Reducing Avoidable Harm in Motorcyclists through Injury Prevention & Roadside Critical Care

www.DocBike.org

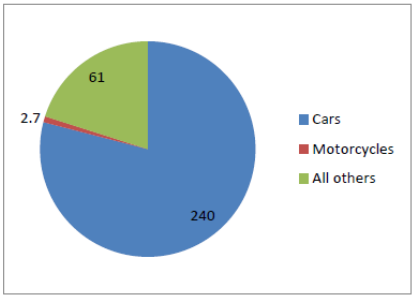
Background

The 'DocBike' is a collaboration between police & charity that engages with high risk motorcycle users to promote post-test education and awareness. The aim, to eradicate all motorcycle deaths and significantly reduce the number of seriously injured motorcyclists on the roads nationwide. It uses air ambulance (or similarly high-profile) doctors on a blue-light response motorcycle to engage with 'at risk' motorcyclists, raising their awareness of the most common causes of serious accidents. The charity is also committed to engaging in research with which to further target injury prevention strategies and evidence the benefit of certain types of motorcycle protective clothing. At the same time, whilst undertaking injury prevention work, the combination of a pre-hospital doctor on a response motorcycle enables roadside critical care to be delivered should it be required. Multi-agency partnership working is a fundamental element of the DocBike charity and helping channel injury prevention strategies to deliver a cohesive & coordinated package across a region is one of its priorities.

The Evidence

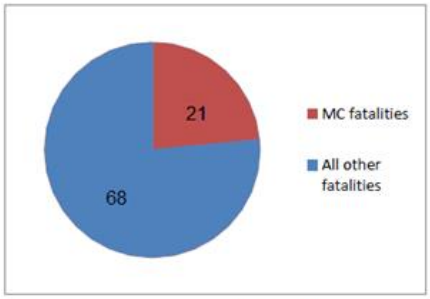
Of all the road users in the UK, 1% of the miles are travelled by motorcyclists, yet they account for around 25% of the serious injuries and deaths. The figures in Dorset reflect the national prevalence. Motorcyclists don't necessarily have more accidents than other road users, but because they lack the protection of being inside a steel box, with a roll cage, crumple zones, seat belts and air bags; when they are involved in a collision, their injuries are significantly worse than that of other road users.

1.1 Distance travelled by vehicle type



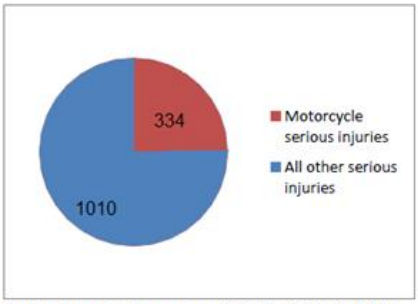
National Data. In 2013, vehicles travelled 301 billion road miles in the UK. The majority of miles travelled were by car (240 billion). Motorcycles accounted for only 1% of the distance travelled (2.7 billion).

1.2 Dorset Road Deaths – Motorcyclists compared to all others (2010-2014)



In the 4 calendar years 2010 – 2104, 89 people died on the roads of Dorset. 21 (24%) were riding powered two wheelers.

1.3 Dorset Serious injury collisions – Motorcyclists compared to all others (2010-2014)

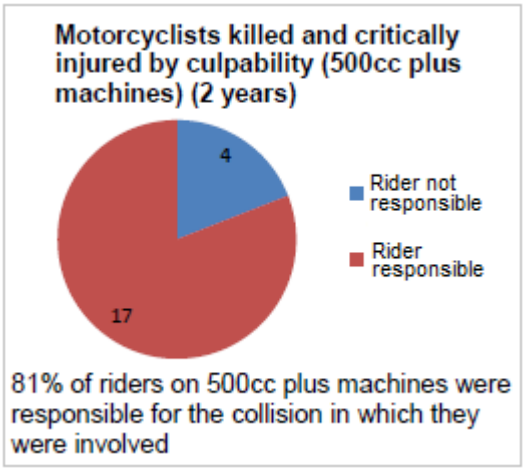


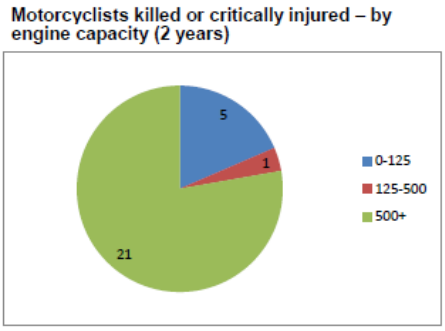
In the 4 calendar years (2010 – 2014) 1344 people were seriously injured in Dorset. 334 (25%) of these were riding powered two wheelers.

