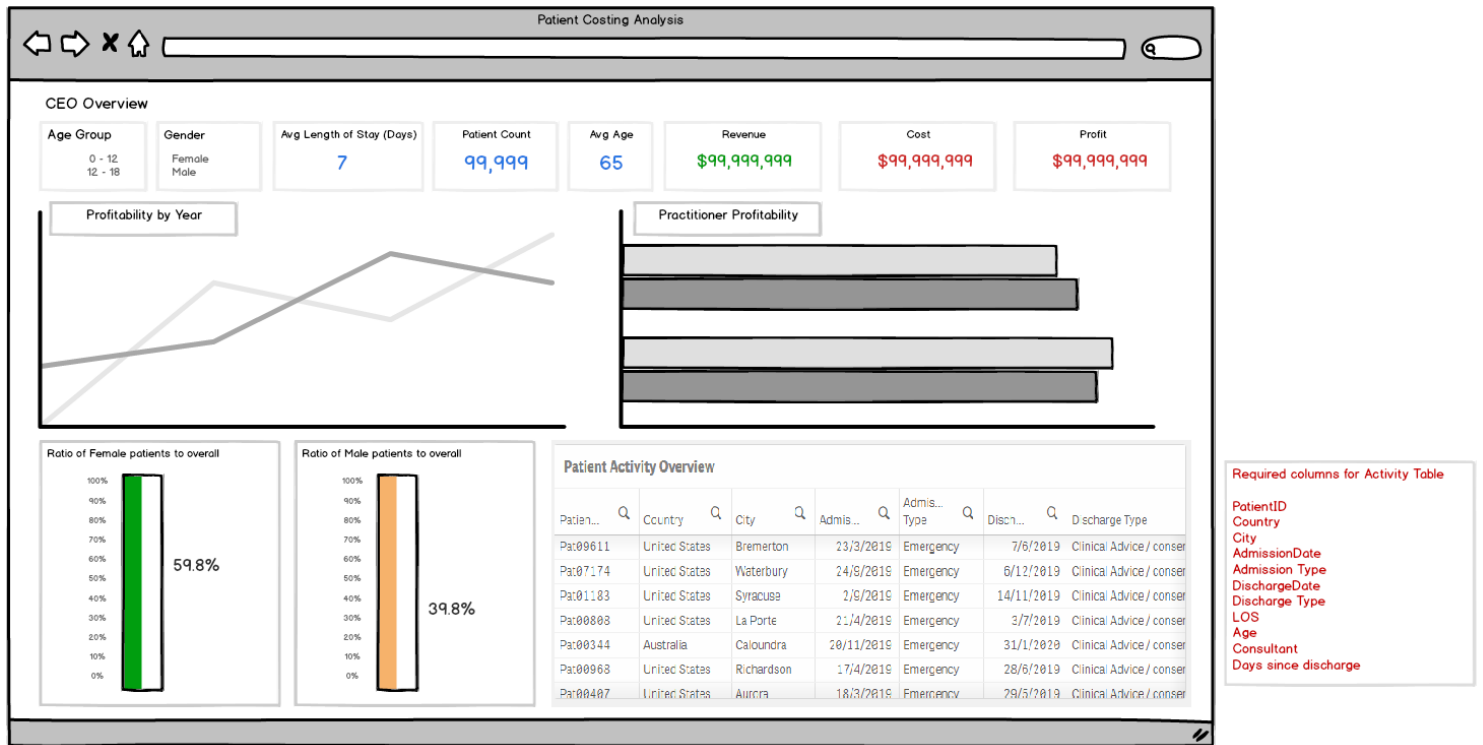
## **Formatting Guidelines**

- 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

## Patient Costing Analysis – Solution Requirements

### Patient Costing Analysis dashboard proposed layout

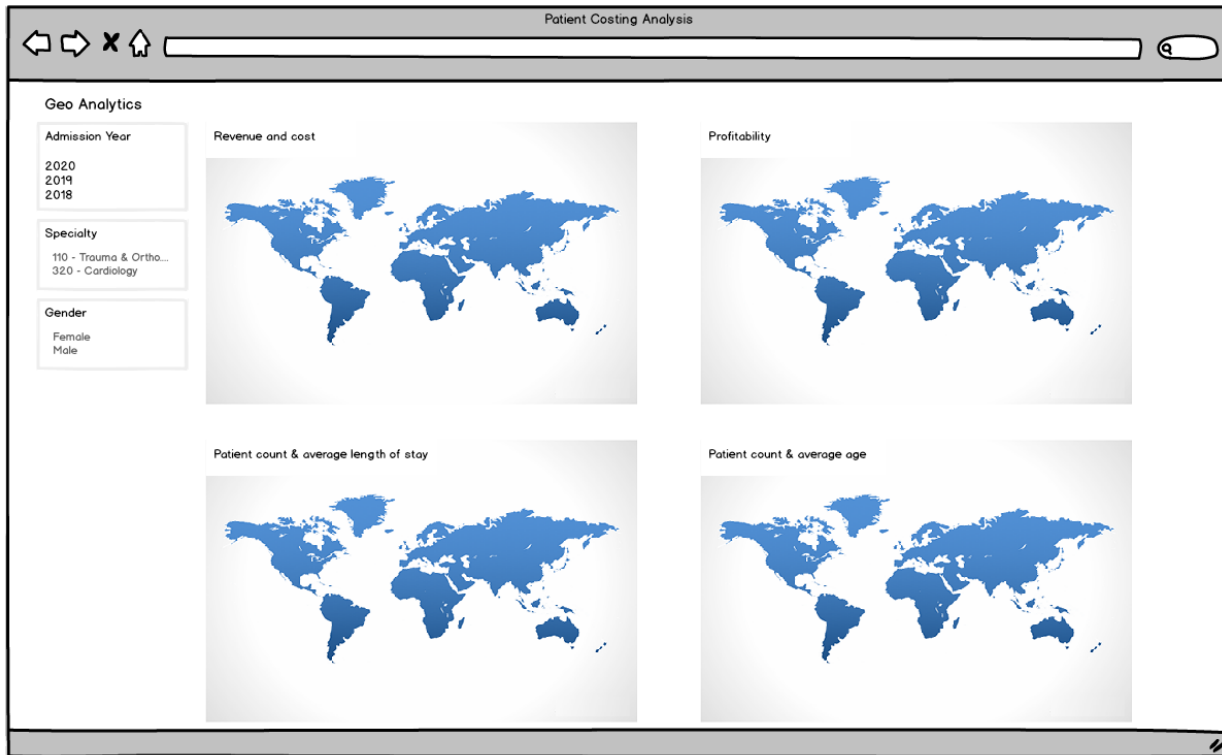
#### CEO Overview



## Patient Costing Analysis – Solution Requirements

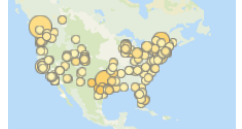
### Patient Costing Analysis dashboard proposed layout

#### GEO Analytics



Notes:

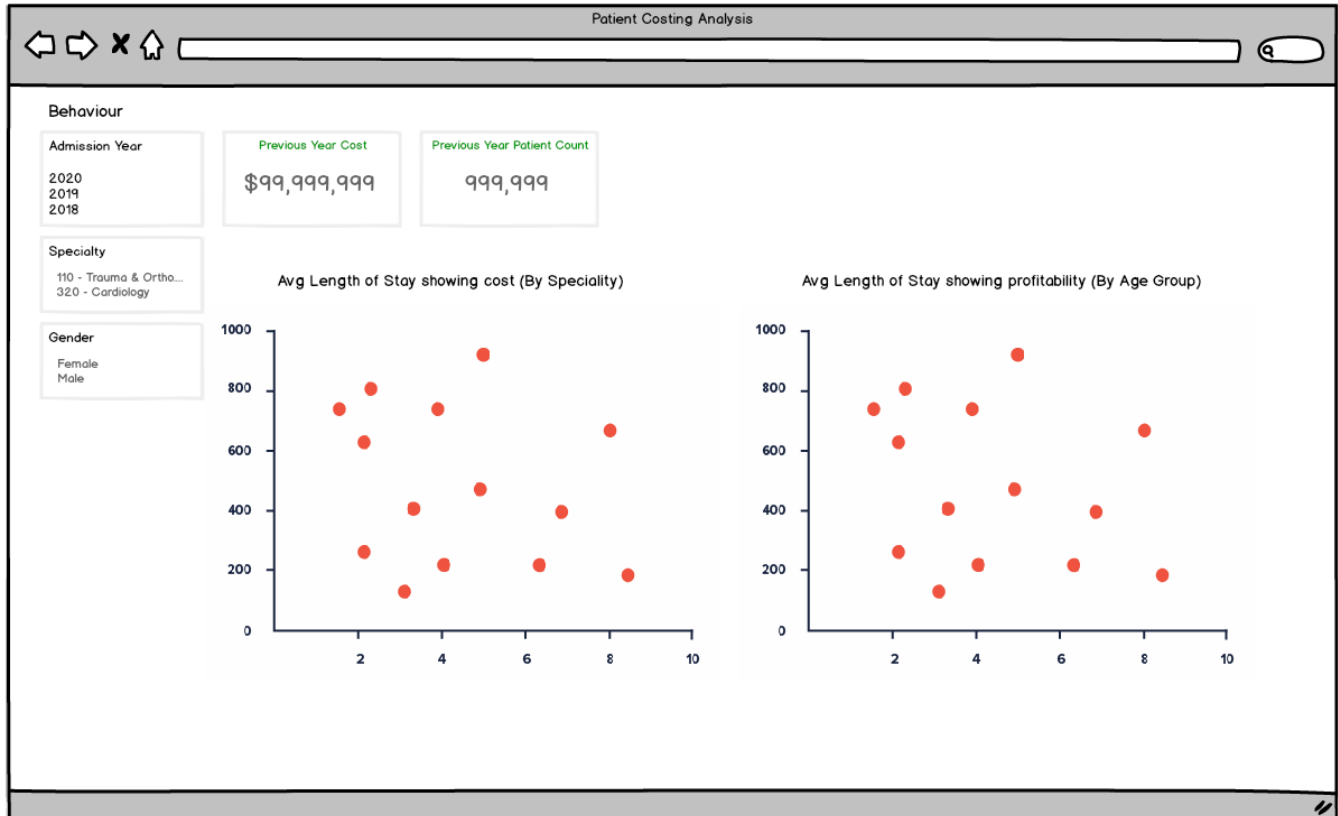
Metrics for maps should be shown as bubbles with pop up labels when user hovers on bubble



## Patient Costing Analysis – Solution Requirements

### Patient Costing Analysis dashboard proposed layout

#### Behaviour



**NOTE: This sheet requirement has been revised to display the Previous Year Patient Count  
DISREGARD the previous month cost requirement!**

*This demonstrates how the user may change requirements that you possibly have set in your mindset and then have to deal with the last minute changes!*

*A common occurrence in BI hence a developer should be flexible and adapt at short notice!*