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IRELAND RECENTLY SIGNED INTO LAW TOBACCO PLAIN PACKAGING LEGISLATION FOLLOWING SIMILAR MEASURES IN AUSTRALIA, FRANCE AND THE UNITED KINGDOM.

IFEH President's Perspectives

Peter Archer FCIEH.

Getting Ready For The 15th World Congress In Auckland, New Zealand – March 2018

The IFEH having just concluded the very successful global academic conference in Jamaica 'One Health – One Global Environment is now only four months away from the 15th World Congress in Auckland New Zealand. I would like to urge all IFEH members to make the effort to attend the congress as it will be a great opportunity to see how Environmental Health functions in the South Pacific as well as a great opportunity to network with members from other countries. The conference theme is **'A South Pacific Perspective'**. I understand that in NZ, our colleagues have many unique Environmental Health issues which they will like to share with us. Much of the programme is finalised and full details can be found at www.ifeh.org or http://www.2018wceh.org/ . However I understand from the organising committee in New Zealand that there is still room for few further high quality presentations to be included.

The regular IFEH Newsletters are a source of information on the daily goings-on at the Federation (the latest newsletter is always available as a downloadable file at www.ifeh.org). I anticipate that a further edition will come out in January 2018. I would like to pay tribute to Jesper Christensen of EnviNa for his work in producing the document.

In February this year I had the honour and pleasure of attending the 20th Anniversary Conference of the South African Institute of Environmental Health in Cape Town. I was impressed by the tightly packed programme and with the very high quality of papers presented both by academics and practitioners. The 200 plus delegates and sponsors included national and local government, universities and representatives from the private sector. It was good to see such enthusiasm for the work being done across the nation. All those involved should be congratulated, particularly IFEH President Elect, Selva Mudaly from SAIEH who will take over the IFEH Presidency in March 2018 at the 15th World Congress in Auckland.

The 2nd IFEH World Academic Conference, **'One Health; One Global Environment'** was held in Montego Bay this October. The conference was run by the Jamaican Institute of Public Health Inspectors (JAPHI) with support from NEHA. It was an outstanding event and I congratulate all those who made it so successful. Four delegates were supported through the Hedgerow Bursary to attend the IFEH Council Meeting in Montego Bay and to stay on for the academic conference. This bursary is available to representatives of IFEH members living in low income countries. We are immensely grateful to Hedgerow for their continuing support. I should also mention that the biannual 'Roy Emerson Award', which was presented in Montego Bay, was won for the first time by an EH undergraduate from Slovenia. Zarja Zrinski from the University of Ljubljana won first prize for an outstanding submission entitled **'Is the knowledge of international travel health a legal obligation or a social and personal responsibility?'** This year we had the highest number of entries ever and the standard was very high indeed.

Members will know that the IFEH is a Partner of the World Federation of Public Health Associations (WFPHA). As IFEH President I was invited and accredited to be ‘a Diplomat of the Global Charter’. The ‘Global Charter for the Public’s Health’ was launched in Geneva in June 2016 and includes a practical toolkit for all disciplines involved in health improvement and tackling health inequalities. My hope is that IFEH will play a strong role in implementing the Charter.

Editorial, IFEH Honorary Editor

Kathy Young MEHAI

Ireland has become the fourth country in the world to introduce plain packaging for tobacco products. Australia, the United Kingdom and France have already introduced similar measures and Norway and New Zealand are considering implementing similar controls. Irelands Minister of State for Health Promotion Marcella Corcoran Kennedy recently signed a commencement order in September 2017 which gives effect to the Public Health (Standardised Packaging of Tobacco) Act 2015

The measure which was fiercely opposed by tobacco companies means that tobacco product advertising in the form of branding, trademarks and design logos will be prohibited on tobacco packaging. This will be replaced by more prominent health warnings along with a plain neutral background which can include the make or name of the product in a uniform typeface on a plain background. This will act as a further deterrent to tobacco companies who use subtle marketing tactics in colour and design to gain market share. Standardised packaging will reduce the attractiveness of tobacco products and will play a key role in reducing the prevalence of cigarette smoking among children and young people. Evidence in Australia has shown that plain packaging combined with an increase in excise rates can reduce smoking rates significantly and will be another milestone in achieving Ireland's target of a Tobacco Free Society by 2025

This edition has an interesting article by Dublin Institute of Technology students on the production of Jameson Whiskey in Cork which was visited as part of the BSc Environmental Health Honours Degree programme in April of this year. Sales of whiskey are set to increase over the next few years and Midleton distillery is addressing this increased global demand. Students were asked to examine the implications of the Public Health Alcohol Bill from an industry perspective. The article reveals industry concerns regarding the forthcoming enactment of this important piece of legislation to protect public health. The main objective of the Alcohol Bill is to address issues such as marketing, below cost selling and the opportunistic buying of alcohol

Una Kane and Nicholas Dawson outline details of a successful prosecution under the Health and Safety at Work Act 1974 in the UK. Omissions in adequate risk assessments by companies is identified which can result in serious implications such as Mrs C losing a leg and being confined to a wheelchair for the rest of her life.. Due to a plea of not guilty by the retailer a lengthy and costly prosecution ensued in the Crown Court. As a result of this the authors pose the challenging question can UK local authorities afford to take such prosecutions?

