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Adham Abushukur

Science Internship Program: Applied Medicine

Cleveland Clinic

Administration of the First Dose of Palivizumab (Synagis®) in an Inpatient vs Outpatient Setting

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Abstract

- Palivizumab (Synagis®) is a passive immunization used to prevent RSV (respiratory syncytial virus). It was approved for use by the FDA in 1998.
- Having the inpatient care team address the prior authorization for palivizumab should reduce the outpatient workload and may reduce the risk of administering palivizumab outside of the recommended guidelines.

Background

- Almost 100% of children are infected by RSV by the age of 2.
- Palivizumab works by preventing RSV from fusing to host cells.
- For healthy adults, RSV is relatively harmless; however, hospitalizations due to RSV are common for pre-term babies or babies with complex congenital anomalies.
- While there is no conclusive data on whether or not RSV significantly affects the mortality rate of these babies, it can increase the likelihood of severe sequalae.

Background (cont.)

- Because RSV season spans from the end of fall to the beginning of spring, palivizumab is given once a month for five months, starting in November.
- Palivizumab costs about $1550 per dose.
- During the 2016-2017 season, palivizumab was given in the hospital to newborns who qualified prior to discharge.
- During 2017-2018, the first dose was given after discharge, primarily in the primary care physician’s office.

Purpose

- To evaluate the impact of the system-wide pilot of administering the first dose of palivizumab on the outpatient side in 2017-2018 versus the standard in previous years.

Purpose (cont.) and Hypothesis

- To evaluate how many infants received palivizumab within the system-set metric of 3 business days after discharge in this new workflow between fall of 2017 and spring 2018.
- To compare the time interval between the first and second doses (where data is available) in the 2016-2017 and 2017-2018 seasons.
- Hypothesis: if the outpatient clinic's workload was reduced by the inpatient care team, then the likelihood of delays in the process of administering palivizumab will be reduced. This would result in a more efficient and cost-effective healthcare system.

Methodology

- Collected patient data for all palivizumab recipients through electronic medical records system from October 2016-April 2018
- Retrospectively analyzed 64 data points per patient
- Compared the efficiency of dose administration between patients from the 2016-2017 RSV season and patients from the 2017-2018 season

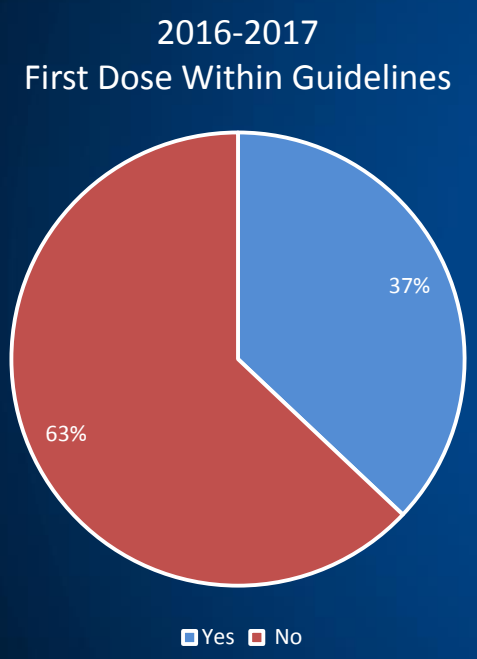
Data

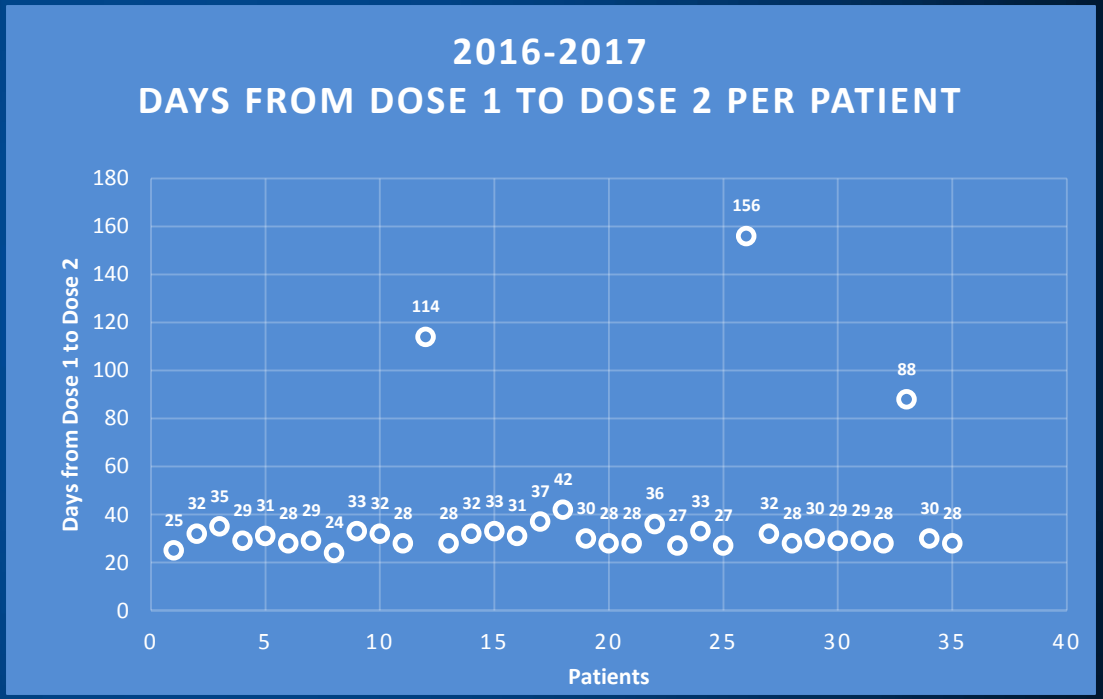
- 2016-2017 patients (72 hours prior to discharge):
  - 54 total patients
  - 20 received first dose within guidelines
  - 34 received outside of guidelines
- 2017-2018 patients (3 business days post-discharge):
  - 46 total patients
  - 35 received within guidelines
  - 8 received outside of guidelines
  - 3 unknown date of first dose

Data (cont.)

