Evaluation of the Redthread Youth Violence Intervention Programme at the East Midlands Major Trauma Centre: An Analysis of Impact on Re-injury and Re-attendance Rates

Executive Summary: May 2021

Authors:

Edward A Dickson

Clinical Research Fellow and Surgical Registrar, East Midlands Major Trauma Centre

Lauren Blackburn

Research Institute Manager, East Midlands Major Trauma Centre

Adam Brooks

Consultant Hepatobiliary Surgeon and Clinical Lead, East Midlands Major Trauma Centre

Ethical approval: London –Bromley NHS Research Ethics Committee (Ref 20/LO/0691)

Correspondence to: Edward Dickson
East Midlands Major Trauma Centre
Queen's Medical Centre
Derby Road
Nottingham
NG7 2UH
Edward.dickson@nhs.net

Background

Youth Violence and recidivism present a major healthcare and socioeconomic burden to the UK according to the Home Office (2018). Without intervention repeat attendance rates to hospital following violent injury are estimated to occur in 22-44% of individuals (Snider, Kirst et al. 2010) and young person's seeking medical attention for a violent injury are twice as likely to re-attend the Emergency Department than those attending for non-violent reasons (Cunningham, Carter et al. 2015). In March 2018 the Redthread Youth Violence Intervention Programme (YVIP) was established at the East Midlands Major Trauma Centre, Queen's Medical Centre in Nottingham as a means to address this substantial public health concern. The service seeks to support all 11-24 year olds presenting to the Emergency Department with an injury secondary to assault, violence or adversity or an attendance due to exploitation. Referrals can come directly from clinicians treating these young persons or they can be identified via the hospital database by Redthread youth workers themselves. The programme centres on the idea of a 'teachable moment' – the point in time immediately after a critical experience, such as an assault, where an individual is most receptive to change (Lawson and Flocke 2009). This may involve attending a young person immediately after arrival to the Emergency Department in a trauma scenario. Here, Redthread complement the work of the medical team to offer support to a young person at what can often be an incredibly distressing moment in their lives. After initial contact, with consent, Redthread workers will seek to continue this support on the ward and following discharge from hospital in order to foster and maintain positive change in the young person's life. Engagement with the programme is voluntary and individuals require varying levels of support. This study aims to evaluate the impact of the YVIP on further episodes of violent injury and recidivism requiring re-attendance to hospital for young persons referred to the service between March 2018 and March 2020. The report also offers an appraisal of the referral pathway to the YVIP alongside an overview of recent patterns in youth violence observed among hospital attenders and the wider community.

Methodology

We undertook a retrospective case note review of all young persons referred to the YVIP at the East Midlands Major Trauma Centre from March 2018 to March 2020. Ethical and regulatory approval were sought to collect data on demographic details, circumstances of injury and additional attendances pre- and post- referral to the YVIP. In addition, audit data from the Emergency Department and data held by the Trauma, Audit & Research Network (TARN) were analysed to evaluate the Redthread referral pathway and to offer insight into the workload for the service. Young persons were not contacted to provide additional information for the study and all data were collected by a clinician with direct medical responsibility for these individuals.

The primary analysis was rate of attendance to the Emergency Department in young persons who engage with the full YVIP compared to those who don't engage. An analysis of those who received crisis support at the time of their index admission without the full YVIP programme was also undertaken. Subgroups involving those presenting with an assault related injury only, those presenting primarily due to substance misuse and those with a Nottinghamshire postcode only were also performed. Hospital attendances were calculated as events per 100 person years and a comparison of event rates was made before and after engagement with the YVIP. We used prior event rate ratio (PERR) analysis to compare the change in rate of attendance before and after referral to the YVIP among those who engaged with the full programme and those who did not. This group engaging with the full YVIP may hold different characteristics to the non-engaged group hence a direct comparison would be subject to significant bias. However, the PERR allows for unmeasured confounding factors among patients to be accounted for when comparing event rates (i.e. attendances) before and after an intervention, in this case the YVIP. This method offers us a comparison of the relative change in the rate ratio for attendances between the two groups.

Secondary outcomes included an analysis of the characteristics held by young persons who received the full support programme and those who did not engage alongside factors relating to the mode and mechanism of referral. Here, univariate logistic regression was used to present odds ratios for engagement with the YVIP for each demographic or referral factor. In addition, multivariate logistic regression was used to model the odds of engagement for each factor whilst adjusting for other known factors. Odds ratios (OR) are presented with 95% confidence intervals. Continuous variables are presented as a median and an interquartile range (IQR). A P value ≤0.05 was deemed statistically significant.