Introducing sustainability principles into all operations of motor sports is the subject of an article by Marus Matthee as motor racing is seen as the noisiest and most polluting of all humankind's leisure activities. Interesting ways to promote sustainability in this industry are presented and can act as an example for other industry sectors. Common challenges mentioned in an article by Finnah Avinda and Rawlance Ndejjo in relation to Healthcare waste management (HCWM) include shortage of supplies such as suitable collection containers, personal protective equipment (iPPE), poor policy implementation and inadequate training of health workers on proper HCWM practices.. A multi-

sectoral approach is required to address the challenges of HCWM within hospitals as well as allocation of more resources (human and financial) to HCWM within hospitals.

Susana Paixo emphasises the importance of measles vaccination and being ever vigilant against increasing trends. Of the 28 recently confirmed cases of measles in parts of Portugal, 17 did not have the vaccine further emphasising the importance of these important public health measures.

The European Community strictly control the Nutritional and Health claims of functional foods but the attitudes in a recent consumer survey by Shona Brady reveal that consumers do not have a lot of information about functional foods, nor do they have much trust in the health claims that are on food labels. This indicates that more needs to be done to educate the consumer on legislative requirements so that consumers can make an informed decision when purchasing foods that have a functional aspect to them which is becoming an important aspect of consumers decision making in buying particular food products.

Front Cover Photo: WHO, (2016) Tobacco Plain Packaging - *with permission from WHO.*

CONTENTS

Page Number

2 About IFEH

3 IFEH President Perspectives. *Peter Archer.*

5 Editorial. *Kathy Young.*

8 Jameson Whiskey, Midleton Distillery, Cork. *Grace Davitt, Sadhbh Duggan, Victoria Flanagan, Dominic Foley and Kathy Young.*

15 Can U.K Local Authorities Afford to take Health and Safety Prosecutions? *Una Kane and Nicholas Dawson.*

23 Education As An Instrument To Raise Environmental Awareness In Motor Sports. *Marius Matthee*

31 Knowledge Pratices and Challenges of Health Care Workers in Hospital in Mbarara District, Uganda. *Finnah Avinda and Rawlance Ndejjo.*

36 Measles Outbreak in Portugal. *Susana Paixo.*

38 An Exploratory Study of Consumers Perceptions and Attitudes towards Functional Foods; The Health Claims *Shona Brady, Liu. Goggin and Kathy Young.*

49 Makerere University Environmental Health Students' Association (Muehsa) President MUEHSA: *Silver Eyomu*

Jameson Whiskey, Midleton Distillery, Cork, Ireland

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1.1 HISTORY OF MIDLETON DISTILLERY

The history of the Midleton Distillery dates back to the 1800's when the Murphy brothers founded the distillery in 1825. In 1966, the Irish Distillers, an illustrious company that supplies the word with the best Irish whiskey formed following the merger of three of the great Irish whiskey distillers, namely John Jameson & Sons, established in Dublin in 1780; Powers & Sons, who were founded in Dublin in 1791 and Cork Distillery whose origins date back to 1825.

The old Midleton distillery operated for 150 years, from 1825 until 1975, when the workers clocked off on a Friday in July, to start work in the new Midleton Distillery the following Monday. Thankfully, the old distillery was kept intact and beautifully preserved and because of this, it is now one of the most striking and interesting tourist attractions in Ireland (Ireland Whiskey Trail, 2014). As said, by 1975 a new Midleton Distillery complex was built. It was designed to take over the work of four former distilleries: Bow Street Distillery (Jameson), John's Lane Distillery (Powers), the Old Midleton and Watercourse Distilleries. Both the Old Jameson Distillery and Old Midleton Distillery reopened as visitor centres, with the Old Midleton Distillery relaunching as the Jameson Experience Midleton. The sense of heritage is everywhere at the Jameson Experience. Some of the original buildings date back to 1795, built as a mill before being converted for use as a distillery. The water wheel, which once operated all the machinery at the distillery, still turns and operates the cogs and wheels in the Mill Building (Ireland Whiskey Trail, 2014).

Over the past ten years Jameson sales have continued to increase steadily, hitting 2 million c/eq in 2006, 3 million c/eq in 2011 and 5 million c/eq in 2015; with site maturation and expansion continuously occurring in line with global market sale demands.

1.2 THE WHISKEY BREWING PROCESS

The Midleton Distillery production activities consist of three processes: grain whiskey production, pot whiskey production and co-products. The three key elements of grain whiskey are malt, water and maize, while in pot whiskey, maize is substituted with the use of barley. Both the grain whiskey and pot whiskey is brewed in a continuous cooker but grain whiskey is considered a "wash" during the fermentation process, while pot whiskey is a "beer". Grain whiskey has a higher ABV (alcohol by volume) percentage than pot whiskey at 12-15% ABV, compared to 10-12% ABV. Both whiskeys are triple distilled, a tradition that began in 1780 by the great Master Distiller John Jameson, as it was he who discovered that three distillations was best for Jameson Irish Whiskey. The triple distillation process results in the whiskey being twice as smooth (Jameson Whiskey, date n/a). Grain whiskey is triple distilled in a continuous process in columns, while pot whiskey is distilled in a batch process with the use of pot stills – which consist of a wash still, feints still and a spirit still.

