Admissions Data

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SYNOPSIS

In this report we aim at not showing any relationship between the admissions count, the date's of birth,date of admissions and the date of discharge of the patients.I made a number of summaries and out of them I concluded that there was a high number of patients turnout in the months of January followed by July and the least turnout was experienced in the months of September and October. Also the summaries showed that the highest and lowest number of patients admitted were between the age group of 1-5yrs and 16-20yrs respectively.

Data

This report makes use of the dataset"admissions_data.csv".The data was obtained from the admissions records between the year 2002-2015.

```
admissions_data <- read.csv("~/AProject/admissions_data.csv")
admissions<-tbl_df(admissions_data)
admissions
```

```
Source: local data frame [59,141 x 5]

    date_admn serialno date_of_birth    pid date_disch
1  16/04/2002    52330    02/05/2001 289836 12/09/2002
2  16/01/2003    56088    03/03/2002 343089
3  02/04/2003    57144    28/02/2003 352503
4  19/09/2003    59912    01/07/1996 109326
5  15/10/2003    60302    26/02/1996 130335
6  21/04/2004    62860    22/09/2003 412324
7  18/05/2004    63247    06/09/2002 364257
8  14/08/2004    64430    06/08/2002 345585
9  23/08/2004    64567    07/03/2003 356535
10 28/09/2004    65055    22/02/2002 377480
..        ...      ...           ...    ...        ...
```

To show the top 1000 admissions we use the function below.

```
print(admissions,n=1000)
```

In order to work with the dates we first change the date format hence easily read in R.

```
admissions$date_of_birth2<- as.Date(admissions$date_of_birth,format = '%d/%m/%Y')

admissions$date_admn <- as.Date(admissions$date_admn,format = '%d/%m/%Y')
```

I obtained the patients age by taking the difference between the date of admissions and the date of birth then divided by 365.25 to obtain the years.

```
admissions$age_yrs <- as.integer((admissions$date_admn- admissions$date_of_birth2)/365.25)
```

I created 5 categories of age groups ie.“Under 1yr”,“1-5yrs”,“6-10yrs”,“11-15yrs” and “16-20yrs”

```
admissions$age_cat[admissions$age_yrs<1] <-0

admissions$age_cat[admissions$age_yrs>=1 & admissions$age_yrs<=5] <-1

admissions$age_cat[admissions$age_yrs>=6 & admissions$age_yrs<=10] <-2

admissions$age_cat[admissions$age_yrs>=11 & admissions$age_yrs<=15] <-3

admissions$age_cat[admissions$age_yrs>=16 & admissions$age_yrs<=20] <-4


admissions$age_cat<-factor(admissions$age_cat,labels=c("Under 1yr","1-5yrs","6-10yrs",
                                                       "11-15yrs","16-20yrs"),ordered=TRUE)
```

```
table(admissions$age_cat)
```

```
Under 1yr    1-5yrs   6-10yrs  11-15yrs  16-20yrs
    25257     26382      5861      1386        22
```

I obtained a summary of the age in years(age_yrs) as follows:

```
summary(admissions$age_yrs)
```

```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
 -8.000   0.000   1.000   2.368   3.000 113.000
```

```
var(admissions$age_yrs)#variance
```

```
[1] 43.22821
```

```
sd(admissions$age_yrs)#standard deviation
```

```
[1] 6.574816
```

I used the month() to extract the months the patients were admitted from the date of there admission.

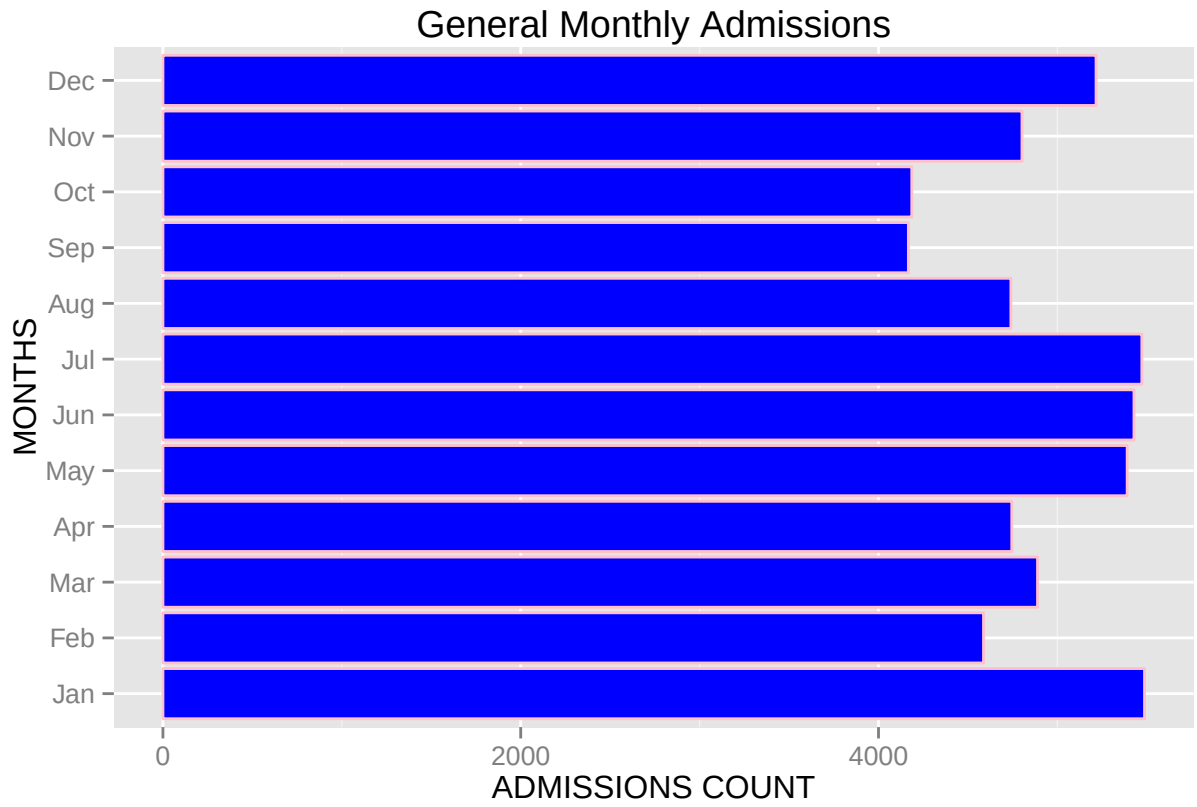
```
admissions$mnth1 <- month(admissions$date_admn)#adding a new object(mnth1 for months(char))

admissions$mnth1 <- factor(admissions$mnth1,labels=c("Jan","Feb","Mar","Apr","May","Jun"
                                        ,"Jul","Aug","Sep","Oct","Nov","Dec"),ordered=TRUE)
```

The table below shows the count of all admissions by month.It is noted that the month of January(5489) has the highest number of admissions while September(4173) was the least number of patients admitted.

```
table(admissions$mnth1)
```

```
 Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec
5487 4587 4889 4745 5390 5428 5472 4740 4167 4186 4802 5216
```

A graph of general admissions aganist months of the year.