Results

Overview of the Cohort

From March 2018 to March 2020 a total of 647 referrals to the YVIP had been made. From these, 609 of these had been eligible for the YVIP comprising of 573 individuals presenting to the Emergency Department in Nottingham. Redthread made successful initial contact with 287 young persons with 57% (n=164) of these engaging in a full programme of support and 43% (n=123) receiving crisis support. Unsuccessful contact occurred in 286 cases. The commonest reasons for this included incorrect details (n=69), no response from the young person (n=60), contact made with next of kin only (n=18) or lack of safe contact details (n=16). There were also 32 young persons who did not want to engage with the YVIP and a further 43 who were deemed to have adequate existing support in place.

During the two years of the YVIP in Nottingham additional requirements were implemented relating to how young persons could be approached by Redthread. Specifically, from December 2018 onwards, the Redthread team were not allowed to contact young person's >18 years old without prior consent.

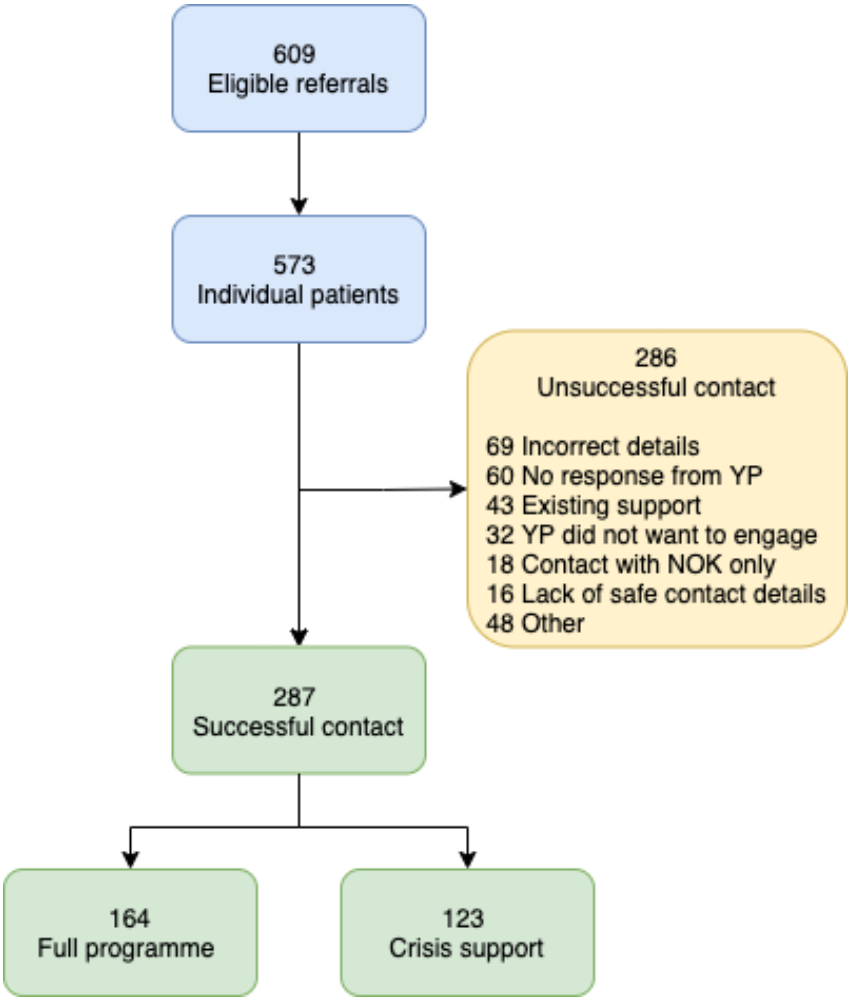

Figure 1 - Flow diagram for referrals to the YVIP

Among all eligible individuals referred 77% (n=439) were male and 23% (n=134) were female with 66% (n=200) being White British. The majority of referrals were clustered around the 15-21 age bracket. The second year of the YVIP (March 2019 onwards) saw an almost universal drop in referrals apart from the 13 & 14 year old group. The biggest decrease occurred in 19 year olds with a 52% reduction in referrals. These figures may reflect the refinement of the referral criteria and pathway as the service developed in Nottingham and an increasing focus being placed on the quality of appropriate support rather than quantity. Indeed, from April 2019 to March 2020 the proportion of eligible referrals increased. In addition, some individuals may have also had a pre-dated referral to the YVIP.

