Bermuda Health Council

ROAD TRAFFIC CRASHES

An Analysis of Health Insurance Claims 2014 - 2016

Road Traffic Crashes: An Analysis of Health Insurance Claims 2014 - 2016

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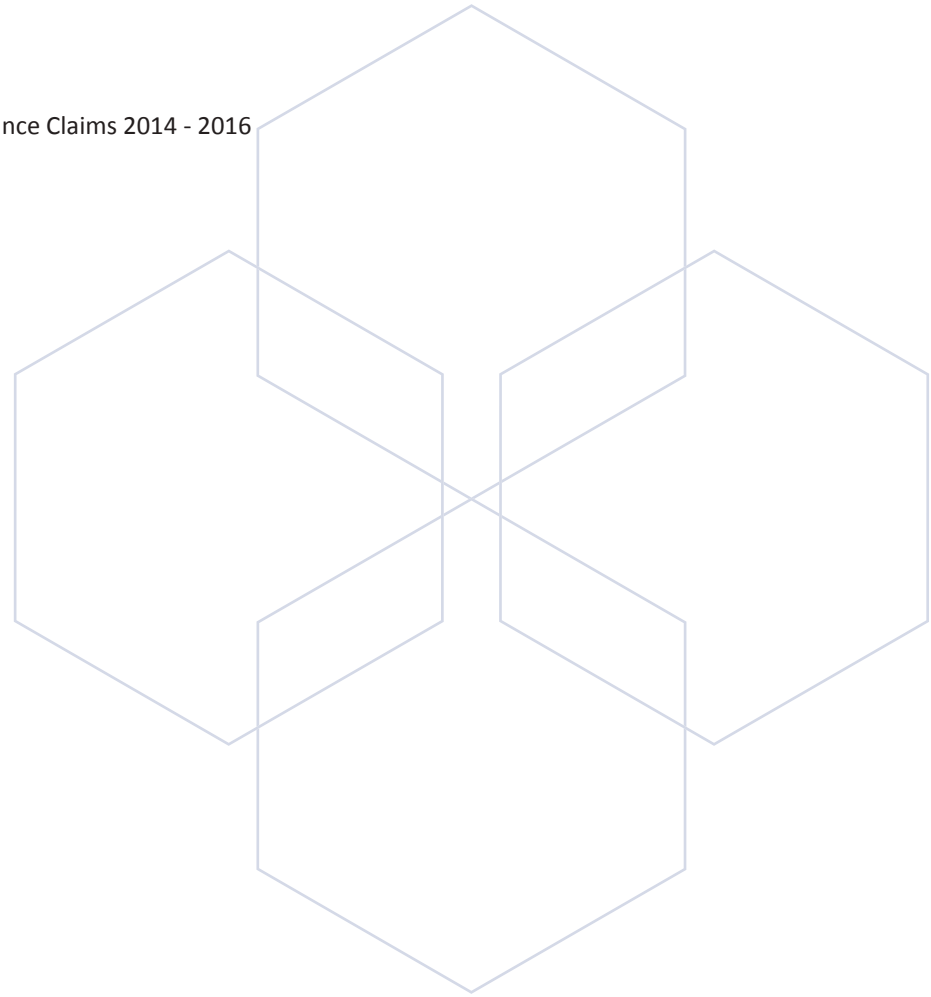
Published by:
Bermuda Health Council (May 2017)

Reference as:
Bermuda Health Council (2017)
Road Traffic Crashes: An Analysis of Health Insurance Claims 2014 - 2016
Bermuda Health Council: Bermuda.

Printed by:
Bermuda Health Council



BACKGROUND

In Bermuda, the health crisis of road traffic injuries and their attendant risks are considered significant and are poorly quantified. Understanding the epidemiology of road traffic injuries in Bermuda is critical to informing sustainable research and policy initiatives aimed at reducing this health crisis. Road traffic crashes (RTC) constitute a considerable public health burden and represent the eighth leading cause of death and tenth leading cause of disability adjusted life years (DALYs) globally. Although RTC are a leading cause of disability and mortality, the World Health Organization indicates that there are opportunities for more accurate reporting of these incidents as under-reporting of crashes and subsequent injuries has been a challenge globally for years.

The following analysis provides the total healthcare claims recorded by local and overseas providers based on a defined set of road traffic crash descriptions. This brief is intended to encourage local stakeholders, road administrators, and the community at large to continue to make progress in estimating the significant impact of RTC. This collaborative effort can help to immediately sustain prioritise road traffic safety and sustain this priority for the future, leading to the reduction in risk factors and road crashes.