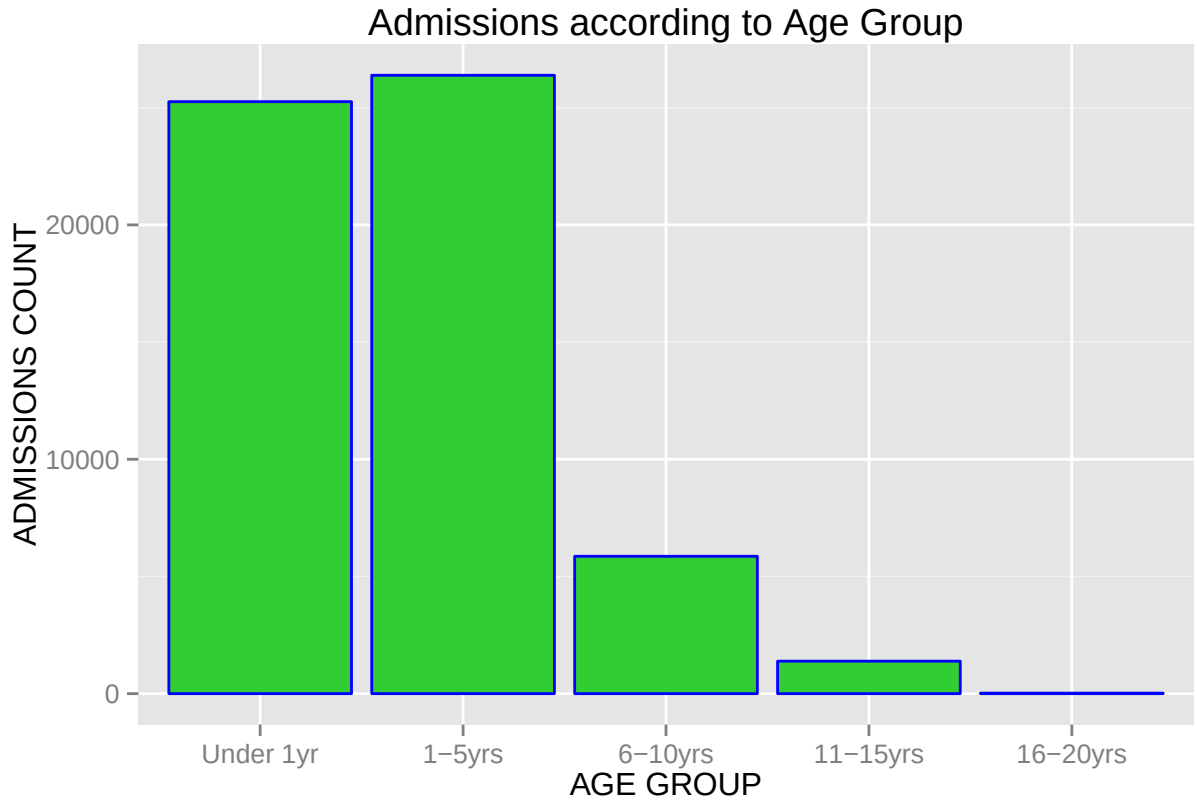


The table below shows the count of all admissions by age. It is noted that age group"1-5yrs" had the highest number of admissions of 26382 while the least admitted age group was that of "16-20yrs".

```
table(admissions$age_cat)
```

```
Under 1yr    1-5yrs   6-10yrs  11-15yrs  16-20yrs
    25257     26382      5861      1386        22
```

A graph of general admissions aganist age group.



From the above tables and graphs I came up with the following assumptions:

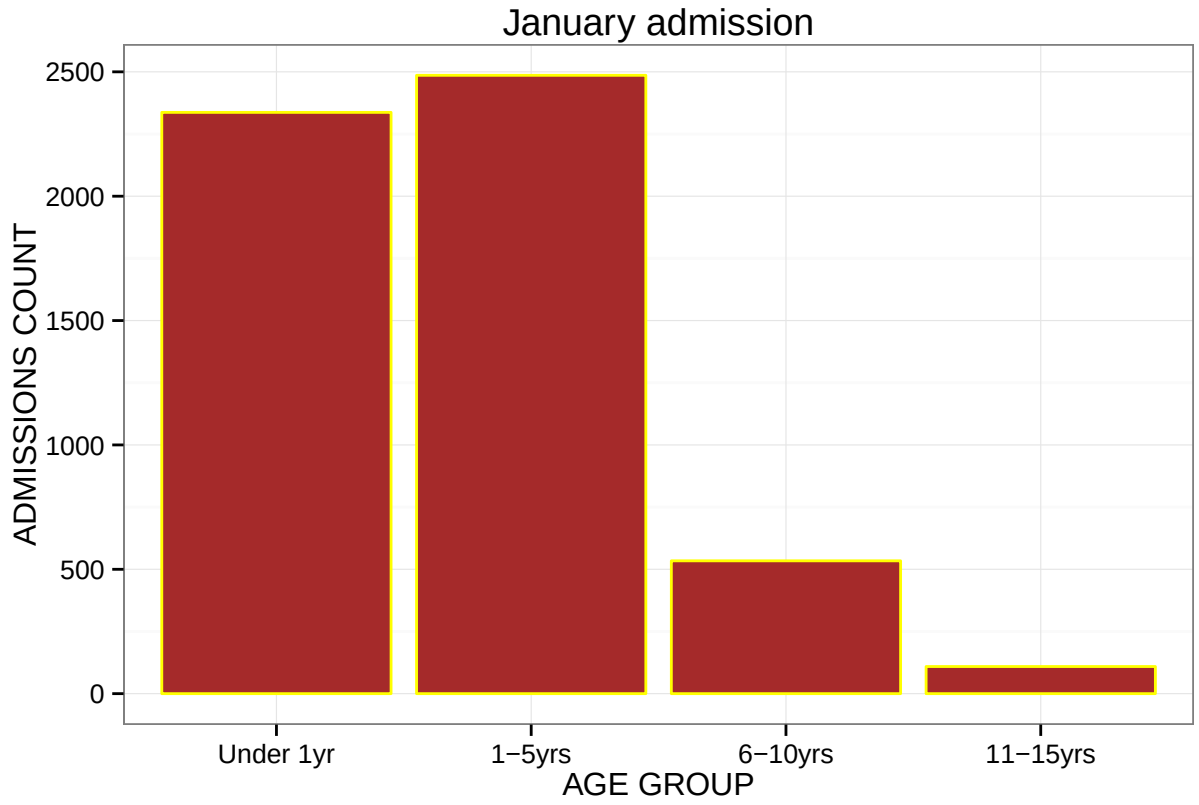
-Since there was a high admission in the month of January it is assumed that it is due to the extreme temperatures experienced during that month hence causing skin infections especially to young children in this case ages 1-5yrs. -Also the admissions may be as a result of dusty winds which are a normal occurrence in this month. These weather conditions increases the chances of patients under the said age group risk of suffering from respiratory diseases like asthma.