Overview of Attendances

Index attendances triggering the referral of a young person to the YVIP were clustered around the weekend (Friday-Sunday) with 55.1% (n=330) occurring over these 3 days. Assault related injury was evenly shared between weekday and weekend accounting for 87.2% (n=287) and 88.4% (n=290) of attendances, respectively. There was a marginally higher proportion of assaults with a weapon (blunt, bladed or gunshot) at the weekend contributing to 39% (n=128) of assaults on these days. The timing of index attendances to the Emergency Department saw the lowest attendance rate at 0700 hours followed by a steady upward trend towards a peak at 1700 hours. Reasons for attendance triggering a YVIP referral are outlined in Table 1.

Across all index admissions median injury severity score (ISS) was 2 (IQR 1-4, range 1-50). Among those admitted median ISS was 9 (IQR 4-14, range 1-50). There were no deaths due to further traumatic injury or violent assault in the entire cohort of referrals. 63% (n=104) of full programme engagers were discharged directly from the Emergency Department. For those admitted median length of stay was 3 days (IQR 1-6, range 1-37) and median ISS was 9 (IQR 5-18, range 1-50). Surgical intervention was required in 13.4% (n=22) of patients. For the 25 further attendances registered by young persons after engagement with the full YVIP just one patient required emergency surgical management of their injuries.

Discharge directly from the Emergency Department occurred in 77.7% (n=318) of patients who did not engage with the full YVIP including those receiving crisis support (all-comers). Median length of stay in those admitted was 5 days (IQR 2-9, range 1-34) and median ISS was 2 (IQR 1.75-4, range 1-34). Among re-attenders median ISS was 2 (IQR 1-2, range 1-

27) and 8 were admitted with a median length of stay of 5 days (IQR 3.5-4.5, range 2-14) with 3 needing surgical management of their injuries.

Table 1 - Reason for attendance triggering referral to the Redthread YVIP at index admission from total referrals. Categories are presented as percentages. Engaged include all those involved in the full YVIP programme. A proportion of non-engaged include those who received crisis support only (n=123).

Mechanism	**Total (n=573)**	**Engaged in full programme (n=164)**	**Not engaged in full programme (n=409)**
Assault			
Blunt object	7.5% (n=43)	6.7% (n=11)	7.8% (n=32)
Burns	0.9% (5)	1.2% (2)	0.7% (3)
Body parts	34.9% (200)	31.1% (51)	36.4% (149)
Glass/Bottle	3.1% (18)	1.8% (3)	3.7% (15)
Gunshot	2.1% (12)	3% (5)	1.7% (7)
Knife or bladed object	29.8% (171)	33.5% (55)	28.4% (116)
Vehicle	0.5% (0.5)	0	0.7% (3)
Sexual assault	1.7% (10)	3.7% (6)	1.0% (4)
Exploitation	0.5% (3)	1.2% (2)	0.2% (1)
Mental Health			
Intentional overdose	2.6% (15)	2.4% (4)	2.7% (11)
Self-harm	2.1% (12)	1.8% (3)	2.2% (9)
Suicidality	1.0% (6)	1.2% (2)	1.0% (4)
Other	1.4% (8)	0.6% (1)	1.7% (7)
Substance			
Alcohol	1.6% (9)	2.4% (4)	1.2% (5)
Drugs	4.0% (23)	6.1% (10)	3.2% (13)
Accident			
Self-inflicted	3.0% (17)	2.4% (4)	3.2% (13)
Road traffic collision	0.9% (5)	0	1.2% (5)
Illness/safeguarding	2.3% (13)	0.6% (1)	2.9% (12)

Impact of the YVIP on Re-attendance

Within the 2 years prior to their index admission and referral to Redthread 20.2% (n=116) of the entire cohort of referrals had attended the Emergency Department. Among those who engaged with the full programme, 29.9% (n=49/164) had attended in the two years prior to their approach by Redthread for an injury secondary to violence, mental health or exploitation. In contrast, half as many of those who had not engaged in a full programme of support (16.4% [n=51/409]) had record of a prior attendance. For those with a history of prior attendances the median number of visits was 1 for both groups (engagers range 1-22 visits; non engagers 1-5).