- 2016-2017 had 35 patients with multiple doses
- 2017-2018 had 29 patients with multiple doses
- Days in between the first and second dose for 2016-2017 patients ranged from 24-156 days, while 2017-2018 patients ranged from 26-51 days

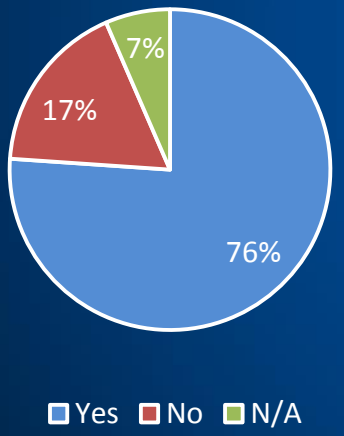
Results

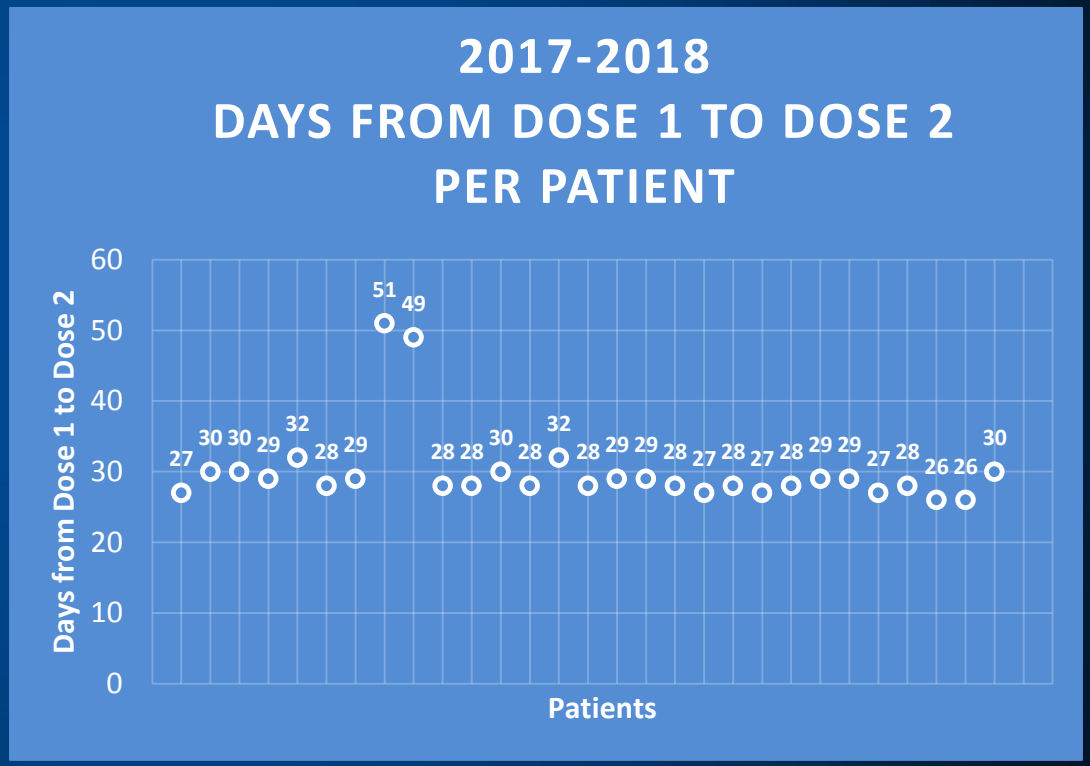

2016-2017
First Dose Within Guidelines
37%
63%
Yes
No


2016-2017
DAYS FROM DOSE 1 TO DOSE 2 PER PATIENT
Days from Dose 1 to Dose 2
Patients
0
20
40
60
80
100
120
140
160
180
0
5
10
15
20
25
30
35
40
25 32 35 29 31 28 29 24 33 32 28 28 32 33 31 37 42 30 28 28 36 27 33 27 32 28 30 29 29 28 30 28
114
156
88

Results (cont.)

2017-2018 Season
First Dose Within Guidelines





Conclusions

- The first dose of palivizumab was given in the outpatient clinic. There was an increase in the percentage of patients receiving their first doses inside of the guidelines (from 37% to 76%), as well as a decrease in the amount of days in between the first and second doses that better reflects the guidelines (from 38 days to 30 days or 30.45 to 28.51 normalized).

Recommendations

- Hospitals that address prior authorization for palivizumab on the outpatient side should transfer the workload to the inpatient care team
- Larger population size

References

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- Byington, C., Wilkes, J., Korgenski, K., & Sheng, X. (2014). Respiratory syncytial virus-associated mortality in hospitalized infants and young children. *Pediatrics 135*(1). Retrieved from http://pediatrics.aappublications.org/content/pediatrics/early/2014/12/02/peds.2014-2151.full.pdf.

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