The co-products produced from the whiskey making process consist of spent grains, spent wash and stillage. Distiller's wet grain (DWG) makes up 47%, distiller's dark grains (DDG) 21%, and distiller's syrup 32% of the whiskey production co-products. The wet and dark grains are used as cattle feed, while the distiller's syrup is given to pigs.

The whiskey brewing process is made up of a number of calculated and measured steps to produce the globally known and loved Jameson Irish Whiskey. It begins with the **raw materials** which includes malted and unmalted barley and water. The word whiskey derives from the Irish "Uisce beatha" which means 'water of life' and the Dungourney river, which flows through the distillery, is the life source of the distilleries operation and plays a vital role in the production process. Jameson is also one of a handful of whiskeys in the world produced using a combination of malted and unmalted barley, and most of their suppliers are farmers from within 100 miles of Midleton. Many of the fields they farm have been producing the barley for centuries. Ingredients are sourced as local as possible, but maize is a sun-loving crop so a farmer in the South of France provides the distillery with non-genetically modified maize (Jameson Whiskey, date n/a).

Mashing, filtration and fermentation follows where the grist of ground malted and unmalted grain is added to clear water and heated to approximately 60 degrees C to form a watery, sugary soup as the hot water and enzymes in the malted grain release the sugar content from the starch in the crushed grain. After a few hours, the soup, known as mash is cooled down and some yeast is added to the mix. The yeast causes the mash to froth and bubble as it converts the sugar content to alcohol. After two or three days, all the sugar has been converted by the yeast and the froth dies down to leave a warm, beer like substance called the Wash (Irish Whiskey, 2015).

Distillation into clear Irish whiskey spirit follows. The wash is then distilled three times in either a copper pot still or a continuous column still into a clear vodka like new make whiskey spirit with an ABV of about 85%. Only the centre portion of each distillation run goes forward to the second and third distillation stage. The beginning and end of each distillation run, known as the heads and tails are put aside and are recirculated back into the still from where they came. This assists in maintaining consistency of character and flavour from each pot still used (Irish Whiskey, 2015). The triple distillation process purifies and removes harsh properties from the alcoholic liquid. Spirit receiver tanks hold the spirit now ready for casking and maturation.

The role of **maturation** in the development of final whiskey flavour is critically important. During maturation whiskey undergoes a very special transformation due to the interaction of the spirit and the wood of the casks. During the time spent in cask the spirit undergoes major changes in its composition and transforms from a fiery spirit into a mellow and smooth whiskey. The colour also changes, from colourless to a rich golden amber. Two different types of oak wood are typically used in whiskey maturation, American White Oak and European Oak. These two types of wood are quite different in many respects and thus will give two different whiskeys from a similar starting spirit. Firstly they are different species of oak and so have a different composition with respect to lignin, cellulose, tannins and other volatile compounds. Also American oak casks will have been seasoned by Bourbon whiskey while the European Oak casks will have been seasoned by a fortified wine, normally Sherry or Port. In addition American Oak casks will have had their insides charred during manufacture while European Oak casks will have only been toasted. During the seasons the spirit in the cask will change in temperature as we move from winter to summer and vice-versa. As the spirit warms up in the summer time it expands into the pores of the wood and this allows the spirit – wood interactions to take place. The spirit restricts back out of the wood as it cools in the winter time. These cycles continue during the many years of maturation (typically over 3 years). In addition another significant aspect of maturation is the removal of undesirable sensory characteristics. This aspect of maturation includes the removal of sulphur containing compounds which can be absorbed by the charred surface of the cask and subsequently degraded. The quality of the wood used for maturation is very important to the quality of the final whiskey (Quinn, date n/a).

The Midleton Distillery maturation cask warehouse sees the filling of around 2,000 American cask barrels per day, disgorging 1500 American cask barrels and the site has approximately 1.2 million casks maturing presently on site. These figures illustrate just how colossal the whiskey brewing production and maturation process is

.

Figure 1: How Irish Whiskey is Made

2. ENVIRONMENTAL REQUIREMENTS.

Regulatory requirements attributed with the Jameson distiller involves compliance with the distillery's IPCC licence and Greenhouse Gas emissions permit. The distillery is required to comply with national standard ISO 14001 Environmental management systems. Compliance is achieved through the utilization of a 24 hour online SCADA system. Jameson is required to monitor and treat waste water produced from the plant, this is achieved through the use of an online meter that measures ammonia, aluminium, total organic compound and the volume of oil in the water. Less than 40PPM of TOC is allowable. On site, the monitoring of water turbidity, any trace metals present in water, the TOC and COD of the water is required additionally Jameson utilises meters to monitor these elements.

The Integrated Pollution Prevention Control Licence requires Jameson to comply with emission limits considering water, sewer and atmosphere. The licence requires Jameson to emit a maximum of 864,000 m3 per day at 46.5 m above ground into the atmosphere during production. Under the licence Parameters Nitrous Oxide and Carbon monoxide shall be emitted at levels of 100mg/m3 for carbon monoxide and 250mg/m3 for N02. Jameson currently controls emissions to air through utilising extraction fans, pressure gauges and analyses techniques involving flue gas analyser's. Additionally monitors of emissions occurs biannually and particulates are monitored annually.

