Alcohol-related driving offences, crashes, and traffic policing strategies in Zhejiang Province, China.

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Abstract

Context
Alcohol-related traffic offences and associated trauma have attracted attention in China in recent years, culminating in changes to national legislation in May 2011. Harsher penalties were introduced, particularly for offences where blood alcohol concentration (BAC) levels above 80mg/100mL are recorded. Deemed to be drunk under the law, this is now a criminal offence attracting penalties including large monetary fines, licence suspension for 5 years and imprisonment.

Objective
This paper outlines key statistics about alcohol-related road trauma in Zhejiang Province and strategies used to combat drink- and drunk-driving.

Key outcomes
Zhejiang Province, in China’s south east, has a population of approximately 54,426,000; 22.36% hold a driving licence. Rapid motorisation is occurring there. In 2011, 1,383,318 new licences were issued, representing a 16.78% increase from the previous year. In 2012, there were a total of 65,000 police officers throughout the Province, 12,307 of whom (18.9%) were traffic police. Responsibility for conducting alcohol testing is the responsibility of all traffic police. The number of alcohol breath tests conducted per year was not available. However, traffic police are actively enforcing alcohol-related laws. In 2011, 89,228 drivers were charged with drink-driving (DUI;20-80mg/100 mL) and 10,014 with the more serious drunk-driving offence (DWI;>80mg/100mL) (Zhejiang Traffic Management Department, 2012). These numbers decreased from the previous year (221,262 and 26,390 respectively). For all crashes recorded in 2011 (n=20,176), 2% involved alcohol-impaired road users. Information on the role of alcohol in crashes from previous years was not available.
**Discussion**

Various strategies are employed to detect alcohol-impaired drivers including: targeting vehicles from hotels/restaurants; using sense of smell to screen drivers for further testing; passive alcohol sensors to test drivers; and blood tests for crash-involved drivers where a fatality occurred. Although resources to promote road safety are limited, various government initiatives promote awareness of the dangers of alcohol-related driving and more are needed in future.

**Introduction and context**

The dramatic and unprecedented economic growth in China in recent history has been accompanied by large increases in vehicle ownership, with China now experiencing one of the highest annual motorization growth rates in the world (Pendyala & Kitamura, 2007). The number of people obtaining a licence for the first time has also risen dramatically (Zhang et al., 2013). Increases in personal disposable incomes, together with the desire to avoid over-crowded public transport and experience the freedom and status associated with personal car ownership and use, have all aided this rapid expansion in driving participation (Fleiter, et al., 2012).

Unfortunately, this unprecedented growth in vehicles and drivers has also meant that China’s road trauma burden is high. Road crashes have been reported as the leading cause of death for those aged up to 45 years and the number one non-disease killer (Pendyala & Kitamura, 2007; Zhang et al., 2013). Although estimates and definitions of road traffic fatalities differ (see Li et al., 2012; Ma et al., 2012; World Health Organization, 2013), there is recognition that reducing road crashes and associated human trauma is an important issue requiring multi-sector efforts in China. The contribution of alcohol to the problem is difficult to quantify, yet has received increased attention in China in recent years. Alcohol plays an important role in many parts of Chinese society (Cochrane et al., 2003). Increasing annual alcohol consumption rates, together with the rapid increases motor vehicle ownership and driving participation, warrant the need to consider that alcohol-related road fatalities may also increase, unless effective countermeasures are introduced (Li et al., 2012).

**Alcohol-related driving regulations in China**

In recognition of the need to better control alcohol-related driving, the Chinese government introduced 2 categories of alcohol-related traffic offences in 2004. The offence of ‘drink driving’ (DUI) defined offenders with a BAC of between 20mg/100mL and 80 mg/100mL. The more serious offence of ‘drunk driving’ (DWI) defined offenders with a BAC exceeding 80 mg/100mL. In May 2011, penalties were increased to further deter alcohol-related driving offences, with the ‘drunk driving’ offence experiencing the biggest change. This offence became a criminal offence attracting penalties including large monetary fines, licence suspension for 5 years, imprisonment, and a potential lifetime ban on driving (see Li et al., 2012 for a detailed explanation of regulations and penalties).

From a national perspective, there is no clear picture available to describe the drink/drunk driving rates in China (Li et al., 2012). With regard to alcohol-related crash and fatality statistics, data from the annual reports of the Ministry of Public Security indicate that nationally, fewer than 3% of crashes and approximately 4% of fatalities were the result of...
alcohol-related driving in the period 2001-2009 (cited in Li et al., 2012). It is possible that these figures are under-reported owing to factors such as police officers only being able to nominate the leading cause of crash when there may in fact be multiple causes, and a lack of routine alcohol testing on all crash-involved drivers during that period (Li et al., 2012).

Zhejiang Province

Zhejiang Province, located on China’s south east coast, had a recorded resident population of 54, 426,891 at the end of 2011 (Zhejiang Public Security Bureau, 2012). It is recognised as one of the wealthiest and fastest growing provinces in the nation. In 2007, it accounted for approximately 6.8% of the country’s gross domestic product with approximately 4% of the national population (Ye & Wei, 2007). The ongoing development of Zhejiang has been accompanied by rapidly increasing motorisation rates. Information obtained from the provincial traffic management authority revealed that at the end of 2011, the province had a total of 6,582,445 registered vehicles (excluding tractors and motorcycles) and a total of 1,383,318 new licences were issued throughout 2011, representing a 16.78% increase from the previous year. Approximately twice as many men (9,027,532) as women (3,929,569) were licence holders and overall, 22.36% of the population held a licence in 2011 (Zhejiang Traffic Management Department, 2012). A feature of Zhejiang’s motorisation has been a rapid increase in ownership and use of the electric bicycle, a powered 2-wheel vehicle, also known as an e-bike, that weighs less than 40 kilograms and has a top speed of 20 kilometres/per hour (Feng et al., 2010). In Zhejiang’s capital city, Hangzhou, between 2004 and 2008, the death rate associated with this vehicle type reportedly increased more than 6-fold and the injury rate, almost 4-fold (Feng et al., 2010).