Following a referral to Redthread at their index admission 18.1% (n=104) of all individuals re-attended the Emergency Department until the close of the dataset on 3/3/20. By proportion re-attendance rates had dropped to 18.2% (n=30) of individuals for full YVIP engagers and increased to 18.1% (n=74) for non-engagers. This translated to an absolute reduction in the percentage of individuals attending the Emergency Department of 11.8% for the engaged group and an increase of 1.8% for non-engagers.

In the two years prior to their approach by Redthread the event rate of Emergency Department attendances was higher in the group who chose to later engage with the full YVIP. Here, these 164 patients had an event rate of 30.5 attendances per 100 patient years. Therefore, if we chose to observe 100 of the engaged patients for 1 year prior to their approach by Redthread we would expect 30.5 of them to have attended for an eligible visit.

After excluding those with existing support there were 331 patients who had been eligible for the programme but did not engage with the full YVIP (Table 2). Here, the equivalent event rate was 11.9 attendances per 100 patient years. This gave an unadjusted prior event hazard ratio (HR. prior) of 2.56 (95% CI 1.91-3.48) for previous attendance in the engaged group suggesting that attendance rates before referral were 2.56 times higher in the group who would later go on to engage with the full YVIP.

After engagement the event rate for attendances dropped to 25.8 attendances per 100 patient years in engagers. In contrast, for those who chose not to engage with the full YVIP, the event rate increased to 20.3 attendances per 100 patient years. This gave us an unadjusted post event hazard ratio (HR. prior) of 1.27 (95% CI 0.93-1.83) for re-attendances in the engaged group.

Overall this led to a prior event rate ratio (HR. post / HR. prior) of 0.49 (95% 0.28-0.64). This translated to a relative reduction of 51% in the rate of re-attendances for those engaging with

the full YVIP when compared to the rate of attendances among those who chose not to engage.

For those receiving crisis support 23% (n=29) of these individuals had recorded a previous attendance with 38 attendance events in total (range per person 1-4 attendances). From these attendances 71% (n=27) had been due to violence or assault, 16% (n=6) were due to a mental health crisis and 13% (n=5) were alcohol or drug related.

After crisis support 17.8% (n=22) of individuals re-attended up to March 2020 giving a relative reduction of 22.3%. A total of 29 re-attendances were recorded in total (range per person 1-4 attendances). Of these re-attendances 55% (n=16) were violence related, 32% (n=7) had been due to a mental health crisis and 27% (n=6) had been due to drug or alcohol intoxication.

Violence & Assault Related Re-attendances

We undertook a subgroup analysis to assess only individuals who presented initially with a violent injury or sexual assault. This subgroup included 139 of those who later engaged with the full YVIP and 332 who did not. In the full YVIP engagers the event rate for attendances prior to their referral was 18.7 attendances per 100 patient years and for the non-engagers this was 10.3 attendances per 100 patient years. This gave a hazard ratio of 1.81 (95% CI 1.31-2.50) suggesting that full programme engagers were attending 1.81 times more frequently than non-engagers before they were referred to Redthread. After engagement with the YVIP recidivism dropped from 27.3% to 13.6% giving a relative reduction of 49.8%. In contrast, for the non-engaged group recidivism remained entirely consistent at 15.3%. After engagement with the full YVIP the event rate for re-attendance dropped in this group to 13.6 attendances per 100 patient years. In contrast, for the non-engaged group the re-attendance event rate rose to 20.2 attendances per 100 patient years. This gave a hazard ratio of 0.67 (95% CI 0.44-1.07) suggesting that those who engage with the full YVIP following a violent injury or assault have 33% fewer attendances compared to those who do not engage. Overall this gave a relative reduction of 63% (HR 0.67 [95% CI 0.19-0.58]) in their rate of attendances after engaging with the full YVIP when compared to the rate of attendances among of those who chose not to engage based on our PERR analysis (Table 3).

Nottinghamshire Resident Re-attendances

Finally, to mitigate the limiting factor of re-attendances occurring at a trust other than Nottingham University Hospitals we undertook an additional PERR analysis of patients with a Nottinghamshire postcode. We identified 458 young persons referred to the YVIP with a postcode within Nottingham City or Nottinghamshire (136 full programme engagers, 322 non-engagers). Here, the hazard ratio for attendances prior to engagement with the YVIP was 1.90 (95% CI 1.38-2.60). This dropped to 0.89 (95% CI 0.62-1.29) after engagement giving a prior event rate ratio of 0.46 (95% CI 0.29-0.65). Therefore, for those living at a Nottinghamshire postcode we observed a relative reduction of 54% in the rate of re-attendance among those who chose to engage with the full YVIP when compared to those who did not.