The Greenhouse gas emission permit authorises Jameson to emit specified levels of Carbon Dioxide from emission points. The annual emission data is verified by the regulatory authority the Environmental protection agency (EPA). Jameson submits an annual installation emissions report to the EPA. Emissions to water include continuous monitoring of flow and TOC using online flow and TOC meters with a recorder. Water temperature shall be at 25C (maximum) and is monitored continuously utilising online temperature probes with recorders. Visual inspections are conducted weekly and involve sampling and examining water odour and colour. Emissions to sewerage systems from the site include COD, TOC, suspended solids and oils are all monitored using standard methods (online meters). Emissions to sewers are controlled through drum screens which remove large debris, forward feed pumps which allow equalisation of the tank, poly dosing systems which neutralises PH and utilising UV systems to treat waste water prior to disposal.

Pollution preventative measure have been implemented to control emissions to water and sewers. These measures include monitoring programmes, good housekeeping, complying with site standard operating procedures and emergency plans. These measures prevent groundwater and soil contamination.

Daytime and evening noise emissions under the IPCC are limited to 55dB over a 30 minute period. Controlling noise emissions is conducted through site surveys lasting 2 to 3 hours over a serious of noise monitoring points on site. The distillery monitors groundwater annually through on site wells. Additional monitoring is conducted weekly assessing bunds, silt traps, oil separators and over ground pipework. Audits are conducted to monitor the sites energy efficiency allowing opportunities to reduce energy use and be more efficient through assessing the efficiency of raw materials in all processes.

Figure 2 : DIT Students attending a presentation on Environmental Requirements at Midleton Distillery Cork.

3. PUBLIC HEALTH ALCOHOL BILL

An element of the field trip was to get opinions on just what the impact the Public Health Alcohol Bill could have to the Jameson Brand and Irish Distillers. Midleton Distillery are keeping a close eye on any developments to the Bill as they believe the proposed measures would have a detrimental economic impact on an industry that generates €3 billion in GDP annually. It is understood that 5.7 million cases which is equivalent to 34.2 million 700ml bottles of Jameson were sold in 2016 from the Midleton Distillery alone. In 2015, global sales of Jameson rose 10% in parent company Pernod Ricard's first half of its financial year recording a sales growth of 8%.

The Bill from (Department of Health, 2015) includes provisions for:

- minimum unit pricing for retailing of alcohol products
- health labelling of alcohol products
- the regulation of advertising and marketing of alcohol
- the regulation of sponsorship
- structural separation of alcohol products in mixed trading outlets
- the regulation of the sale and supply of alcohol in certain circumstances
- enforcement powers for Environmental Health Officers

The legislation, which has been delayed following heated political debate, aims to ensure that alcohol is regulated effectively to reduce alcohol harm in Ireland and to improve public health. The concerns coming out of Midleton on the legislation being passed is that for example Jameson Caskmates, which is a new innovative whiskey product aged in craft stout casks, developed and test-marketed in Ireland and launched globally may be directly impacted by the proposals set out in the bill. Restrictions on marketing and advertising would have been jeopardized by the proposed bill being passed and brought into law explains (Rowe, 2017) of the Irish Independent. Their concerns have been raised in a

recent report to the Alcohol Beverage Federation of Ireland which was carried out by DKM Economic Consultants on Sunday 23rd April entitled *'Socio-Economic Impacts of Proposed Regulations under the Public Health (Alcohol) Bill'.*

The report (DKM Economic Consultants, 2017) found that the proposed measures would have a detrimental economic impact on the industry. This includes incentivising cross-border shopping, stifling growth and product innovation in the sector, and negatively impacting small producers and retailers, particularly in rural Ireland with minimum unit pricing and restrictions on advertising. The report also presents evidence that the proposals in the bill to reduce harmful drinking is weak by making the argument that alcohol consumption per capita has been in decline in Ireland since the early 2000s, and youth drinking also continues to decline. This is backed up by the fact The World Health Organisation stated last March that "Ireland is amongst a group of countries which have the most abstemious adolescents." Also in June of 2015, the Health Research Board released a publication of alcohol use in Ireland and the report showed that between 2011 and 2013 the number of cases treated for problem alcohol use as well as new and returning cases declined by between 9.8% and 20.8%. Eurostat also reports that per capita, Ireland drinks 25% less alcohol than we did 15 years ago and our alcohol is the most expensive in the EU at 175%.

Findings from (DKM Economic Consultants, 2017) have led to the conclusion that *"given these negative impacts, and the lack of evidence of the effectiveness of the proposed measures in terms of their stated objectives, in the context of the long term downward trend in alcohol consumption and youth drinking in Ireland, we conclude that the measures in question are not justified."*

It is fair to say that the drinks industry welcomes and is encouraged by these findings, however Midleton acknowledges along with the rest of the drinks industry in Ireland that a cultural change is ultimately required to reduce harmful use of alcohol in a sustainable fashion. What's clear is that legislation alone will not address harmful alcohol consumption and as a whole, we need to strike a balance between the employment, exports and tourism growth potential of the drinks sector with the need to address misuse, and subsequent public health issues. This can be achieved through health promotion, positive marketing campaigns and cutting down on the national level of binge drinkers where more than half (54%) of 18-75-year-old drinkers were classified as harmful drinkers which equates to 1.35 million people according to Alcohol Ireland.