In 2011, a total of 20,176 road crashes were recorded in Zhejiang Province, resulting in 5,235 fatalities and a total of 21,260 people injured (Zhejiang Traffic Management Department, 2012). These numbers represent 9.57%, 8.39%, and 8.95% of the national crash, fatality and injury figures, respectively (National Bureau of Statistics of China, 2012). Also in 2011, the number of motorists charged with a drink-driving offence (DUI; 20-80mg/100 ml) was 89,228. The number charged with the more serious drunk-driving offence (DWI; >80mg/100ml) was 10,014 (Zhejiang Traffic Management Department, 2012).

Encouragingly, these numbers reportedly decreased from the previous year (DUI = 221,262 and DWI = 26,390, representing reductions of 68% and 60%, respectively, in 2010). For all crashes recorded in 2011, the Traffic Management Department reported that 2% involved alcohol-impaired road users. Unfortunately, the role of alcohol involvement in crashes, fatalities and injuries for the Province was not available for previous years. This figure of 2% is consistent with published national figures from the Ministry of Public Security as cited above. It is noted, however, that this figure is substantially lower than results of work conducted in another Chinese Province between 2006 and 2009. A study conducted by the Global Road Safety Partnership in Guangxi Province suggested that rates of alcohol involvement might be higher. Crash survey results from 2 cities revealed that an average of 34.1% of road crashes were alcohol-related and the largest proportion of these crashes (22.9%) involved drivers with a BAC of 80mg/100mL or higher (Yuan, et al., 2010; Yuan et al., 2013). However, it is possible that such discrepancies could be due to a range of factors, including that the Guangxi study was conducted before the stricter penalties for drunk-driving were introduced in May 2011.
Alcohol enforcement in Zhejiang Province

Enforcing alcohol-related traffic laws is the responsibility of the traffic police in China. In 2012, there were a total of 65,000 police officers throughout Zhejiang Province, 18.9% (12,307) of who were traffic police. Responsibility for conducting alcohol testing of road users is the responsibility of all traffic police. The number of alcohol breath tests conducted per year was not available. However, traffic police report actively enforcing alcohol-related laws using a variety of countermeasures. A key strategy used by police is to target their operations on vehicles leaving hotels, restaurants and entertainment areas. Roadside alcohol testing is currently conducted mostly during evening and early morning hours.

Police officers also employ the use of their sense of smell to screen drivers who are stopped at road side testing areas. When police officers establish a check point, they may stop every vehicle in the traffic stream, or select vehicles at random. Once a vehicle is stationary, the police officer initiates a conversation with the driver. If the officer smells alcohol during this conversation, the driver can be asked to undergo further testing to confirm whether they have consumed alcohol and whether they are within legal BAC limits. Traffic police may also use passive alcohol sensors while the driver remains in the vehicle. This device is less ‘invasive’ and potentially less time consuming than a full breath or blood test and is used to screen for the presence of alcohol in the breath. Although no data describing the use and effectiveness of these devices in China is currently available, passive alcohol detectors have previously been shown to have a high correlation with other evidentiary testing procedures and to be an effective means of screening drivers in the USA (Farmer et al., 1999; Foss et al., 1993). If a driver’s reading on the passive alcohol sensor device is above .08, the driver is taken by police officers to a hospital where a blood sample is taken for confirmation. In addition, wherever practical, all attempts are made to take a blood sample (at hospital) of crash-involved drivers where a fatality has occurred.

Community awareness campaigns about risks of drink driving

It is acknowledged that there are many competing interests in the public health domain in China. As the country continues to develop, road safety is only one of many areas where greater public awareness is needed. There are many competing interests and a finite amount of resources to devote to road safety education issues. Government agencies in Zhejiang Province have made a number of attempts to raise community awareness about the risks of drink/drunk-driving and related police enforcement efforts. For instance, many highways and major roads have billboards reminding drivers not to drink and drive. Electronic variable message signs are also used to raise awareness in some locations (see Figure 1).

The police also take active steps to raise public awareness of many traffic risks including drink driving. Every police department has a team who are responsible for communicating such issues to the public and the media. Information about serious traffic incidents, new traffic laws or rules, and safety measures are communicated via traditional and new media outlets. Television, radio, and print media are used to convey educational messages and there is increasing use of new media (internet and mobile phone networks) including police media blogs and short text messages to communicate with the public. In addition, many police officers give safety information during visits to companies, schools and community gatherings.
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Figure 1: Electronic advertising in Zhejiang’s capital city, Hangzhou. This message translates as “After drinking, do not drive. If you want to drive, do not drink”.

In conclusion, in Zhejiang Province, there have reportedly been reductions in the incidence of alcohol-related driving offences in recent years with a large reduction occurring between 2010 and 2011. Traffic police take the lead role in enforcing the law and many initiatives have been implemented to raise public awareness of the dangers of alcohol consumption and driving, as well as about the consequences of being caught for an alcohol-related driving offence. Ongoing efforts are needed to continue to promote the risks of drink- and drunk-driving.

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