In order to deliver an effective motorcycle injury prevention strategy, the circumstances of motorcycle accidents over a 2-4 year period in Dorset were investigated. Combining Trauma Audit Research Network (TARN) data for 'serious' injuries (with an injury severity score of ≥15) or deaths, with the police crash investigation has enabled an understanding of the most severe motorcycle accidents with which to target injury prevention measures.

72% of motorcycle accidents in which the rider was critically injured or killed would not have happened had the motorcyclist been riding in a safe manner.

This figure rises to 84% for those riding motorcycles >500cc in size. This does not mean that the motorcyclist did not have right of way, but had they been riding safely, the accident would have been avoided. Giving motorcyclists an awareness of the things that most commonly cause a rider to be involved in a serious crash, enables them to adopt risk avoidance strategies as part of their everyday riding and so reduces their chances of being critically injured or killed, whilst still having the freedom to enjoy motorcycling at its best!

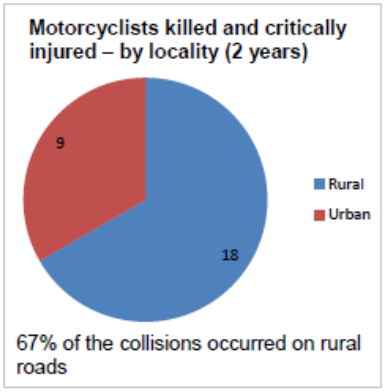




Over a 2 year period, 81% of motorcyclists killed or critically injured in Dorset were riding motorcycles of 500cc or greater. Whilst a significant number of scooter accidents do occur across the county on a daily basis, they are not often associated with serious injuries or deaths.

52% of riders who were critically injured or killed were aged 40-60yrs. While significant numbers of younger motorcyclists were also involved in significant motorcycle accidents, this study does challenge the belief that it is the younger, inexperienced motorcyclist that is most at risk.

Two thirds of significant motorcycle accidents occur on rural roads. Riding around left-hand corners at excessive speed throws the motorcyclist into the right hand lane and into the path of oncoming traffic. Using excessive speed along straight country roads means that should a car pull across their path, the motorcyclist is unable to react in time to prevent the collision. Motorcycles have a small profile and their speed is very difficult to judge when travelling directly towards a car. Giving motorcyclists an awareness of their vulnerability allows them to anticipate the potential hazards and adopt riding behaviours to prevent the accident from occurring.