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Can UK Local Authorities Afford to Take Health and Safety Prosecutions

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ABSTRACT

This paper summarises a workplace transport investigation and successful prosecution taken by Environmental Health Practitioners at Rother District Council in response to a workplace transport incident at an independent retail supermarket. The incident involved a customer being run over by a delivery lorry in the customer car park resulting in life changing injuries. The owner of the supermarket pleaded not guilty to a breach of section 3(1) of the Health and Safety at Work etc. Act 1974. As a result of this a lengthy and costly prosecution in the Crown Court followed. The resource implication involved in the undertaking is discussed along with the impact of the current direction of health and safety enforcement in the United Kingdom (UK). Finally the question is posed as to whether or not Local Authorities in the UK will be able to afford the cost of such prosecutions.

Keywords :*Health & Safety,Workplace Transport, Deliveries, Retail Supermarket.*

1. INTRODUCTION

At the beginning of February 2013 the Environmental Health department of Rother District Council received information that a member of public had been seriously injured in an incident at an independent supermarket in the district. Initial enquiries by Environmental Health Practitioners revealed that a customer of the supermarket had been run over outside the main entrance to the store by an 18 tonne lorry making a routine delivery. The incident left the customer in a critical condition requiring transfer by air ambulance to hospital. Although she survived the customer suffered life altering injuries; loss of the left leg at the knee.
The enforcement of health and safety at work legislation for both employees and non employees within retail stores fall to local authority Environmental Health Departments in the United Kingdom. The aim of the investigation was to determine whether any breaches of legislation had occurred and to pursue physical and legal redress.

2. METHOD

The investigation took place in distinct phases; it began with an inspection of the scene, gathered statements from witnesses and resulted in a trial before a judge and jury in the Crown Court.

2.1 CASE INVESTIGATION

Sussex Police, who were first responders at the incident, conducted an investigation focusing on the driver of delivery lorry. As a result the driver was charged and a prosecution brought, under road traffic legislation, before the Magistrates Court. The driver pleaded and was found not guilty. Evidence from the Police investigation was made available to Rother District Council's Environmental Health Department.

The Environmental Health investigation comprised a site visit to examine the delivery route, a tape recorded interview under caution with the owner of the supermarket (in this case authorised representatives of Jempson's Limited Liability Company), a review of the work place transport documentation, and statement taking from key members of staff both from the supermarket and companies making deliveries to the supermarket.

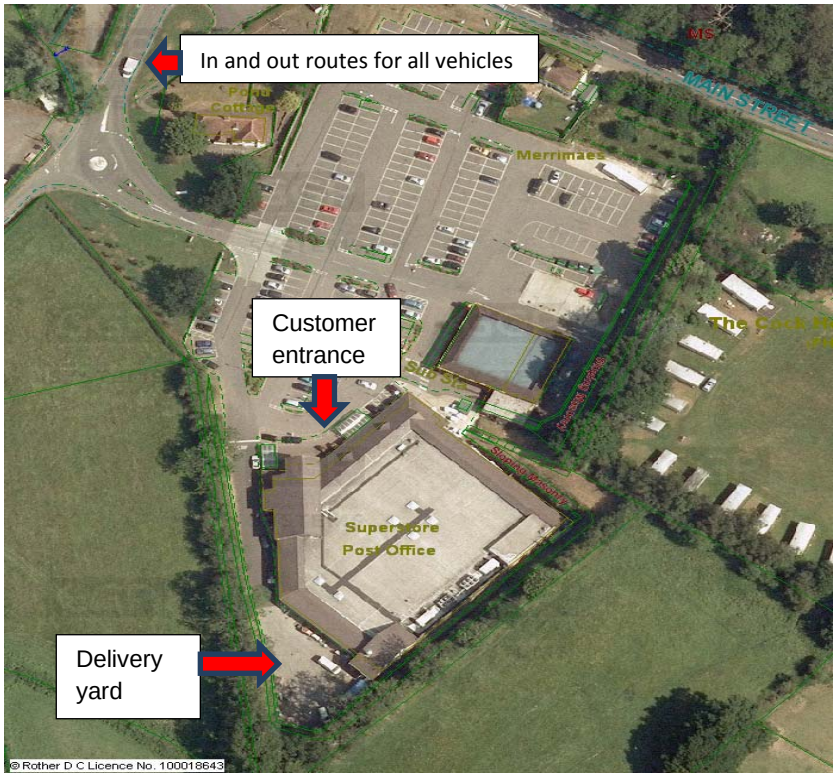

Figure 1- Jempsons Supermarket

At the supermarket the investigating Environmental Health Practitioners found that delivery vehicles drove through the supermarkets customer car park into a delivery road running alongside the store and then into a delivery yard. They also found that the customer car park lacked vehicle and pedestrian segregation and pedestrian crossing points; the delivery road was used by customers and staff to park and thus restricted access for delivery vehicles. The delivery yard was fairly small, a feature aggravated by its use as a store for miscellaneous items such as roll cages and waste compactors.

Statements taken from a number of logistics firms highlighted that the drivers were reluctant to turn their vehicles around in the delivery yard because of the congestion. As such it had become common practice to drive forwards in front of the main customer entrance and reverse down the delivery road into the yard. Senior managers at the supermarket knew this practice occurred regularly but had taken no substantive steps to prevent recurrence. It was during this manoeuvre that the customer, Mrs C, had been hit and dragged under the nearside wheel of the lorry.