Table 2- Event rates and unadjusted hazard ratios for Emergency Department attendances with 95% confidence intervals among those who engage and all eligible patients for the YVIP who did not engage with the full Redthread YVIP and did not have existing support. A proportion of not engaged include those who received crisis support only (n=123).

Parameter	Engaged in full programme	Not engaged in full programme
No of patients	164	331
Before approach by Redthread		
No (%) patients with prior attendances in 2yr before approach	49 (29.8%)	62 (18.7%)
Incidence of attendances per 100 person years (95% CI)	30.5 (24.6-37.8)	11.9 (9.4-14.9)
Unadjusted hazard ratio (engaged/non-engaged) (95% CI)	2.56 (1.91-3.48)	
After approach by Redthread		
No (%) patients with attendances after approach up to database lock	30 (18.2%)	66 (19.9%)
Incidence of attendances per 100 person years (95% CI)	25.8 (19.8-33.7)	20.3 (16.1-25.5)
Unadjusted hazard ratio (engaged/non-engaged) (95% CI)	1.27 (0.93-1.83)	
Prior event rate ratio* (95% CI)	0.49 (0.28-0.64)	

Table 3 - Event rates and unadjusted hazard ratios for Emergency Department attendances with 95% confidence intervals among those eligible for the YVIP who engage and do not engage with the Redthread full YVIP presenting with a violent injury or assault only. A proportion of not engaged include those who received crisis support only (n=123).

Parameter	**Engaged in full programme**	**Not engaged in full programme**
No of patients	139	332
Before approach by Redthread		
No (%) patients with prior attendances in 2yr before approach	38 (27.3%)	51 (15.3%)
Incidence of attendances per 100 person years (95% CI)	18.7 (14-25.1)	10.3 (8.1-13)
Hazard ratio (engaged/non-engaged) (95% CI)	1.81 (1.31-2.50)	
After approach by Redthread		
No (%) patients with attendances after approach up to database lock	19 (13.6%)	55 (15.3%)
Incidence of attendances per 100 person years (95% CI)	13.6 (9.2-20.1)	20.2 (16.2-25.2)
Hazard ratio (engaged/non-engaged) (95% CI)	0.67 (0.44-1.07)	
Prior event rate ratio* (95% CI)	0.37 (0.19-0.58)	

Distribution of Attendances

Across the entire cohort the majority of young persons had no record of an attendance either pre or post referral to the YVIP (full programme engagers 57.9%, n=95; non-engagers 67.4%, n=223). 36% (n=22) of full programme engagers and 12.4% (n=41) of non-engagers had recorded a prior attendance only. A total of 8.5% (n=14) of engagers and 6.9% (n=23) of non-engagers had recorded both prior and post attendances. Finally, 11.6% (n=19) of engagers and 13.3% (n=44) of non-engagers had recorded attendances solely after their index attendance and approach by Redthread (Figure 2).