-It is also noted that from the months of May to July there was a slight increase in the number of admissions. I assumed that it is due to the cold and rainy weather experienced during these times of the year.The age group that had high admissions during these particular months are those between "1-5yrs" simply because their body immune system is still very weak hence they cannot cope with the low temperatures. Most of them stand a risk of getting respiratory infections like pneumonia.

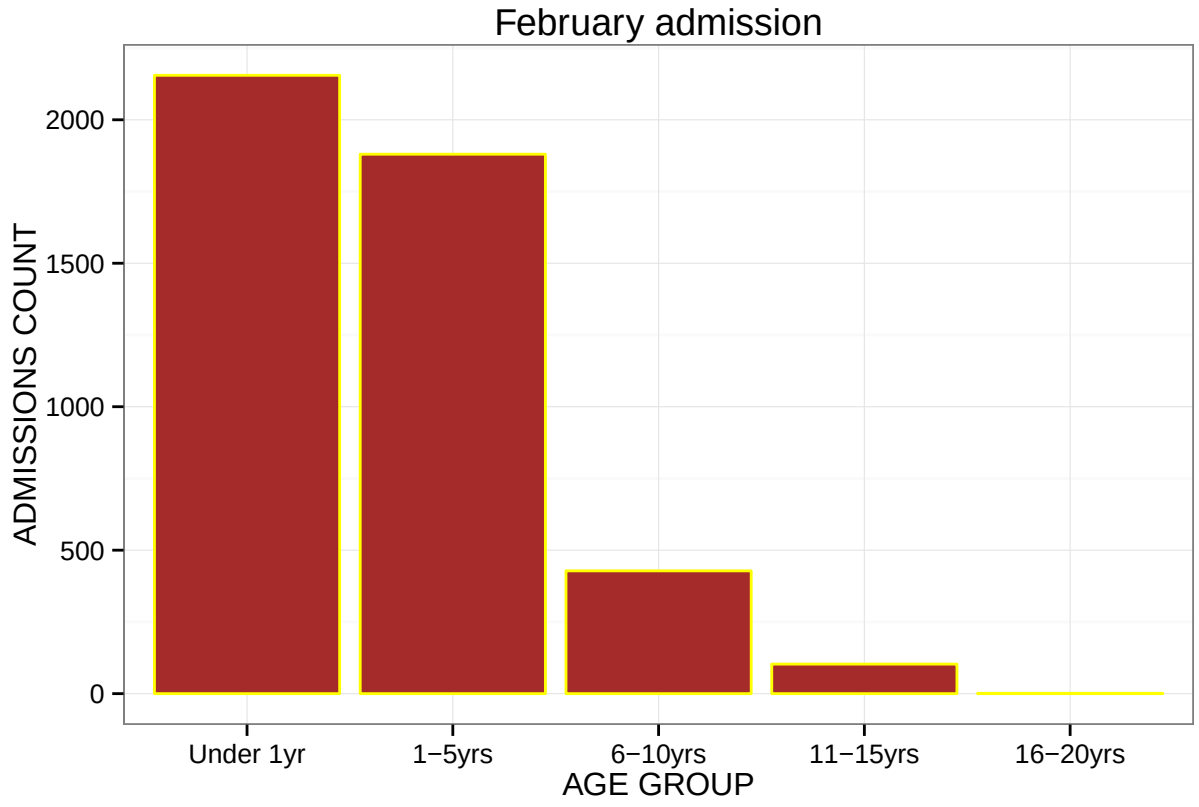
-The increased admissions may also be assumed to be because of the high risk that children especially in this age group (1-5yrs) face on Malarial infection that is at its highest during the rainy seasons.

Below are tables and plots of the MONTHLY ADMISSIONS count aganist AGE GROUPS for each month.I generated them using a for loop control structure.