Examination of the supermarkets work place transport documentation and interviews with key personnel exposed a lack of safe working methods for receiving deliveries. There was no information or instruction provided to supplier companies on how deliveries were to be made to the store. The only information available to assist drivers once on the supermarkets property was a single sign at the entrance to the car park with the word 'Deliveries' and an arrow head. No personnel in the supermarkets organisation had received banksman training.

The Companies risk assessments for workplace transport were considered to be inadequate.
The investigators concluded that the root cause of the incident was the failure of the supermarket to comprehend the importance of the work place transport in their operation and therefore to adequately assess the risk. As a result of this the site was inadequately laid out and did not provide for the safe circulation of pedestrians and vehicles, figure 2 below.

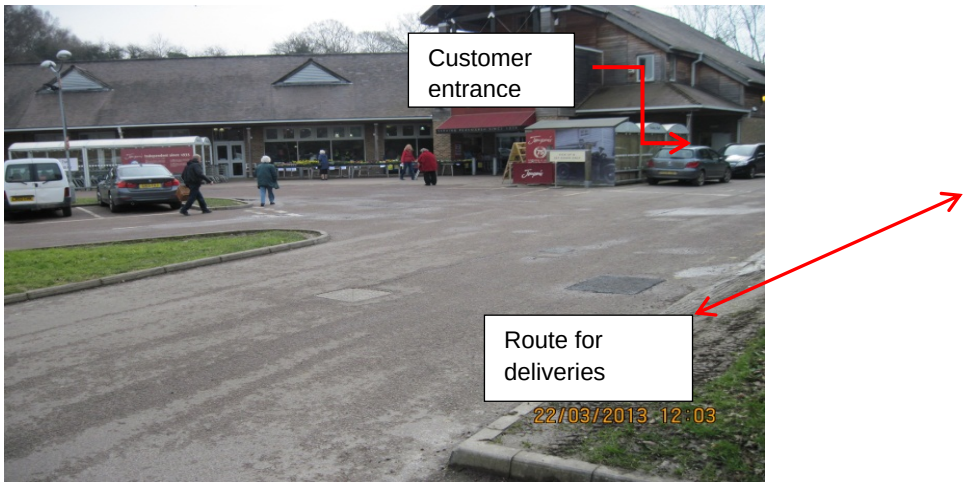

Figure 2- Entrance to Jempsons supermarket March 2013

Basic safety information and instruction was not provided to suppliers, no clear safety signage or other instructions were provided on-site to show delivery drivers how or where deliveries should be made and employees lacked clear operational procedures for accepting deliveries.

2.2 CASE REVIEW- IDENTIFYING THE APPLICABLE LEGISLATION

There were two points to address- the duty of the supermarket to provide safe access to their store and the lack of reporting of the incident. The case was reviewed and the decision was made to recommend prosecution of the Limited Company for a breach of regulation 3(1) Reporting of Injuries Diseases and Dangerous Occurrence Regulations 1995 section 3(1) of the Health and Safety at Work etc Act 1974.

The defendants pleaded not guilty under Section 3(1) of the Health and Safety at Work etc. Act 1974 at Hastings Magistrates court and elected for trial at Crown Court. The defendants later pleaded guilty to the offence of not reporting the incident as required by the Reporting of Injuries Diseases and Dangerous Occurrences Regulations 2013.

2.3 PRELIMINARY COURT PROCEEDINGS

On 1st June 2015 a jury was selected and sworn in at Lewes Crown Court and opening statements were made before His Honour Judge Kemp. Once the opening statements were completed a site visit was made, at the request of the defence, to see first-hand the layout of the site, figure 1. The Judge, jury, prosecution and defence teams visited Jempsons Ltd supermarket Peasmarsh. In accordance with Court protocol no witnesses were present.

2.4 THE PROSECUTION CASE

Mrs C's statement was read to the court and accepted by both parties as factual and accurate. The primary facts were not disputed. Mrs C parked her car in the supermarket car park on 22 January 2013, in the early afternoon, with the intention of doing some shopping. She then walked towards the shop entrance when a delivery lorry which had been manoeuvring in front of the store, collided with her and dragged her beneath the front wheel. Her left leg was amputated by the front nearside wheel of the lorry and her right leg suffered massive crush injuries. Mrs C was attended by all the emergency services and airlifted to hospital, figure 3. This serious life changing injury was recognised by the court.

The first prosecution witness was the Sussex Police Officer who attended the scene and dealt with the lorry driver. The vehicle was from an independent logistics firm which forms part of a network of freight distribution throughout the UK and Ireland. The police officer related how he had gathered evidence at the scene, photographs, witness statements and CCTV.

Figure 3 Scene of the incident January 2013

The prosecution then presented a series of witnesses from different logistics firms who had regularly delivered to the supermarket. The firms' drivers' described a disorganised and cluttered site without banksmen as well an established practise of driving through the customer car park, stopping outside the front of the store and reversing into the goods area. The drivers asserted that this manoeuvre was never challenged by Jempsons Ltd.

Unusually the prosecution then called Jempsons Ltd own health and safety officer to give evidence. The safety officer explained to the court that it was his task to produce risk assessments, although he hadn't any formal training. The safety officer confirmed that it was his risk assessment that was in place at the time of the accident. The investigating Environmental Health Practitioner was called next and described the investigation and his concerns with the arrangements in place at the time of the incident. He also described how, at a site revisit six months later, none of these matters had been satisfactorily rectified.