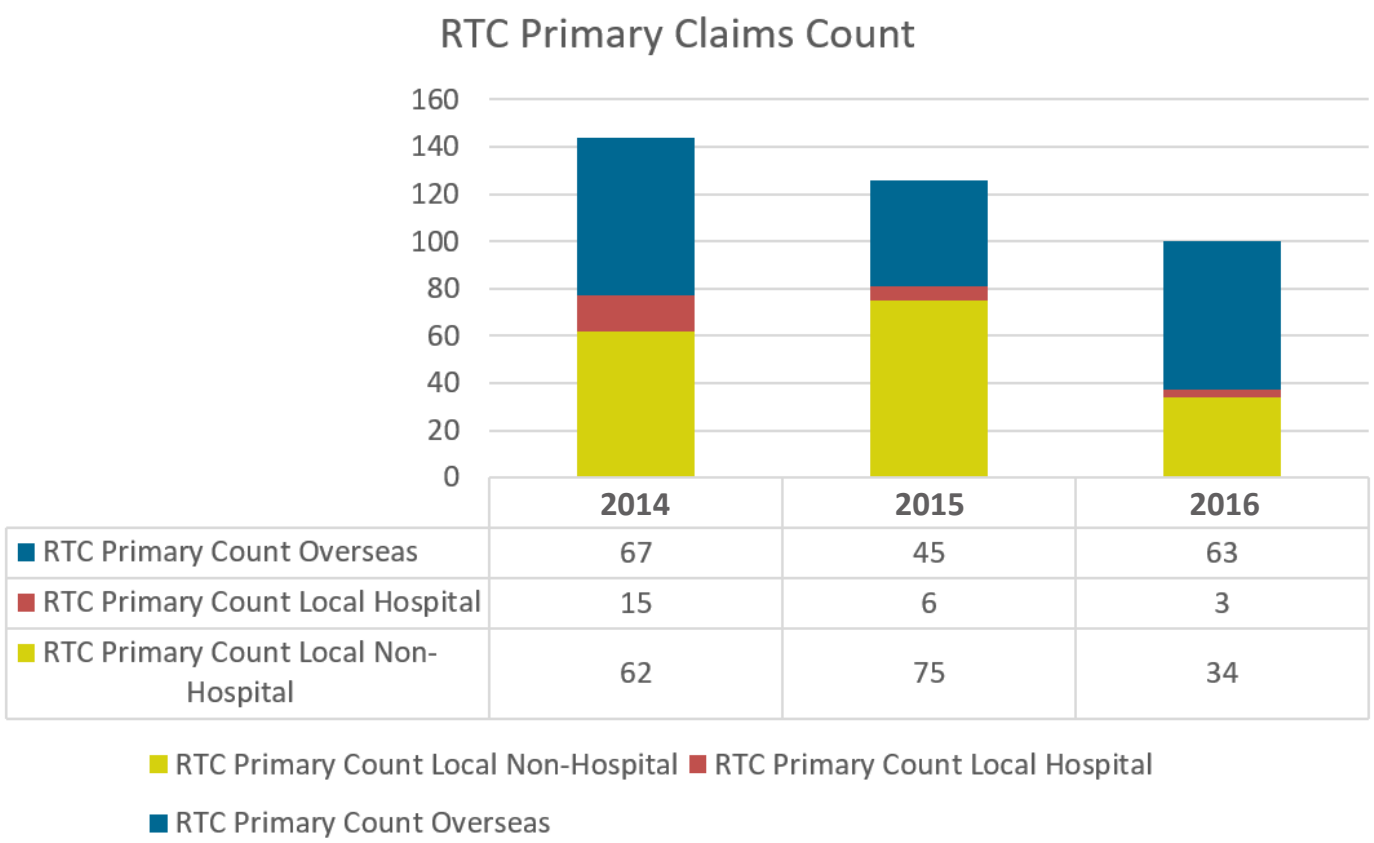
METHODOLOGY

1. The Health Council analysed 6.9 million claims related to 730 specific ICD-9 and ICD-10 codes for "Supplementary Classification of External Causes of Injury and Poisoning". The analysis focused on Motor Vehicle Traffic Crashes, Motor Vehicle Non-Traffic Crashes and Other Road Vehicle Crashes. The classification of these codes were between E811-E829 using the ICD-9 framework and V20-V49 using the ICD-10 framework. Using provider unique identifier numbers and yes/no variables for local and overseas providers, the analysis was able to plot 3 year trends for claims processed by local insurers. Additionally, road traffic crash data was segmented by whether the event was listed as a patient's primary condition (RTC Primary) or under any diagnosis (condition) category (RTC General). Over the three year period, there were a total of 14,090 claims that included RTC as a general cause leading to healthcare services, of which 370 were of primary condition status.

2. The analysis of costs and service provision exclude considerable psychological and economic losses from lost productivity and income, long term disability and societal costs associated with the necessary care for those disabled by injury.

FINDINGS

3. As data analysed included FY2014 - FY2016, aggregate findings saw RTC primary claims decline each year between 2014 and 2016. The majority of claims coded with a primary condition related to road traffic accidents were treated locally at non-hospital locations or at overseas facilities (see Figure 1). An estimated 78 unique individuals received care for RTC Primary claims of which only 11% (of 370) were made to government insurers.