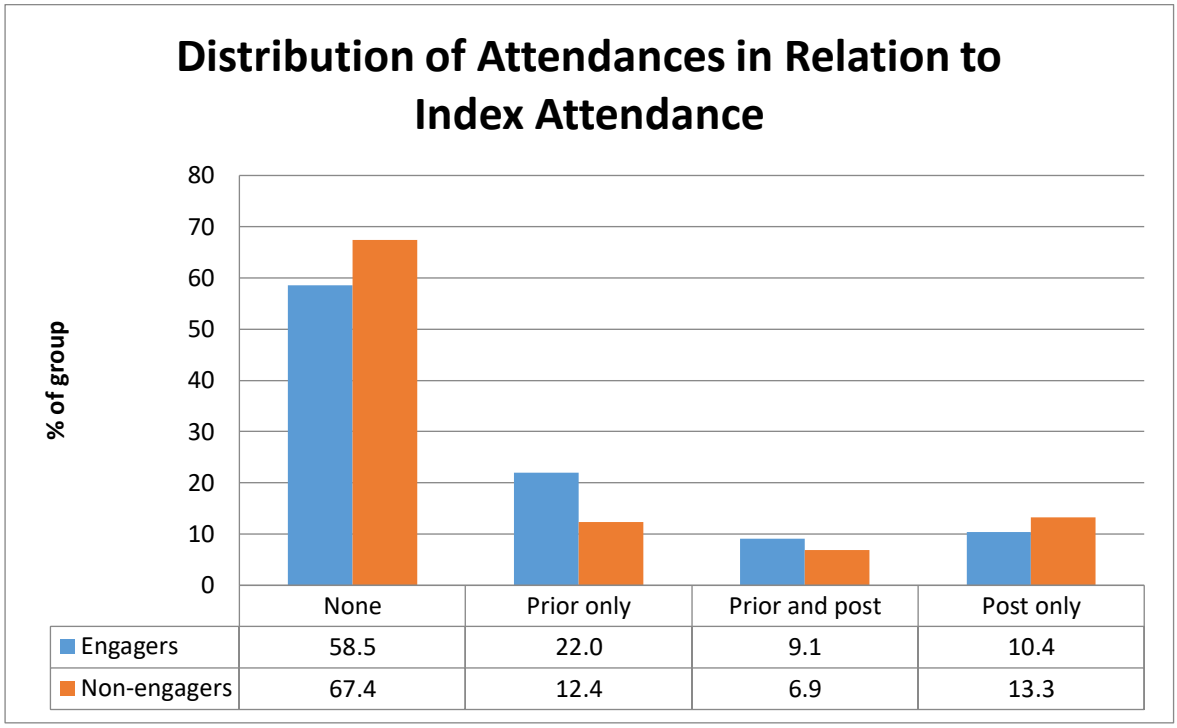

Figure 2 - Distribution of patterns of attendance surrounding the index admission and approach by Redthread among those who engaged and those who did not engage with a full YVIP. Engagers n=164, non-engagers n=313.

Emergency Department Assault Data

This analysis was conducted to identify patterns in the Emergency Department workload due to youth violence. We aimed to highlight the undertaking faced by the Redthread team in Nottingham and to help inform the most effective distribution of resources. Since the introduction of the Redthread service in Nottingham between March 2018 and March 2020 there were 1992 attendances to the Emergency Department by young persons aged 11-24 years with an injury secondary to assault or adversity. Those injured with a sharp or bladed object registered 243 attendances with a year on year increase of 27%. Of these 243 patients 65.8% (n=160) had been referred to the Redthread service. 64 of the 83 patients not referred to Redthread had been discharged directly from the Emergency Department.

There were 1263 attendances due to assault with body parts with 21% (n=266) of these being referred to the Redthread service. Year on year a reduction of 23.2% was observed for this mechanism of injury. This group contained a large number of individuals with an isolated head injury (92.2%) who had been discharged directly from the Emergency Department. Due to the requirement for consent to contact prior to discharge in many cases it was not possible for youth workers to approach these individuals regarding the YVIP.

There were 308 cases of assault or injury with a blunt object with a 26% year on year increase. Among these 308 cases 31.4% (n=97) were referred to the YVIP. Again, the majority of those not referred to the YVIP had been discharged directly from the Emergency Department (95.7%).

There were 6 gunshot injuries attending the Emergency Department during the two years since the introduction of the Redthread service all of which were referred to Redthread.

Trauma Audit and Research Network Data

A total of 82 TARN eligible admissions due to assault experienced by a young person aged 11-24 who survived until discharge were reviewed. Of these 66% (n=54) had been referred to the Redthread YVIP. The majority had been the victim of assault with penetrating trauma carrying a median ISS of 10 (IQR 9-18, range 5-35) and a median length of stay of 5 days (IQR 3-7.25, range 1-40). Blunt trauma carried a median ISS of 22 (IQR 8-26, range 4-50) with a median length of stay of 5 days (IQR 4-11.25, range 2-38). YVIP eligible patients on the TARN database not referred to Redthread reduced from 21 in 2018/19 to 7 in 2019/20 which may suggest an improved awareness of the referral pathway.

Referrals and Engagement with the YVIP

Details relating to patient demographics and their referral were collated from Redthread workers and electronic hospital records. These data included patient age, gender, ethnicity, home borough, social deprivation score, reason for referral and education/training/work (ETE) status. The only patient factor demonstrating a relationship with odds of engagement was age. Here, 16-20 year olds showed half the odds of engagement with the full YVIP compared to 11-15 year olds (odds ratio 0.48 [95% CI 0.28-0.83], P=0.008). However, this association was lost when other factors were accounted for in our multivariable analysis. All other factors showed no statistically significant association with differing odds of full programme engagement.