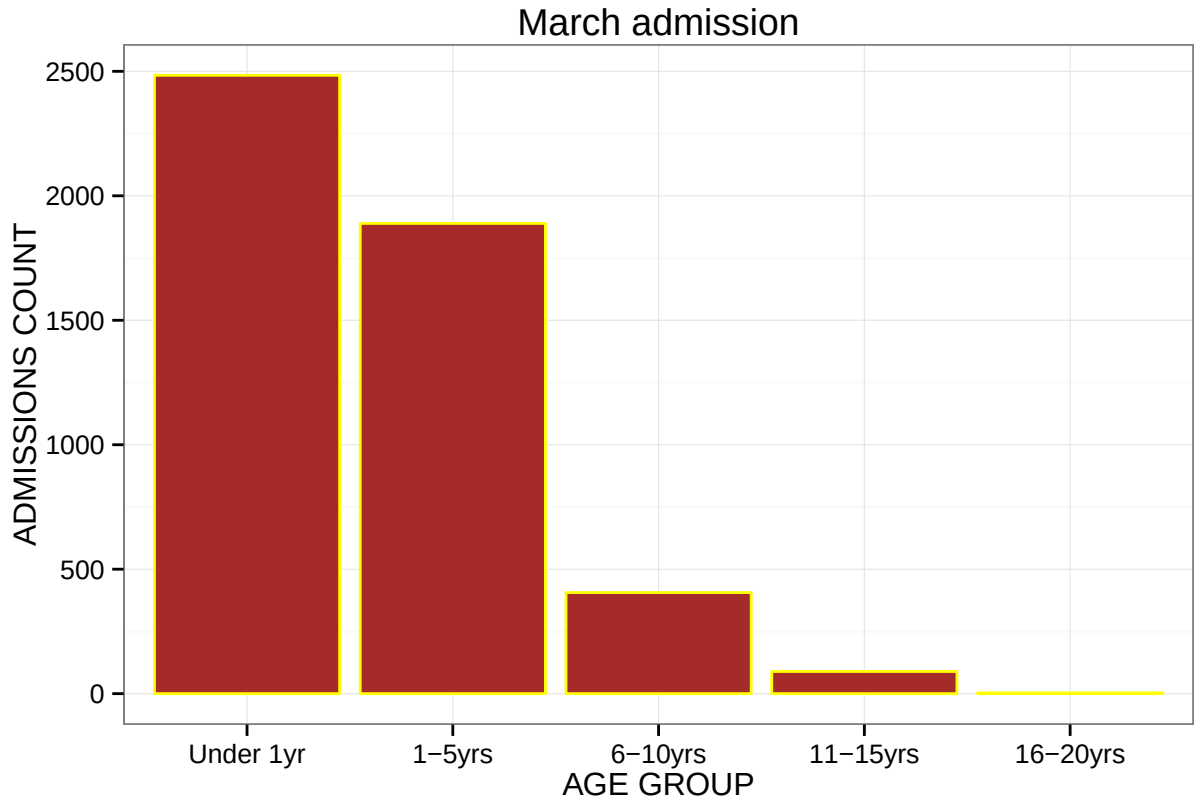
```
Under 1yr    1-5yrs   6-10yrs  11-15yrs  16-20yrs
     2337      2486       534       109         0
```



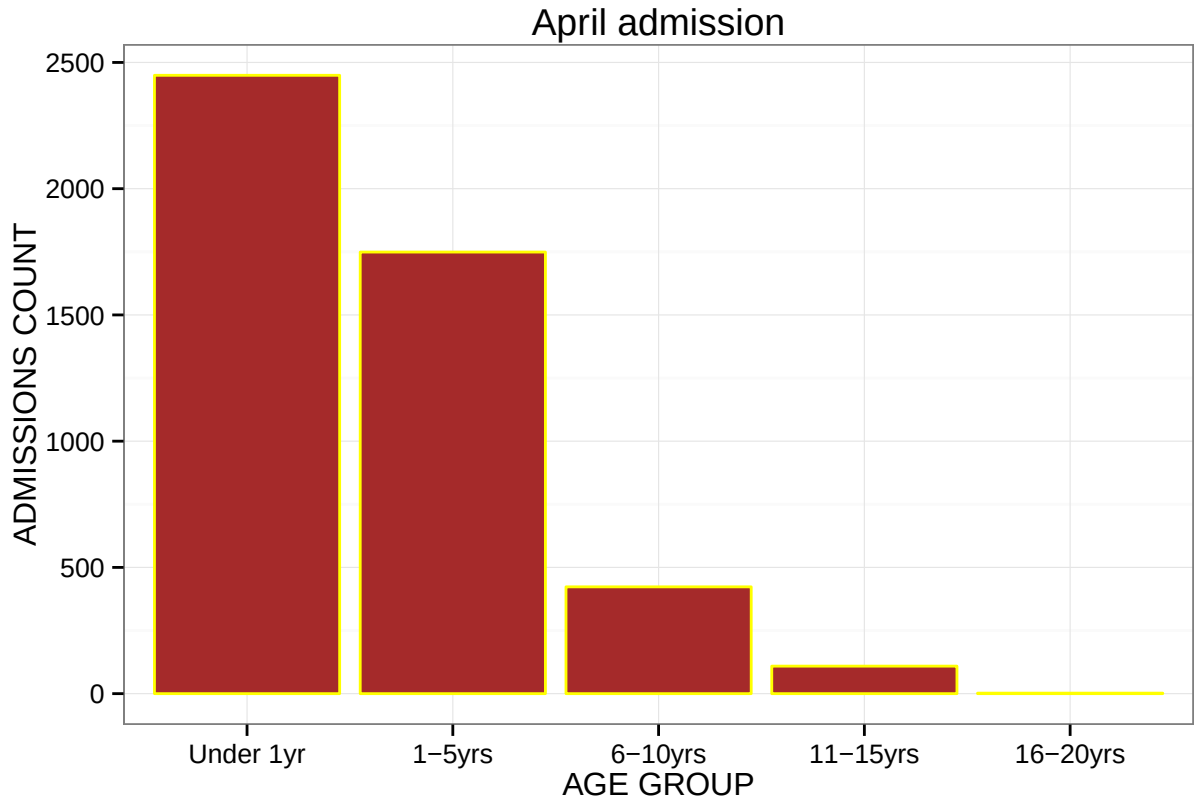

```
Under 1yr    1-5yrs   6-10yrs  11-15yrs  16-20yrs
     2155      1880       428       103         1
```