	2014	2015	2016
RTC Primary Count Overseas	67	45	63
RTC Primary Count Local Hospital	15	6	3
RTC Primary Count Local Non-Hospital	62	75	34

Figure 1: Count of Primary Condition of Road Traffic Crashes by Location of Care Provided

4. The claims amounts paid for RTC Primary have fluctuated year on year with a diversity in the location in which care is received (see Figure 2). During 2016, a significant increase in care provided overseas was noted.

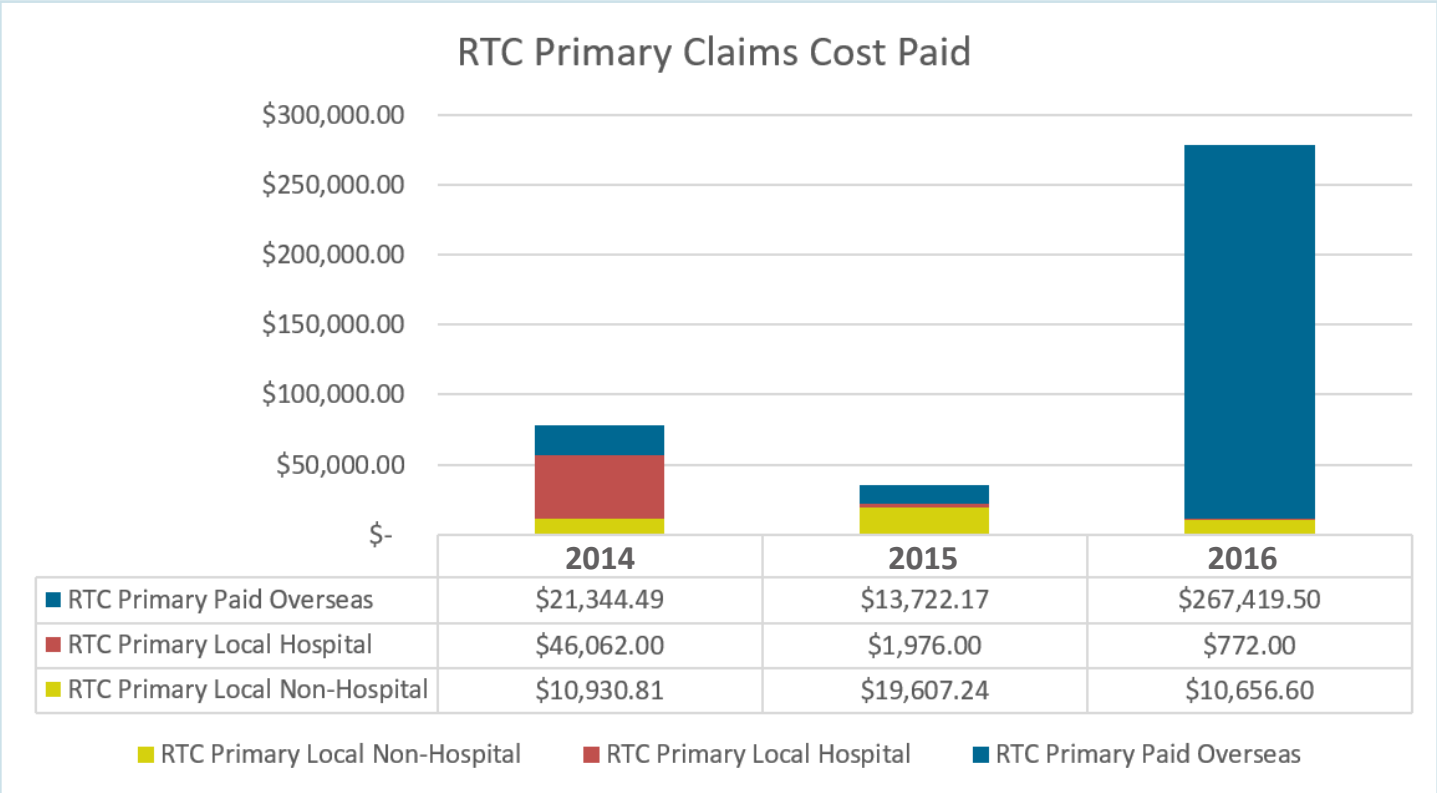


Figure 2. Paid Amounts for Primary Condition of Road Traffic Crashes by Location Care Provided

5. The average claims cost for procedures done overseas in 2016 was over $4,000 (see Figure 3). An anomaly was also seen in 2014 related to local hospital care.