Extracts of the interview under caution were read out loud to the Court. In particular the admissions by the directors that “this wasn’t the first time this happened” and that “they knew of other incidents” regarding the reversing manoeuvre in front of the store; that as they only had 10 deliveries a day they couldn’t afford banksmen; and their reaction to the incident, that “the vehicle was going too fast and the lady was not looking where she was going”.

A second Environmental Health Practitioner witness was called to explain the findings of past inspections of Jempsons Ltd supermarket. The issue of deliveries had been raised as a health and safety concern in 2010. The inspection notes recorded, at that time, showed “that deliveries were made between 2am and 5am, when the public were not present”.

The final witness was an expert witness from the Health and Safety Executive. He described his observations from his visit to the site in November 2014, which mirrored those of the investigating Environmental Health Practitioner’s. A significant portion of the expert’s evidence was given to describing the reasonably practicable measures that could be undertaken, including, provision of a lorry waiting area, stop sign and intercom for lorry drivers, lockable and removable bollards to separate pedestrians and vehicles.

2.5 THE DEFENCE CASE

The directors of Jempsons Ltd both gave evidence. The firm was described as a family business with 11 outlets, 280 employees and an annual turnover of approximately £33m. The court heard evidence regarding the planning permission history of the site. The primary argument was that Rother DC had granted planning permission for the car park, so any deficiencies in the layout and design was the responsibility of RDC. The directors reiterated their statement from the formal interview that the lorry driver was going too fast and Mrs C wasn’t looking where she was going.

The final witness for the defence was a private health and safety expert witness. In his opinion the arrangements and risk assessments in place at the time of the incident were sufficient. When questioned about the suggestion for the installation of bollards, intercom and a waiting bay, the expert replied that he didn’t think the lack of these items was the reason for the incident but that they were reasonably practicable.

After closing statements His Honour Judge Kemp asked the jury to retire to consider the verdict. His instructions to the jury were to consider whether a risk existed; was the movement of delivery vehicle on Jempsons Ltd property part of the undertaking; and were the suggested works reasonably practicable?

3. RESULT- VERDICT

After the eight day trial the jury spent five hours considering the evidence. A unanimous guilty verdict was returned. His Honour Judge Kemp accepted the verdict and before he released the jury, read sections from Mrs C’s personal impact statement and described the case as “desperately sad” for her and her family. A fine of £130,000 was imposed on Jempsons Ltd supermarket for breach of Section 3(1) of the Health and Safety at Work etc. Act 1974. No separate penalty was imposed for the breach of the Reporting of Injuries Diseases and Dangerous Occurrences Regulations 2013. Costs of £72,500 were awarded to Rother DC.

4. DISCUSSION

This case occurred at a time when local authorities across the United Kingdom were facing significant reductions in their funding from central government with many making tough choices on where

budgets were to be allocated. At roughly the same time, guidance from the Health and Safety Executive to environmental health departments brought an end to proactive health and safety interventions based on risk rating (LAC 67/2). The defendant company attempted to argue that the local authority, who had previously regularly inspected the site, were at fault, as they did not return after the 2010 inspection.

The result of this policy (LAC 67/2) is that local authorities no longer hold up to date data bases for places of employment in their district. Where Rother DC used to conduct three-four hundred proactive health and safety inspections a year, this figure is now less than ten.
This lack of regular proactive health and safety inspections will have the effect of reducing knowledge and skills, and even numbers of inspectors, from within the pool of local authority Environmental Health Practitioners. The National Local Authority Enforcement Code (HSE) requires local authorities to ensure their inspectors are fully competent; how can competency be maintained when little proactive health and safety work is done?

5. CONCLUSION

Given the cost and complexity of this case, a serious debate is required to ascertain whether UK local authorities have sufficient resources, both competency and financial to take what inevitably are difficult, time consuming and expensive prosecutions.

The ultimate question is who will be there for the next Mrs C?

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Reporting of Injuries Diseases and Dangerous Occurrence Regulations 1995 (SI 1995/3163)
Reporting of Injuries Diseases and Dangerous Occurrences Regulations 2013 (SI 2013/1471)

POSTCRIPT

Mrs C lost the effective use of her remaining leg and lives in a wheelchair.

At a Jempsons site visit in January 2016 Environmental Health Practitioners found new directional signs for delivery drivers, a lorry waiting area and permanent bollards preventing the reversing manoeuvre at the front of the store, figures 4 and 5 . All delivery companies now receive regular information from the supermarket and the store manager checks that the risk assessment is complied with. The road into the delivery yard was free of parking, figure 6.

Figure 4- Delivery signs and lorry waiting area January 2016

Figure 5- Store entrance with permanent bollards, signs and no parking/loading zone January 2016

Figure 6 - Road into delivery yard January 2016

Rother DC considered examining other similar business to ensure their compliance but found it could not do so. The National Local Authority Enforcement Code (HSE) clearly states that where a local authority wishes to investigate whether failings which led to an incident are common in other similar premises, “they should not simply inspect all equivalent premises to determine whether this is the case”. Rother DC is restricted to raising awareness of this issue.