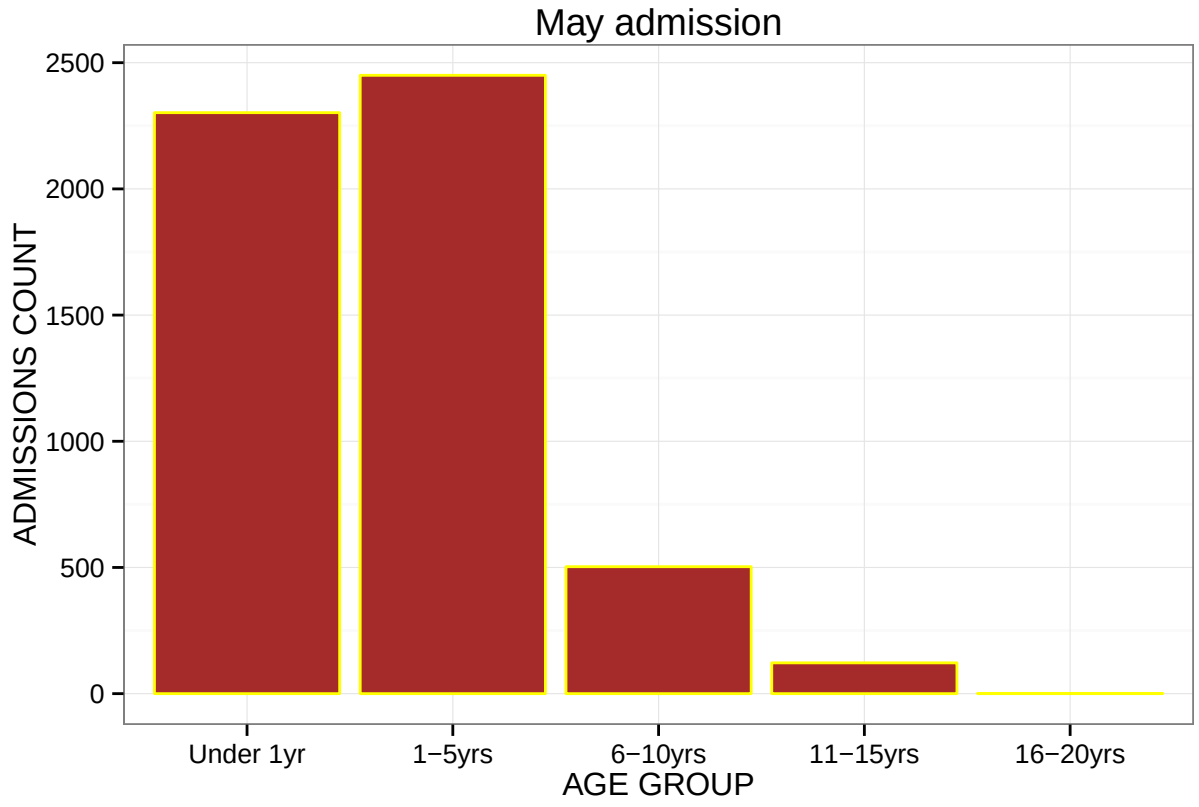
Under 1yr	1-5yrs	6-10yrs	11-15yrs	16-20yrs
2484	1889	406	89	3



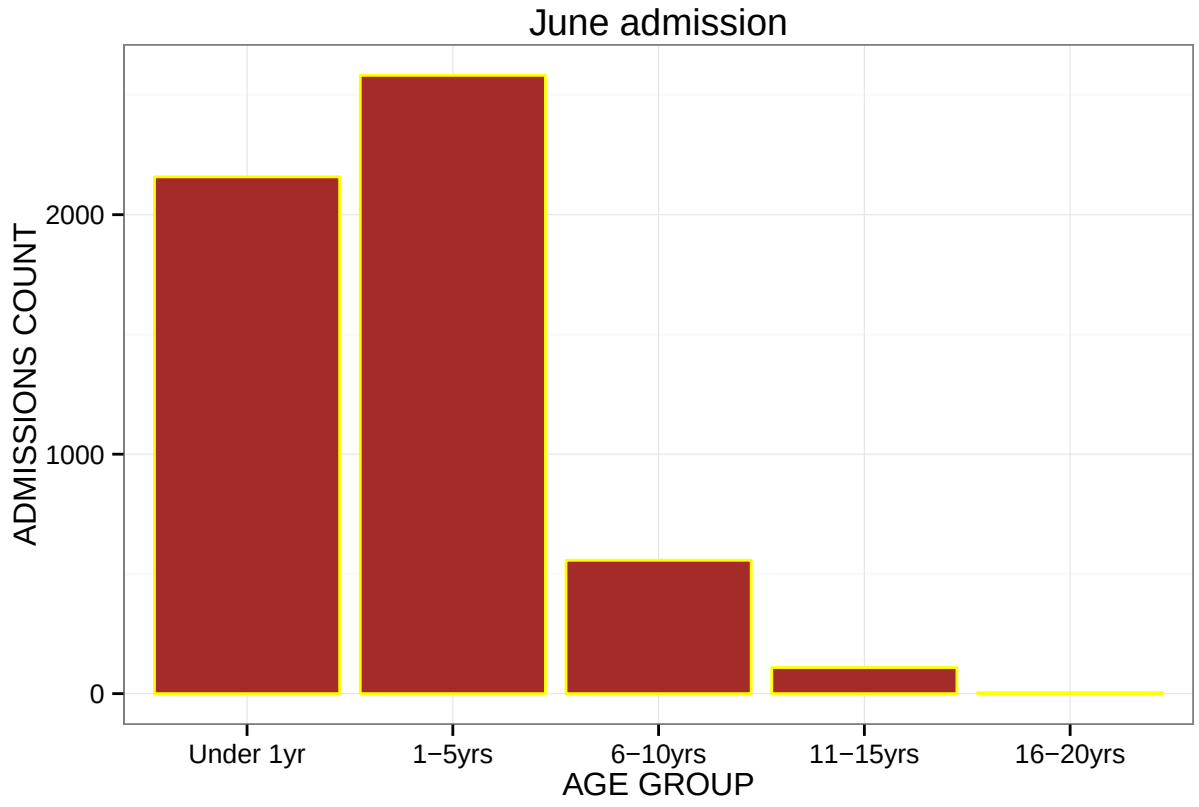
Under 1yr	1-5yrs	6-10yrs	11-15yrs	16-20yrs
2449	1749	423	109	2