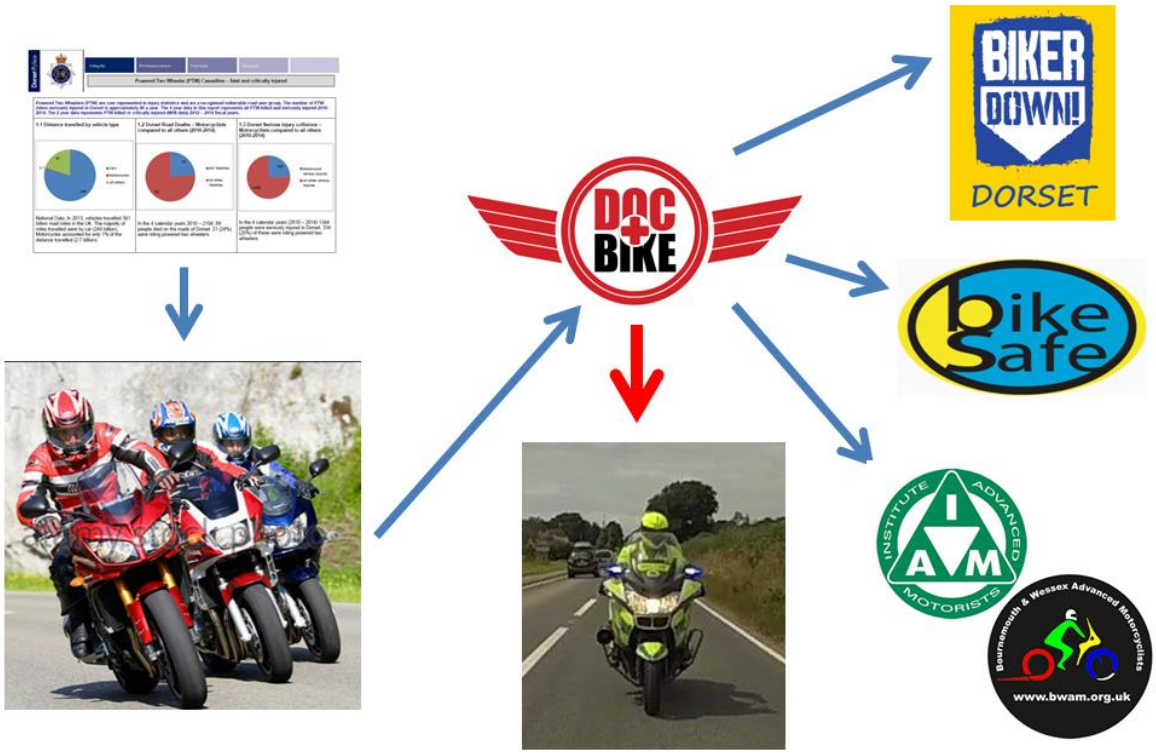


Riders travelling in groups are at increased risk of having an accident. In practice, the least experienced riders tend to be at the back of the group. Pushing themselves beyond their capabilities and overtaking inappropriately in an attempt to keep up with their colleagues, they put themselves at greater risk of being involved in an accident. Educating groups to put the least experienced rider at the front, or emphasising that trying to keep up can put the inexperienced rider at more risk, helps to prevent these sorts of accidents from happening.

Engagement

Motorcyclists are reluctant to speak to police officers, despite them having the most knowledge and experience of motorcycle accidents and are amongst the best motorcyclists on the road.

Motorcyclists do however like organisations such as Air Ambulance charities, there to help them should the worst happen. Putting an air ambulance critical care doctor on a highly visible response motorcycle draws motorcyclists in to speak to the doctor, who can then talk to them about the causes of accidents and point them towards rider awareness & further skills courses.



Having used research to identify the 'at-risk' motorcycle groups, the DocBike acts as a conduit with which to channel riders towards schemes aimed at improving their awareness of life-threatening hazards and reducing the risk of them being involved in an accident. At the same time, the critical care element of the doctor on the motorcycle is available to respond should a serious road traffic collision occur in the vicinity.

'At-risk' motorcyclists have often been riding for many years and do not perceive themselves to lack awareness or indeed have any need for further rider training. Talk to them about 'safety' and the majority are not interested.

The BikerDown course is a free evening course, which teaches riders how to keep a fellow biker alive until the ambulance arrives. Because it does not appear to be about safety, but more about helping your friend or a fellow biker who has been in an accident, 'at-risk' motorcyclists are happy to attend. During the course, the attendees are introduced to the concept of awareness of risk and how to avoid being in an accident. As a result, it is commonplace for BikerDown attendees to then go on to do a BikeSafe course.

The BikeSafe course is a police ran initiative. A police motorcyclist educates riders about the hazards most commonly associated with motorcycle accidents. The rider then goes on an observed ride with the police officer, who can advise them on their riding technique and demonstrate strategies to avoid being in an accident. Having had a taste of improving their riding skill, it is common for riders attending a BikeSafe course to then seek further training through the Institute of Advanced Motorcyclists or ROSPA.

The DocBike project has proved extremely effective in directing the 'at-risk' motorcyclist from the roadside to participate in rider awareness and further skills training.