Factors related to how and when a young person was referred to the YVIP were also reviewed. In this case, on univariate analysis, face-to-face referrals offered the highest odds of engagement. With electronic referrals the odds were halved (OR 0.47, [95% CI 0.25-0.89], P=0.02) and identification via the hospital database reduced engagement odds even further by 75% (OR 0.24 [95% CI 0.13-0.46], P<0.001) when compared to a face to face referral. In addition, weekend attendance was also associated with a 78% reduction in the odds of full programme engagement when compared to a weekday attendance (OR 0.22, [95% CI 0.14-0.34], P<0.001). A face to face approach by a member of the Redthread team was an important factor predicting odds of engagement. Those who were approached via a phone call or text message/letter had reduced odds of engagement with reductions of 79% and 83% respectively when compared to a face to face approach. Delays of >24 hours from attendance to referral also showed a strong association with decreased odds of engagement on univariable analysis (OR 0.38 [95% CI 0.21-0.71], P=0.002). Finally, previous attendances by the young person and multiple prior referrals to the YVIP were also shown to increase odds of engagement. Having multiple previous referrals increased engagement over 3-fold (OR 3.39, [95%CI 1.59-7.24], P=0.002).

Odds ratios which remained statistically significant for engagement with the full YVIP after adjustment on multivariable analysis included weekend attendance (OR 0.26, [95% CI 0.15-0.44], p<0.001), multiple previous referrals (OR 2.82 [95%CI 1.07-7.42], P=0.035) and method of approach (phone call OR 0.25 [0.14-0.47], P=0.001, text message/letter OR 0.18 [0.33-0.96], P=0.045).

Mapping of Violent Injury and Assaults

There were 706 incidents of violent injury or assault recorded by young persons referred to Redthread within the 2 years prior to and 2 years after the Redthread service had being established in Nottingham. Of these, 59% had sufficient data to map their location. Nottingham city centre and its suburbs accounted for 81% (n=335) of these events followed by Leicester with 5.1% (n=21), Ilkeston 4.8 % (n=20), Derby city 4.3% (n=18), and Mansfield 1.2% (n=5). Nottingham city centre saw 77 assaults and accounted for the highest proportion of cases. We also saw clustering of incidents around the most deprived suburbs of Nottingham which accounted for 25% of cases between them (Figure 3).

Mapping of data to the night-time economy saw a total of 46 assaults occurring within Nottingham city centre with sufficient location data. Of these 61.1% (n=28) involved assault with body parts, 17.4% (n= 8) involved assault with a knife or sharp object, 17.4% (n= 8) involved assault with a bottle or blunt object and 4.3% (n=2) involved sexual assault. In total 65% of the assaults occurred across the same 11 institutions at night.

Distance from home location of victim to location of attack was mapped in all cases with sufficient data. Mean (standard deviation) distance across all incidents occurring away from a home address was 1.78 (1.3) kilometres (range 0.2 - 257km). There were 124 events reported at the young person's home address, 21 incidents had occurred at a school or college and 3 incidents had occurred in the workplace.