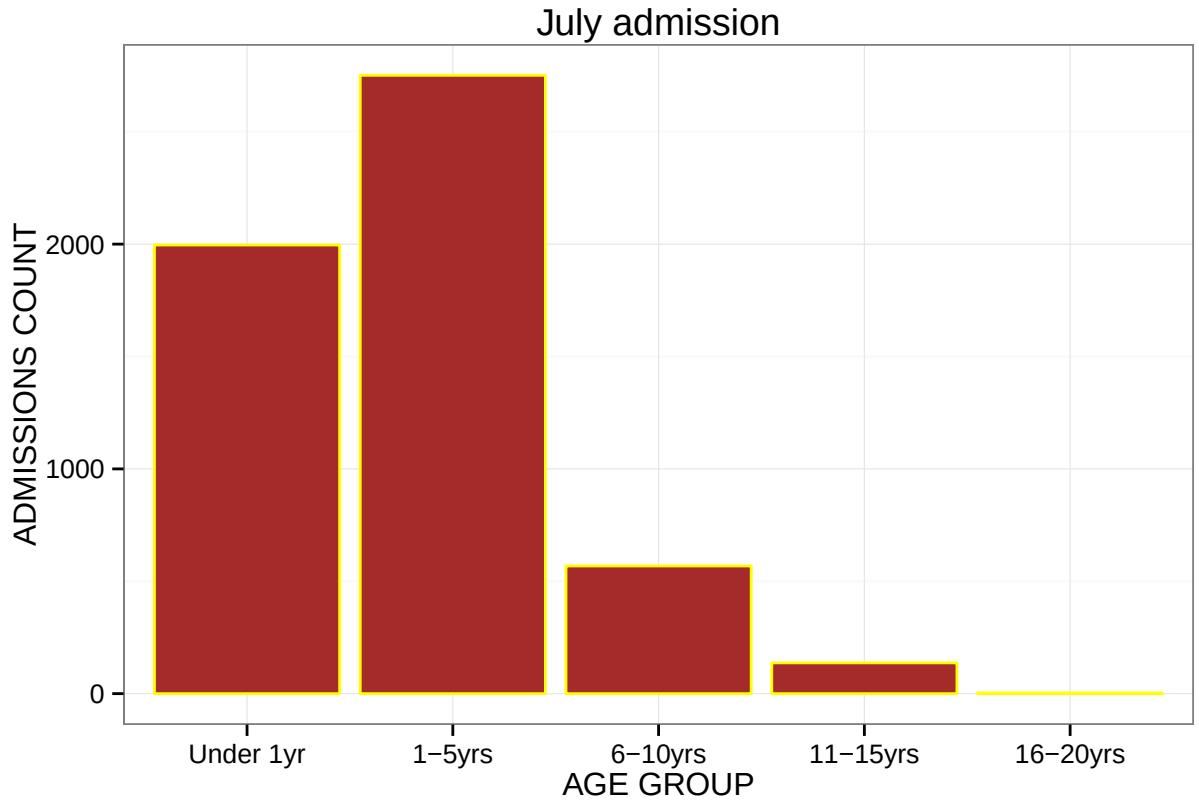

```
Under 1yr    1-5yrs   6-10yrs  11-15yrs  16-20yrs
      2302      2450       503       122         1
```



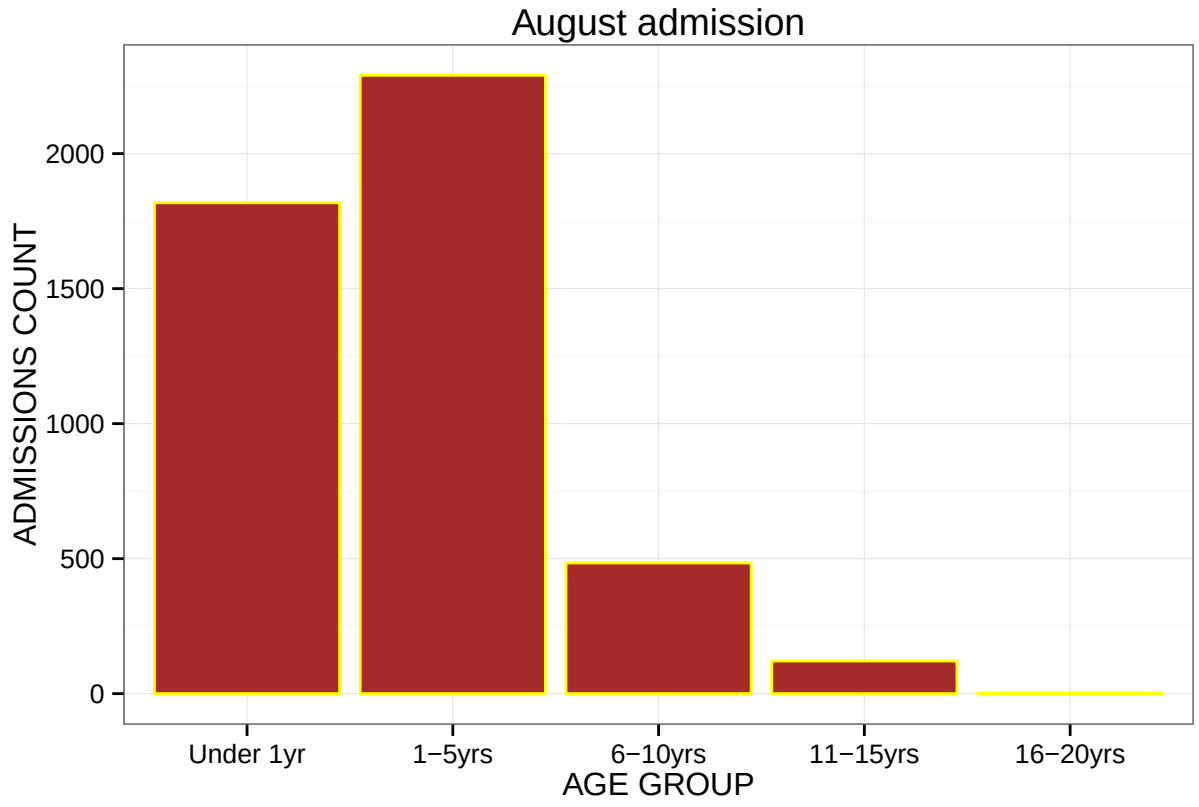

```
Under 1yr    1-5yrs   6-10yrs  11-15yrs  16-20yrs
     2158      2582       557       109         4
```