BikerDown & BikeSafe courses now account for the greatest number of new riders joining the Institute of Advanced Motorcyclists in our area. By having a presence at major bike events, motorcyclists are happy to chat to the doctor and often seek out information about recent motorcycle accidents, providing an exceptional platform with which to highlight the benefits of post-test training. The BikerDown package has the additional benefit of increasing the number of civilians with life-saving first aid skills in our society.

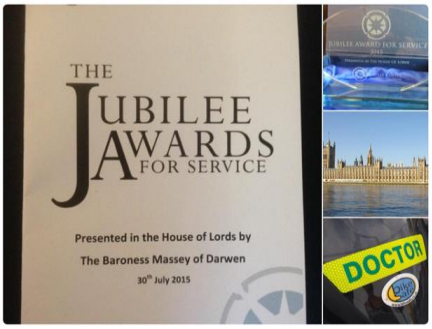
Increasing Public Engagement

To reach the maximum number of 'at-risk' riders, the DocBike is taken to major motorcycle events both locally and nationally. Special events are put on at regular bike meets to draw in the crowds, enabling the message of risk awareness and safer riding to reach the maximum number of riders. Support is given to other motorcycle safety schemes across the country through national engagement and collaboration.

Ultimately, because of the success of the DocBike project in enabling high-risk road users to participate in accident avoidance education, the natural progression would be to expand the project out across the UK. Research is already being undertaken with the Trauma Audit Research Network to identify parts of the UK with the highest number of motorcyclists who are critically injured or killed, such that early introduction of a DocBike can occur in the areas where they are most likely to have the greatest impact. In order to do this however, we need to ensure:

- The availability of rider education courses with which to direct 'at-risk' riders
- Funding is available to provide a doctor motorcycle & medical equipment
- Engagement with partner agencies in the police and ambulance services with a governance structure to ensure appropriate rider training for the doctor and also oversight of any medical care delivered at the roadside
- Administration is provided to support the professionals engaging with motorcyclists at the roadside, including website maintenance, course coordination, ordering of educational supplies and sharing of information across the UK network whilst supporting partner road safety organisations.

National Recognition



The DocBike project has been recognised on a National level with PC Chris Smith receiving the Queens Police Medal, presented to him by HRH Prince William and Dr Ian Mew receiving a Jubilee Award for Service at the House of Lords. Whilst this extremely flattering, our goal is to eradicate all motorcycle deaths across the UK and significantly reduce the number of motorcyclists who are critically injured, whilst promoting the benefits of safe motorcycling such as enjoyment, environmentally responsible travel and the reduction of traffic congestion.

TARN
ANNUAL AWARD
2016
THE TRAUMA AUDIT & RESEARCH NETWORK

Research is the key to delivering evidence based injury prevention strategies. We enjoy a very good relationship with the Trauma Audit Research Network and were fortunate to receive their Annual Award for the most innovative use of their data in 2016. We are currently working with TARN on two main projects:

1. To map the prevalence of motorcycle accidents across the UK where the rider is either severely injured or killed in order to focus national motorcycle injury prevention strategies.

2. To capture the level of personal protection worn by the rider and determine whether there is any evidence that equipment such as inflatable crash vests confer any benefit to the rider.

Roadside Critical Care

In order to be a credible asset with which to engage with motorcyclists on injury prevention, the DocBike needs to have a capability to deal with any emergencies whilst on the road. The delivery of critical care is not the prime focus of the DocBike project, by simply being available when a serious traffic collision has occurred, lives have been saved. Whilst this does include motorcyclists; car drivers, cyclists, pedestrians and those having medical events have all been treated.

A robust governance structure has to be maintained in order for the DocBike to deliver immediate medical care. The police are responsible for the tasking, rider training & motorcycle maintenance. Medical care delivered at the roadside is also subject to strict clinical governance with a clear reporting structure, indemnity and liability pathways identified.

At a time when there is a national shortage of paramedics, the DocBike has proved extremely useful and saved lives just in the short period of time that it has been on the road.

Demand and Capacity

The appetite for the BikerDown course is huge. In Dorset, we regularly see riders attending from other counties and the most common complaint from the biker on the road is that our courses are always fully booked.