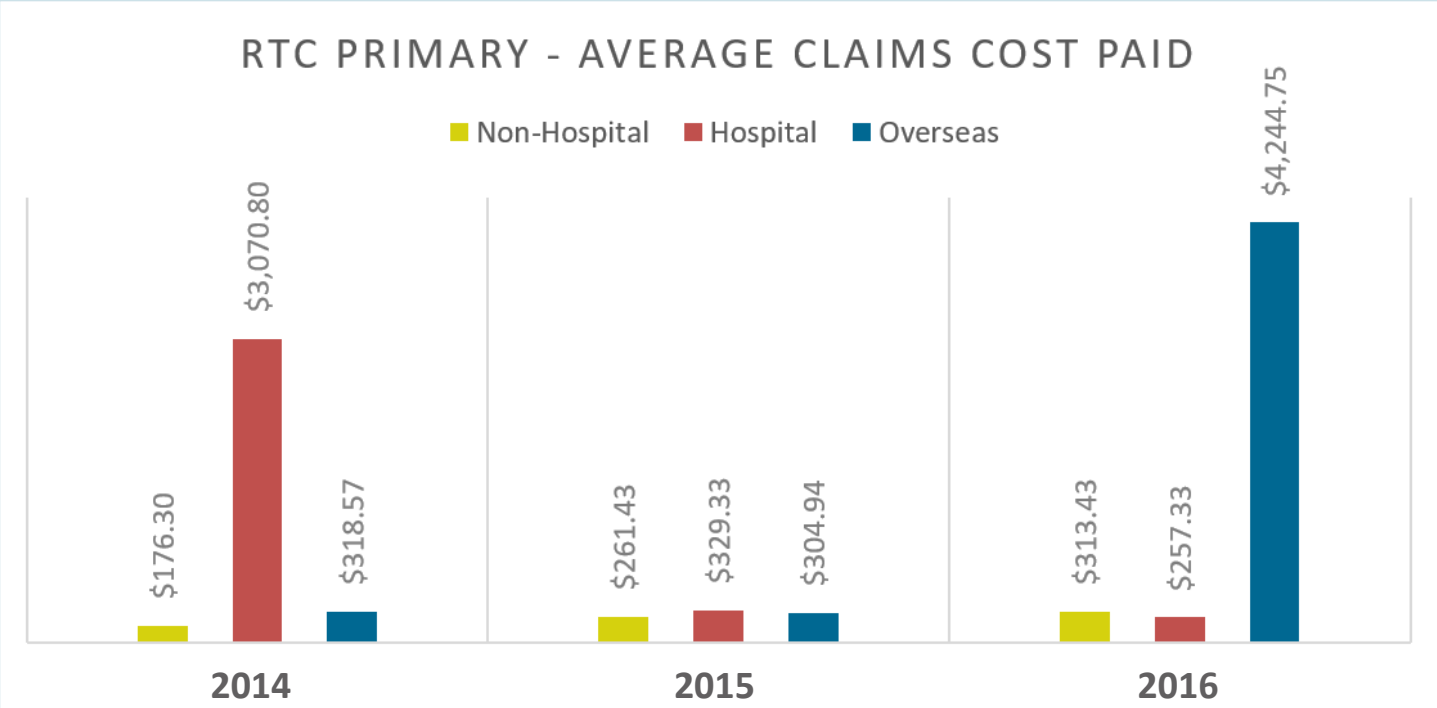
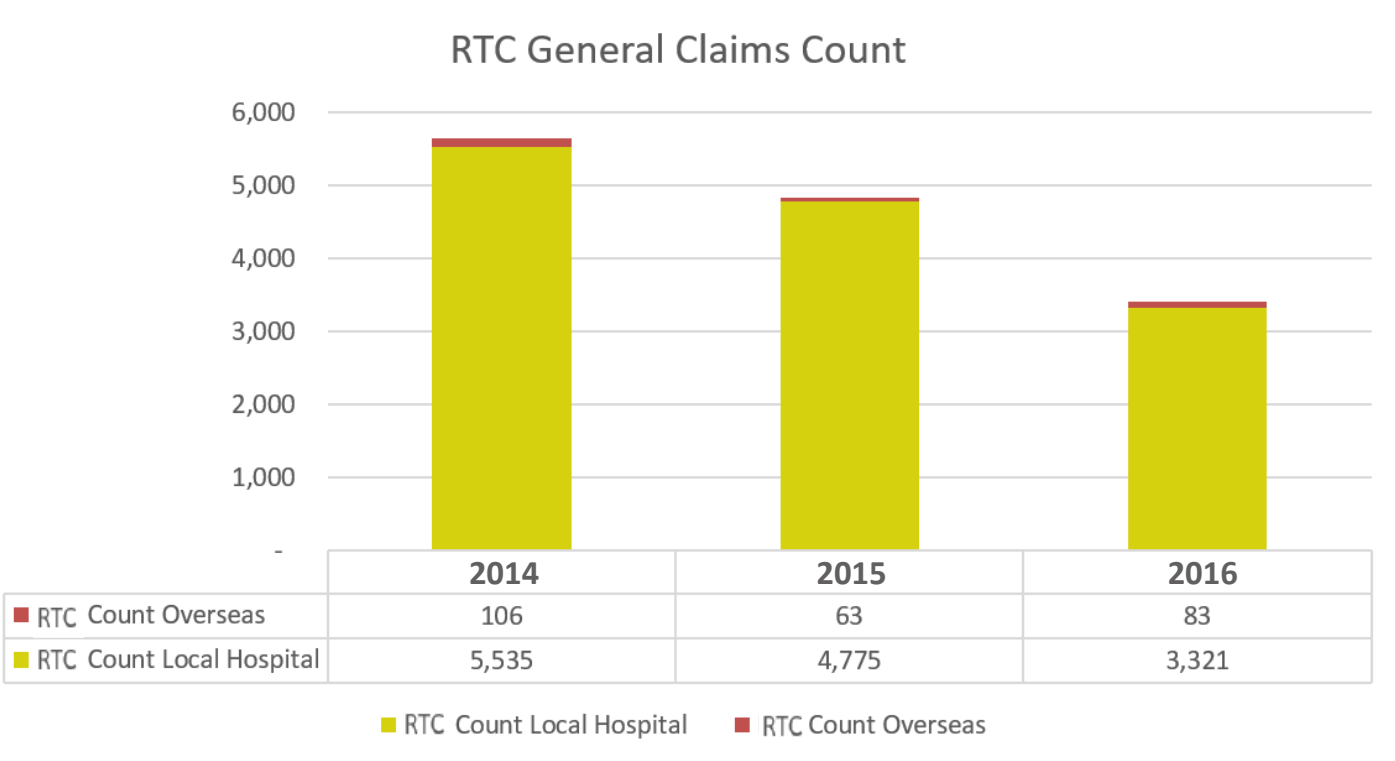