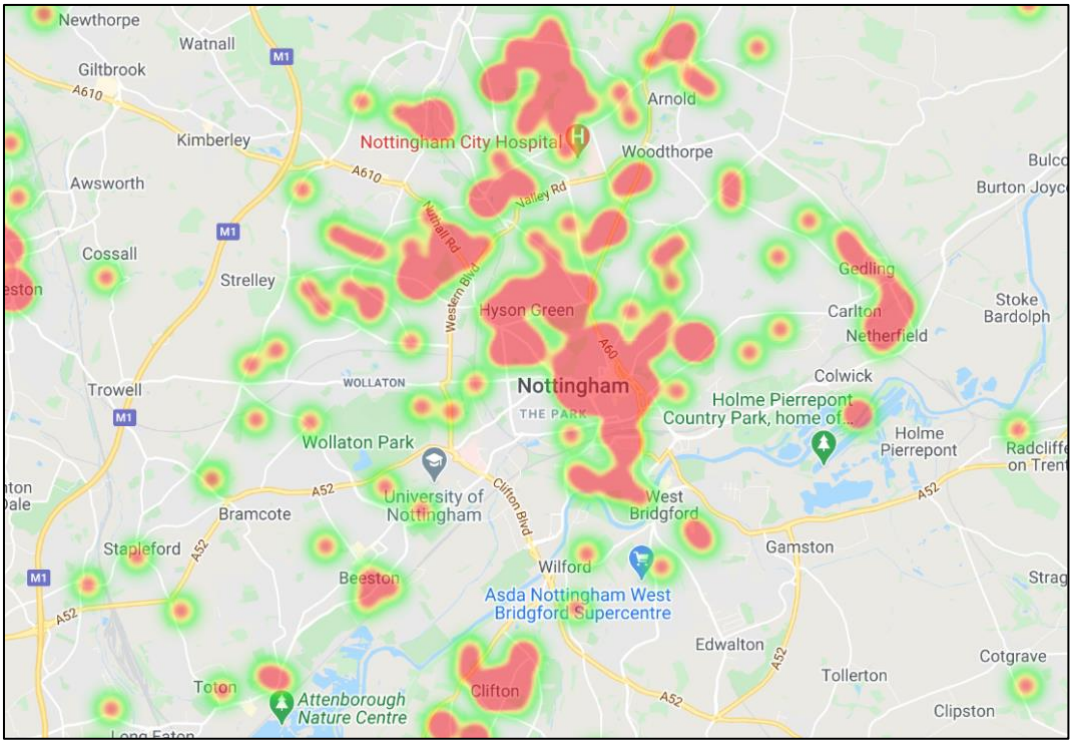

Figure 3 - Heat map of Nottingham City and wider areas demonstrating location of violent assault and injuries during the 2 years prior and 2 years after the introduction of the Redthread YVIP in Nottingham

Summary

The Redthread YVIP received over 600 referrals during the two years of the study. Prior attendance rates before referral to the YVIP were around 2.5 times higher in those who later went on to engage with the full YVIP than those who did not, suggesting that these groups may differ in their underlying characteristics. After referral to the YVIP we saw an overall reduction in the number and frequency of attendances among young persons who engaged with the full programme. Young persons engaging with the full YVIP were 51% less likely to re-attend the Emergency Department when compared to those who did not engage with the full YVIP based on previous patterns of attendance. The largest fall was for victims of violent assault or injury where a relative reduction of over 60% was seen in the rate of young persons re-attending. When we compared the ratio of attendance rates for both engaged and non-engaged individuals a relative reduction of between 50-60% was seen in post YVIP attendances among those who chose to engage with the full programme across all subgroups. In addition, crisis support alone offered a 22% relative reduction in attendances. Significant factors predicting increased odds of engagement included face to face referrals and a face to face approach to a young person. A weekend attendance significantly reduced odds of engagement. This may be explained by a lack of direct contact from Redthread for the initial approach to a young person outside normal working hours. The requirement for consent to contact to be sought and documented prior to discharge may have also prevented some engagement with the YVIP. Young persons with multiple previous attendances and, interestingly, evidence of previous referral to the YVIP also had significantly increased odds of engagement.

The study was limited by its retrospective nature and the lack of data from other regional centres reporting additional attendances by a young person. However, data obtained from the Emergency Department suggests that assault among young persons presents a significant workload to the Queen's Medical Centre with episodes of injury due to weapons being on the increase. We would encourage all clinical staff to refer to the YVIP or ask a young person's consent to be contacted by Redthread (Appendix 1) if they have attended due to assault or exploitation. We would also advocate other centres hosting Redthread teams to evaluate our chosen outcome measures in their own analysis.

References

Cunningham, R. M., P. M. Carter, M. Ranney, M. A. Zimmerman, F. C. Blow, B. M. Booth, J. Goldstick and M. A. Walton (2015). "Violent reinjury and mortality among youth seeking emergency department care for assault-related injury: a 2-year prospective cohort study." JAMA pediatrics **169**(1): 63-70.

Government, H. (2018). "Serious Violence Strategy 2018, The Home Office, HM Government." Retrieved 15/06/20, 2020, from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/698009/serious-violence-strategy.pdf

Lawson, P. J. and S. A. Flocke (2009). "Teachable moments for health behavior change: a concept analysis." Patient Educ Couns **76**(1): 25-30.

Snider, C. E., M. Kirst, S. Abubakar, F. Ahmad and A. B. Nathens (2010). "Community-based Participatory Research: Development of an Emergency Department–based Youth Violence Intervention Using Concept Mapping." Academic Emergency Medicine **17**(8): 877-885.

Appendix 1

Nottingham University Hospitals internal referral to Redthread via

Email – redthread@nuh.nhs.uk

Phone - ext. 83590 (voicemail option)

Medway – using 'Red Thread referral'