BikerDown in Dorset is delivered by an advanced police motorcycle instructor and an air ambulance critical care doctor, both of whom work full time in their day jobs. Engagement with the public and delivery of bike safety courses occurs largely in their own time and as such is subject to their availability. The DocBike project is supported by two volunteers, but because of time constraints and a fixed number of BikeSafe courses with which to direct riders after they have attended the BikerDown evening, currently, delivery of only one BikerDown course per month can be achieved. With more help, we can increase this to meet the demand in the future.

BikeSafe is a police delivered course which must adhere to national criteria. It requires the availability of police motorcyclists to provide observed rides with the candidates. It is the aim of BikerDown to encourage candidates to undertake further rider awareness & improve their riding skills through a BikeSafe, IAM or ROSPA course. BikeSafe traditionally 'bridges the gap' between the Department for Transport motorcycle test and advanced rider training.

In order to promote post-test rider training, resilience in the number of BikeSafe courses needs to be maintained to accommodate riders feeding in from roadside DocBike engagement and BikerDown courses.

Administration

Because of the nature of the team that deliver the DocBike, BikerDown, BikeSafe courses and engage with the public at the roadside, time for course administration, website maintenance and responding to email enquiries is limited. In order to engage fully with our partners to develop a truly multi-agency approach to reducing the number of motorcyclists that are killed or critically injured across the UK, strategic coordination is required.

Funding

The current DocBike was once a police motorcycle that was due to be decommissioned. Dorset Police knew in terms of resale, the bike had little value; but recognised the huge potential for injury prevention and saving of lives, if re-badged and kept on the fleet as a Doctor's bike. Running costs are relatively small in terms of fuel and maintenance and this is paid for from the police BikeSafe account.

Medical equipment on the bike is funded through public donations. The most expensive piece of equipment is the ultra-small yet very capable critical care monitor, costing between £20-30,000. The DocBike project has been very fortunate to have had a Tempus Pro monitor donated to the cause by RDT Ltd, without which, the bike could not operate credibly.

In getting the DocBike project off of the ground, we have benefitted from the support of the police, the public, other charitable organisations, local authority and corporate sponsorship. First Aid kits are given free of charge to riders attending each BikerDown course, paid for by "Bournemouth Bikes" a local motorcycle dealer, who recognises their corporate responsibility to promoting rider safety. The maintenance costs of a DocBike scheme are relatively cheap, with the time of the individuals given freely; but the set-up costs are modest:

- £17,000 New response motorcycle
- £20,000 Critical care monitor
- £1,000 Remaining medical equipment and bags
- £2,000 Rider protective equipment including boots, leathers and helmet

Having said that, the cost to society for every person that suffers a traumatic death was last quoted by the Department for Transport in 2012 at £1.6 Million so actually the set-up costs of £40,000 to implement a DocBike scheme which will has already led to lives being saved at the roadside before the impact of the motorcycle accident prevention has been considered represents a massive cost-saving for society, rather than an expenditure.

The Next Step!

To develop the DocBike strategy into a truly national phenomenon, we need help!

Whether it be publicity & media engagement, research, delivering roadside education, website maintenance, engaging with bikers, fund raising or delivering the BikerDown & BikeSafe courses; it's the same few individuals that are responsible – giving their time voluntarily, on top of their full-time day jobs.

We need volunteers who are skilled in their area of expertise to help us move forward and maximise the life-saving potential of the DocBike scheme nationally.

We would like to be able to deliver a DocBike 'package', essentially akin to a franchise, to areas around the UK with a high incidence of serious motorcycle accidents. This package will include:

- Materials
    - A DocBike motorcycle
    - Rider protective equipment (leathers/helmet etc)
    - Motorcycle medical equipment
    - Engagement materials (table, leaflets, stickers, BikerDown flags)
    - Resuscitation mannequins
- Standard engagement processes for stakeholder partners
    - Air Ambulance Association involvement of high-profile HEMS doctors to provide a rider to use the DocBike to engage with high risk motorcycle riders.
    - National Police Chief's Council backed process for regional police support of the project to include rider training and motorcycle maintenance
    - Ambulance adoption of clinical governance for medical care delivered
    - A process for further rider training to be available to bikers who have engaged with the DocBike project
- National support
    - Administrative
    - Financial
    - Media & Advertising
    - IT solutions
    - Educational & general advice
    - Research
    - Display vehicle and support from other DocBikes for major motorcycle events across the UK