Figure 3. Average Paid Amounts for Primary Condition of Road Traffic Crashes by Location of Care Provided

6. In respect of general care of someone who experienced a RTC and sought care between 2014 and 2016, a decline was also seen. For this category of claims, the majority of care was received at the local hospital (see Figure 4). An estimated 2,271 unique individuals received care for RTC General claims of which 57% (of 14,090) were made to government insurers.



	2014	2015	2016
RTC Count Overseas	106	63	83
RTC Count Local Hospital	5,535	4,775	3,321

Figure 4. Count of General Condition of Road Traffic Crash by Location of Care Provided

7. The claim amounts paid for RTC General has declined as the number of units of service provided by the local hospital declined (see Figure 5).

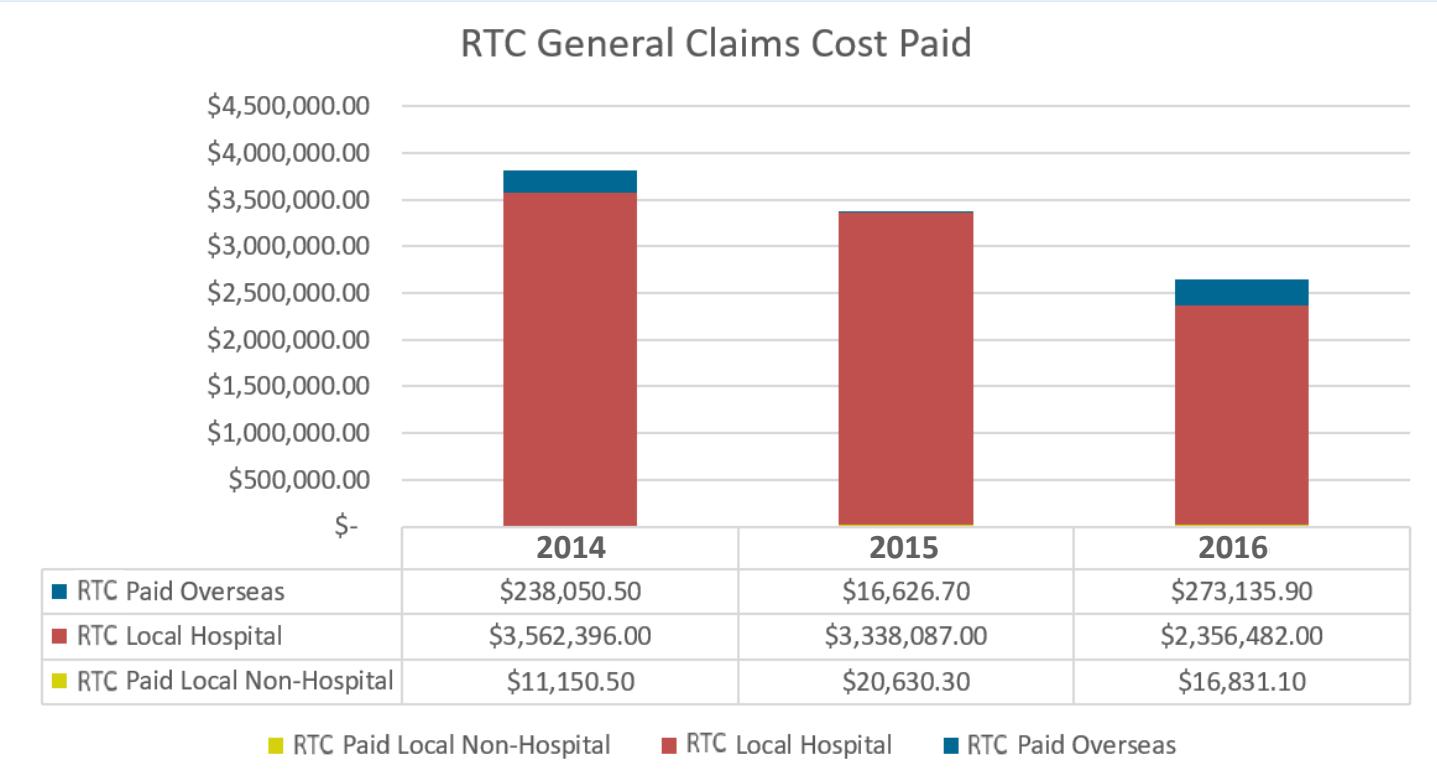


Figure 5. Paid Amounts for General Condition of Road Traffic Crash by Location of Care Provided