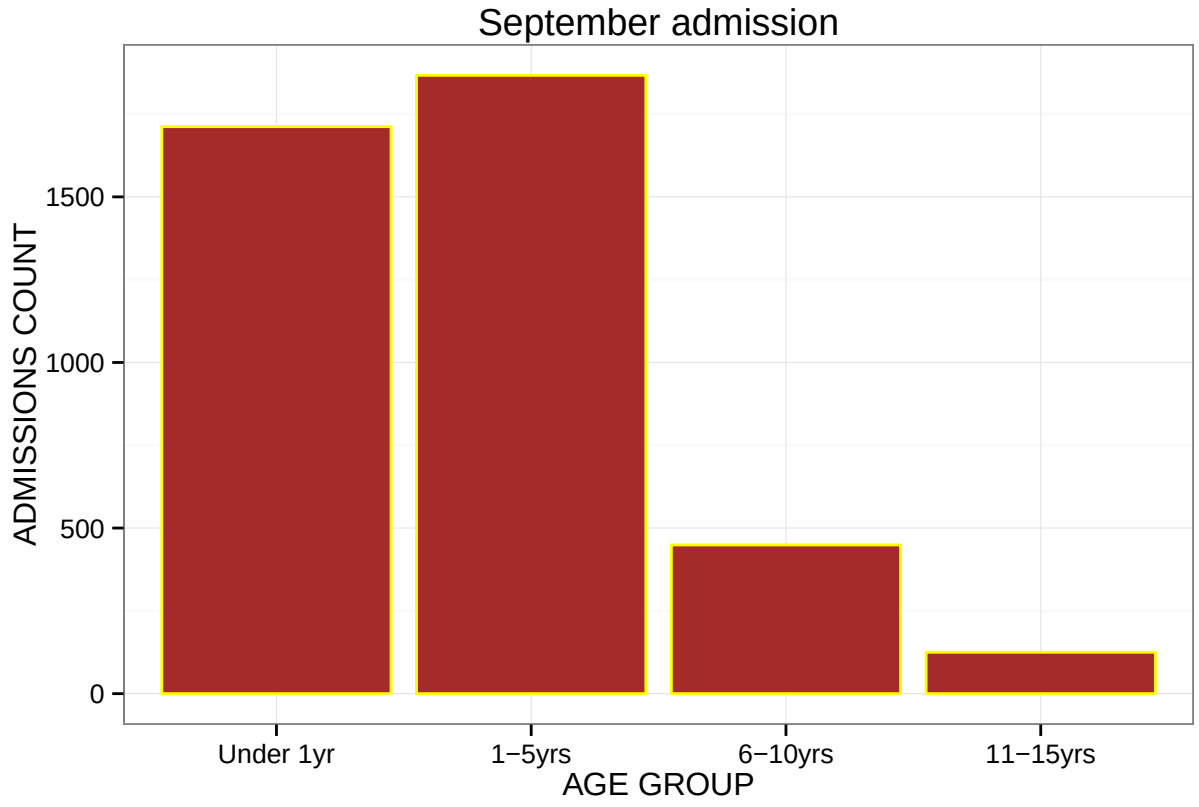
Under 1yr	1-5yrs	6-10yrs	11-15yrs	16-20yrs
1996	2751	568	137	3



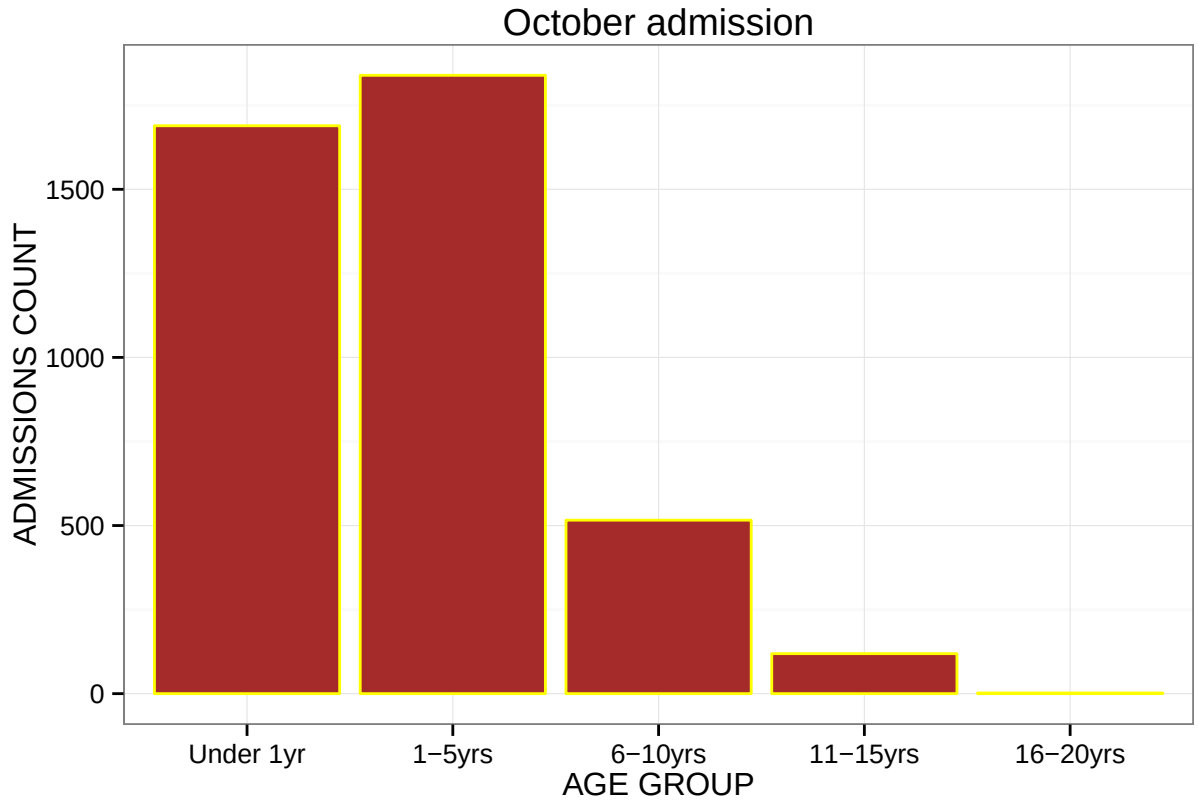
Under 1yr	1-5yrs	6-10yrs	11-15yrs	16-20yrs
1818	2290	484	121	2