Research

We see the results of the work that we are doing in terms of changing rider's attitudes on the roads, through feedback from riders who have been on BikerDown & BikeSafe courses and from advanced riding organisations informing us of the number of riders coming to them through the DocBike scheme; but we need to demonstrate this with hard evidence.

The DocBike scheme needs researchers to not only help us collect this data, but to work with the Trauma Audit Research Network and other stakeholder partners in road accident prevention to answer other questions such as:

- Which parts of the UK have the highest incidence of motorcycle related severe injuries and deaths?
- Does certain PPE such as inflatable motorcycle jackets confer protection in an accident?
- What education confers the best protection to motorcyclists?

Answering these questions will help us to highlight areas most in need when expanding the DocBike project, help us to inform riders about the benefits of certain types of PPE and evidence the benefit of the education that we and other post-test organisations deliver to the 'at-risk' rider.

IT Support

The www.DocBike.org website is a great start, but in order to truly capture riders' interest, it needs a bit of an overhaul, followed by regular maintenance and updates. Because the webpages are currently administered on an 'ad-hoc' basis (when time allows) we fall behind and are unable to answer Emails of interested riders.

In order for the DocBike scheme to work on a national scale, we need to be able to work electronically 'in the cloud', sharing our evidence, documents and holding video internet conferences.

To achieve a truly virtual working environment that is flexible, secure yet resilient enough to cope with an expanding project, delivered by people working from their own PCs across the UK, we need expertise from the professionals.

Finance

Bikers and organisations are keen to support the DocBike project because of two very simple reasons:

1. It makes sense!
2. It works!

Currently, monies raised for the DocBike project are held & administered by the SafeWise charity. To deliver the £40,000 setup cost of each DocBike we need help to fundraise, administer accounts and develop a constant income to enable on-going publicity and engagement with riders across the UK.

Charitable support to develop a specific DocBike charity in the future is an inevitable requirement.

Administrative Support

Answering email enquiries from interested bikers, advertising, media engagement, ordering leaflets, & stickers and engaging with stakeholder partners to develop a multi-agency approach to reducing motorcycle related serious injuries and deaths in the UK takes time. The few volunteers engaged in this area are currently just meeting this demand on a local level, but need help to administer this as the DocBike project expands. Using 'cloud-based' technology should enable individuals to help out from across the UK, without the need for a central office.

The Vision

Injury prevention is cheap and whilst the monetary savings of preventing motorcyclists from being killed or critically injured can be quantified, avoiding the emotional devastation to families by keeping their loved ones safe through rider education and further skills training cannot.

The DocBike scheme has been phenomenally successful in Dorset and we are now unable to meet the demand of the public who have developed a real appetite for the BikerDown course.

In Dorset we need to secure more police motorcyclists to teach on the BikeSafe course. We need to replace our ageing DocBike which was ready to be decommissioned two years ago and we need to secure the administrative, research, financial & IT support to truly maximise the potential of this scheme.

Nationally, we are extremely keen to see the DocBike project rolled out across the UK, prioritising implementation where research shows that it is most needed. The partnership with the police motorcycle traffic unit has proved hugely successful and with the DocBike being part of the police fleet the governance for the 'blue-light' response side of the project has been beyond reproach.

We are confident that with the support of local police forces, stakeholders in injury prevention and community ambassadors, we have a package that can be easily implemented across the UK at comparatively little cost, saving lives nationally, avoiding the unnecessary heartache to families from lost loved ones and should anyone really need persuading, reducing the cost to society from associated trauma deaths to the tune of £1.6 million, for every life saved.

We want to work together.

We want to share the work we've done.

We want to do more research to identify how we can save more lives and target the things that really make a difference.

Let's work together.

With your help, we can save *more* lives!