8. Payments to overseas facilities for RTC General were proportionally higher than the number of claims. This observation is also noted in the average claims cost for care overseas during 2014 and 2016. The average claims cost for procedures done overseas in 2016 was over $3,200 for a larger volume of claims (see Figure 6).

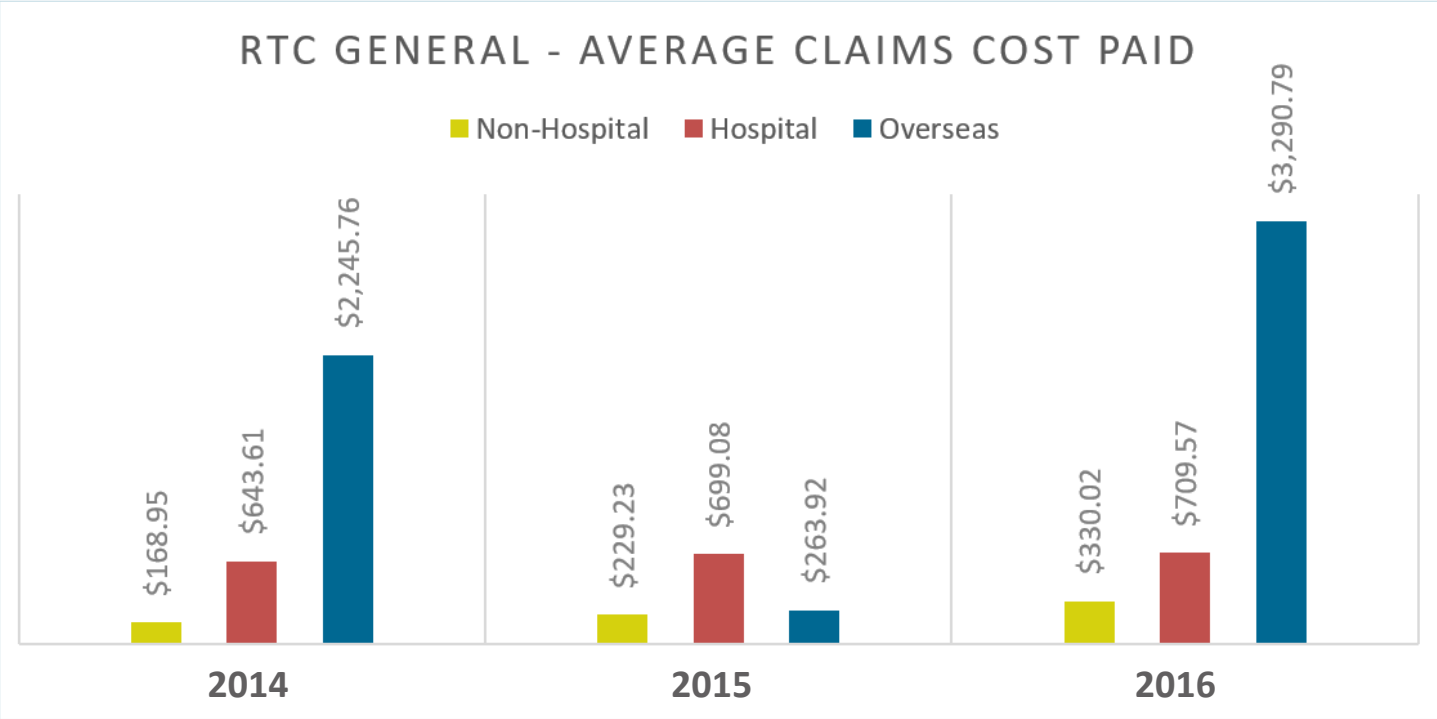


Figure 6. Average Paid Amounts for General Condition of Road Traffic Crash by Location of Care Provided

9. To determine if incidence of these claims was seasonal, the claims were against time. Based on the data, there did not seem to be repeat patterns regarding the defined RTC claims. Despite no regular pattern appearing for care based on seasonal cycles, there is an underlying reduction in RTC claims over time. This aligns to both Primary (see Figure 7) and General claims (see Figure 8).