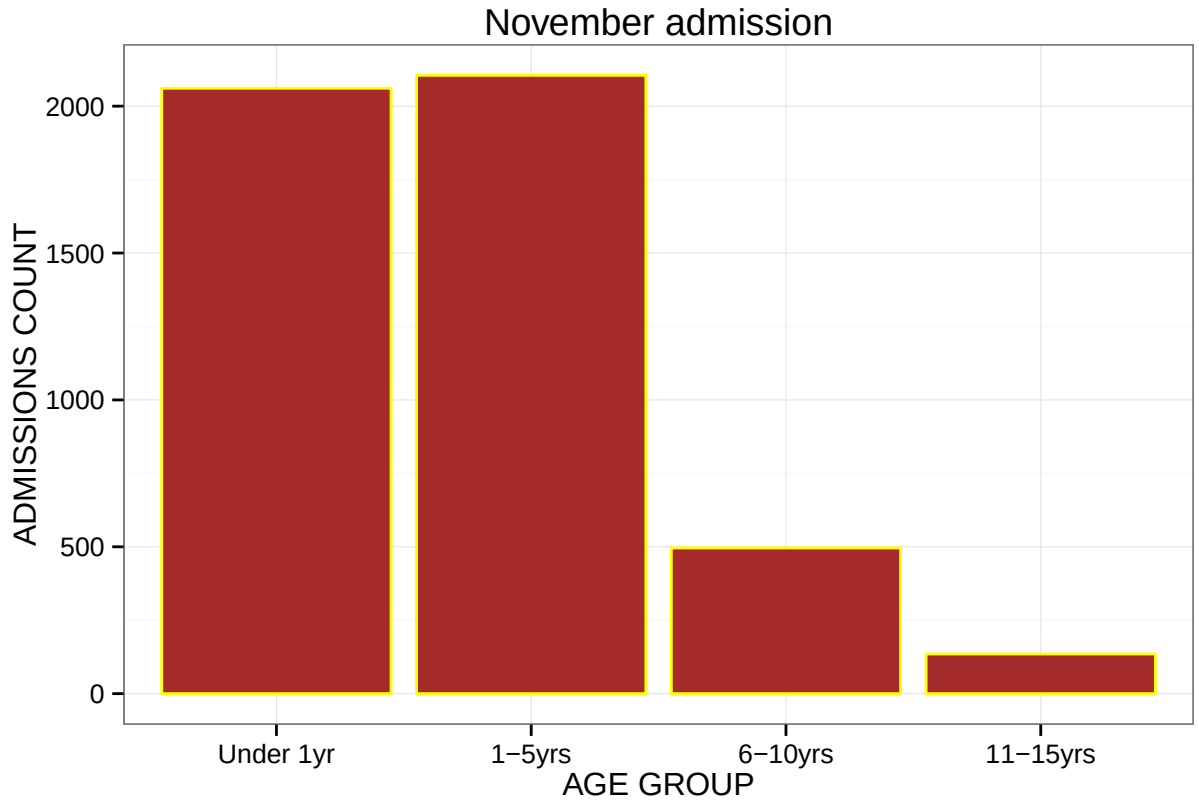

```
Under 1yr    1-5yrs   6-10yrs  11-15yrs  16-20yrs
     1712      1867       449       125         0
```



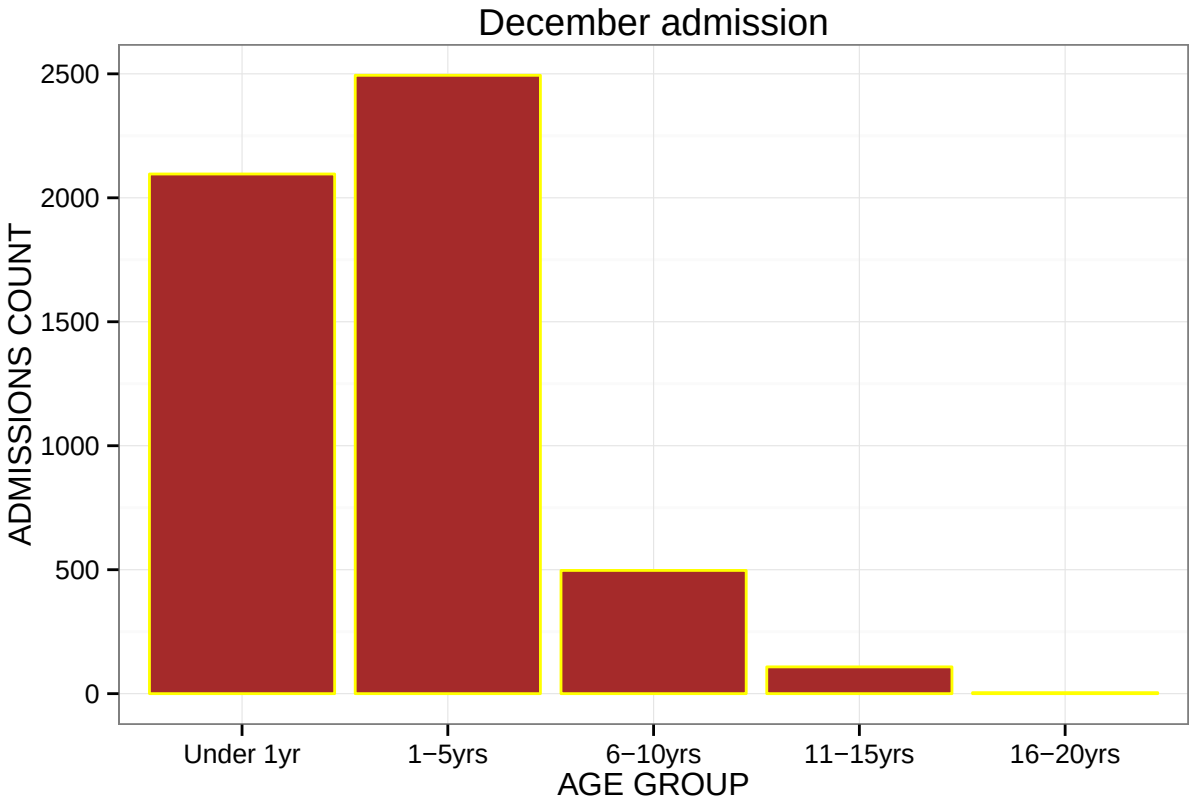

```
Under 1yr    1-5yrs   6-10yrs  11-15yrs  16-20yrs
     1689      1839       516       119         2
```



Under 1yr	1-5yrs	6-10yrs	11-15yrs	16-20yrs
2061	2105	496	135	0




```
Under 1yr    1-5yrs   6-10yrs  11-15yrs  16-20yrs
     2096      2494       497       108         4
```


December admission
ADMISSIONS COUNT
2500
2000
1500
1000
500
0
Under 1yr
1−5yrs
6−10yrs
11−15yrs
16−20yrs
AGE GROUP