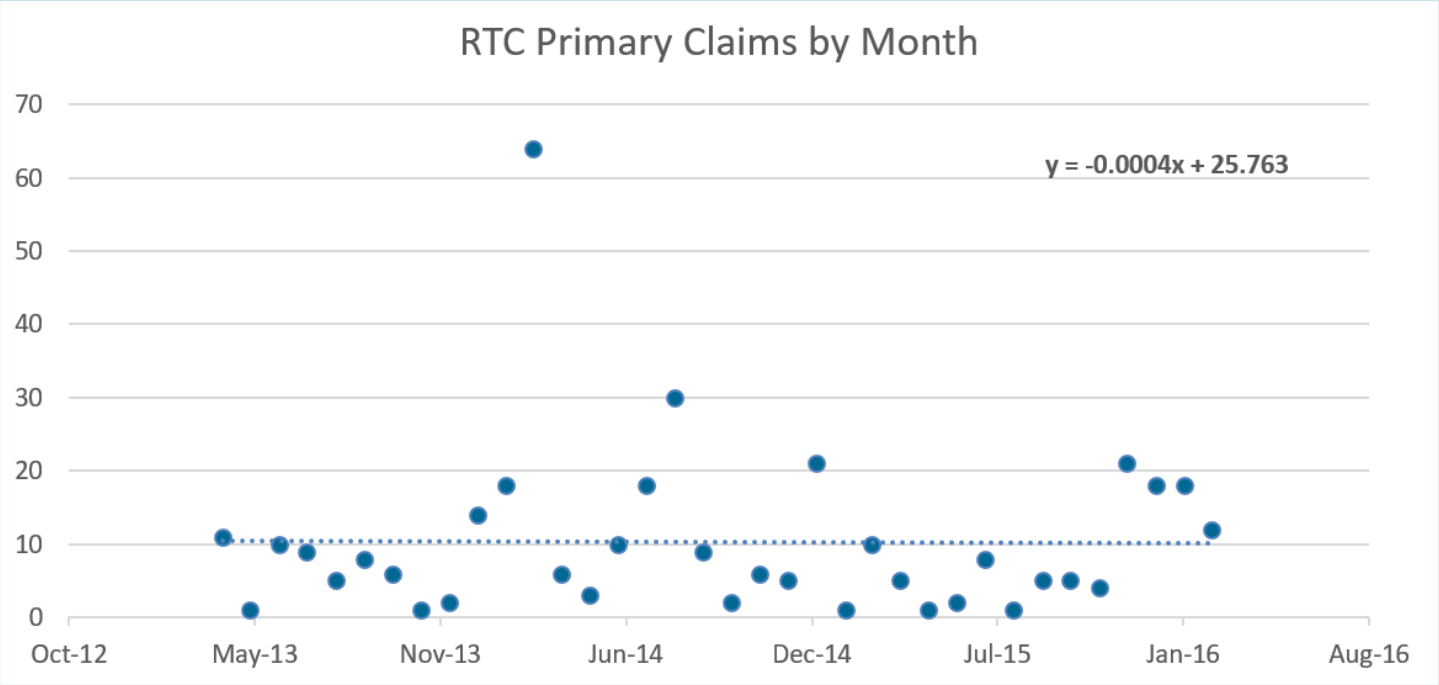


Figure 7. Number of claims submitted for Primary RTC by month

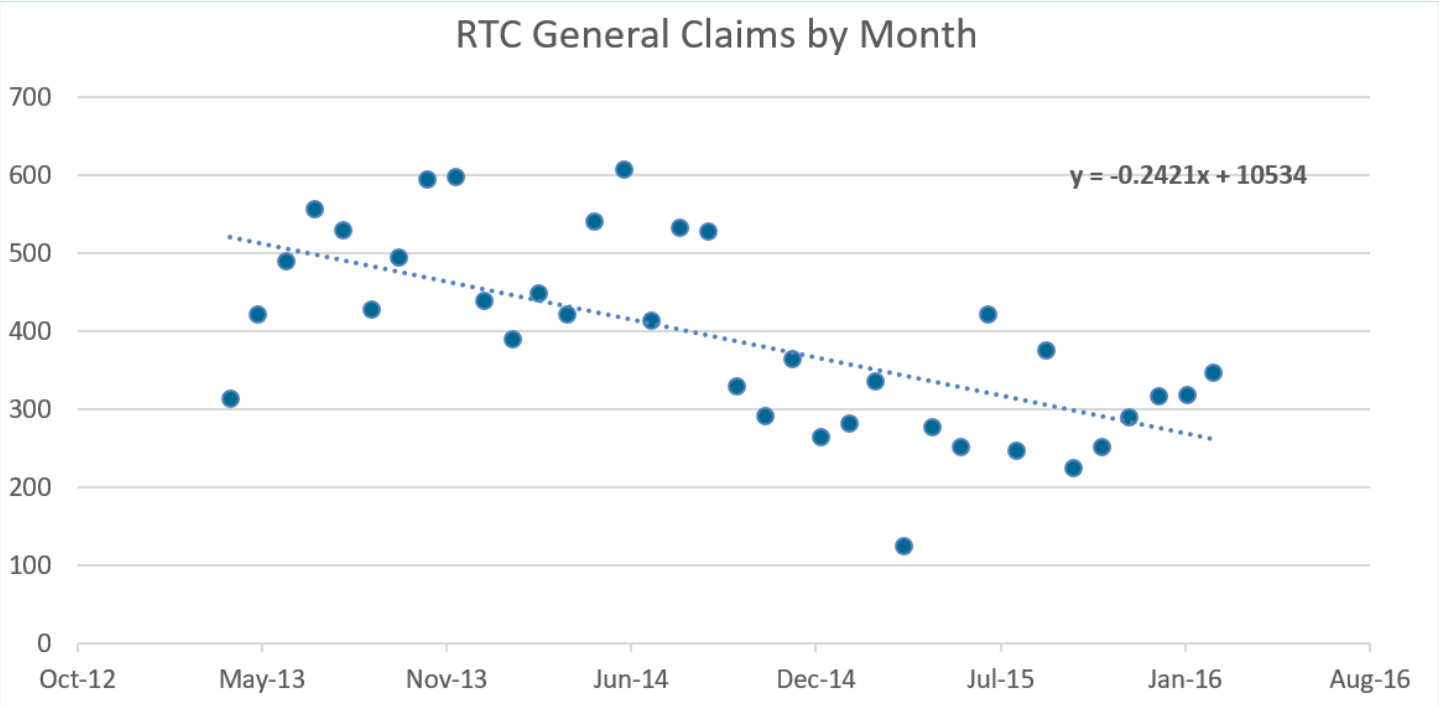


Figure 8. Number of claims submitted for General RTC by month

10. The types of procedures coded within the claims, in relation to individuals experiencing a road traffic crash include:

- Amputation of lower leg
- Anaesthesia
- Blood typing
- Optx medial ankle fx
- Chest x-Ray
- Critical care first hour
- CT of the head/brain w/o dye
- Debridement of skin bone at open fracture site
- Diagnostic bronchoscope/lavage
- Emergency Department Visit
- Fentanyl citrate injection
- Gait training therapy
- Hospital discharge day
- Initial hospital care
- Injections for pain
- Inpatient consultation
- Management for hypertrophic cardiomyopathy
- Cefazolin sodium injection (reduces risk of drug resistant bacteria)
- Partial removal of pancreas
- Pierce skull & remove clot
- Pulmonary service/procedure
- Repair foot dislocation
- Repair of stomach lesion
- Therapeutic activities
- Treat knee fracture
- Treat kneecap fracture
- Treat metacarpal fracture
- Treatment of thigh fracture
- Treatment of tibia fracture
- X-ray exam of ankle
- X-ray exam of elbow
- X-ray exam of foot
- X-ray exam of forearm
- X-ray exam of lower leg
- X-ray exam of pelvis

DISCUSSION

11. The three year data summary demonstrates a possible decrease in the rate of road traffic crashes leading to injury in Bermuda. Although this indication is promising, more analysis should be completed to verify that such a decline is consistent with the actual experience within stakeholder organizations. For example, road crash figures released during 2016 noted "four deaths in the first four months of the year and 19 serious accidents in the same period. Added to those numbers were 174 slight injury collisions and 232 damage only crashes"[1]. These figures reported publicly may not be fully represented at a claims level due to reporting or coding practices. The analysis of claims may underestimate the burden associated with the number of traffic crashes occurring in Bermuda.

12. Although the number of Primary claims related to RTCs declined, the proportion of claims requiring overseas care increased in 2016. This may indicate the nature of the accidents, although fewer, becoming more severe over this time period.

13. More robust analysis of RTC trends would also require a qualitative review of medical coding practices related to traffic crashes, process of reporting to police, and evidence obtained from the community itself. Such a review could ensure that there are full linkages developed between the cause of event and the subsequent care received.

1. http://www.royalgazette.com/news/article/20160517/road-accident-figures-worrying