Education As An Instrument To Raise Environmental Awareness In Motor Sports

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ABSTRACT

Following the 1992 Rio de Janeiro Earth Summit, the International Olympic Committee (IOC) encouraged Sports Federations, like Motorsport South Africa (MSA), to integrate sustainability principles into their operations. Together with its partners, the IOC is committed to promoting sustainable development and respect for the environment in and through sport. Motorsport, rightly or wrongfully, is considered one of the noisiest and most polluting of humankind's leisure activities. These activities are thus subjected to closer scrutiny by local, regional and national groups seeking to minimise the impact of motorised sport on the environment.

The world's future relies on humankind to be well educated and thus being wise stewards of the very environment that sustains present and future generations. Education, in itself, is one of the most powerful instruments we have for bringing about the changes required to achieve sustainability in the hosting of motor sports events. Although they represent only a certain proportion of the world's population, all sports organisations also carry a special responsibility as far as environmental sustainability is concerned.

Over the last decade, Motorsport South Africa has initiated environmental awareness and educational processes like the development of appropriate educational material and the hosting of training seminars, so that they can actively involve all their stakeholders in finding solutions for specific problems and thereby reducing motor sports-related environmental damage. Organisers, promoters, venue owners, competitors, officials and spectators all play a unique role to ensure that motorsport events are planned and conducted in a sustainable way. In order to succeed they all need to be empowered and made aware, through education and awareness, of their respective roles to ensure sustainable motorsport for future generations in South Africa.

Keywords: *Education, Awareness, Motor Sports, Role-players, Sustainability*

BACKGROUND

Motorsport South Africa (MSA) is the Governing Body of motor sports in South Africa. MSA is affiliated, as a member country, to the International Motor Sports Controlling Bodies, namely the Federation Internationale de l'Automobile (FIA) and the Fédération Internationale de Motocyclisme (FIM).

All MSA sanctioned events are being held in accordance with the Sporting Codes of these international controlling bodies. Nationally, MSA operates under the auspices of the National Department of Sport and Recreation and is a member of the South African Sports Confederation and Olympic Committee (SASCOC). MSA's Head Office in Johannesburg, is responsible for the day to day administration of the sport. Various Commissions are responsible for the development of rules and implementation of policies relevant to the particular facet they represent.

THE NEED TO "GO GREEN" IN MOTOR SPORTS

THE BIG QUESTION…. Why is MSA involved with environmental matters as a sport controlling body?

We know that the world is dealing with serious environmental challenges on a daily basis. Therefore every single person, business or organisation needs to take responsibility for their actions. This also applies to sport.

In 1992, the International Olympic Committee (IOC) requested all international sporting bodies to incorporate an environmental policy as part of their statutes in order to give prominence to environmental matters. This is important to address perceptions and unnecessary criticism to safeguard the sport for future generations and to commit to responsible environmental conduct.

MSA is pro-active by implementing long-term environmental solutions, especially in areas where major environmental impacts may occur at motorsport meetings. All mechanised sports are particularly subjected to scrutiny by both international and national groups seeking to minimise man's impact on his environment. From this evolves perceptions and criticism.

Rather than being apologetic and avoiding issues concerning the environment, the world controlling bodies for motorsport decided to become a role-player in responsible environmental conduct. Not only to establish certain criteria to make the sport more environmentally friendly, through the planning and staging of events and the implementation of best environmental management principles, but also to educate motorsport role-players.

PROVIDING GUIDANCE AND CREATING ENVIRONMENTAL AWARENESS.

To establish a culture of environmental engagement, it is essential that initial guidance must come from a sport's governing body.

The MSA Environmental Panel, as a specialist non-Sporting Commission, is primarily responsible for the implementation of MSA's Environmental policy and also provides the necessary leadership and guidance to ensure that all motorsport disciplines in South Africa have a reduced impact on the environment.

The Panel further focuses on Promoting Environmental Awareness, through various initiatives, and the development of an environmental educational programme, specifically focussing on the sport's role-players.

It is essential that MSA is attentive to National Environmental Legislation and to ensure that control measures are in line with national legislation. The Panel is also responsible to coordinate environmental control and compliance at motorsport events.

The MSA Environmental Code was specifically developed to ensure environmental compliance and control at all MSA sanctioned events. The Code consists of environmental regulations, protocols and responsibilities for all the sport's role-players.

In 1996 MSA became the first national Sporting Federation in South Africa, and one of the first international Motorsport governing authorities to implement an Environmental Code. Fundamental elements of national environmental legislation, which are relevant to motorsport activities, have been incorporated in the MSA Environmental Code. It contains recommendations and responsibilities to be pursued at MSA sanctioned events, thereby developing greater awareness and understanding of environmental issues within motorsport.

Apart from being a reference tool, concerning the protection of the environment in motorsport, the Environmental Code defines the actions that must be taken by organisers, venue owners and competitors to reduce their environmental footprint at an event. This also reinforces MSA's aim to have a sustainable approach in the organisation of their events.

The Code also makes provision for penalties / sanctions where non-compliance occurs.

The training and appointment of Environmental Officers remain a key factor to ensure best environmental practices at events. It is compulsory for race organisers to appoint a licenced Environmental Officer at each MSA event. Before, during and after events it is the duty of the Environmental Officer to monitor the application of, and compliance with, the MSA Environmental Code. The Environmental Officer is also the key person to advise the organisers on mitigation, how to reduce the environmental footprint of an event and to report noncompliance for remedial action

Apart from monitoring compliance they also have other duties -

1. Complete environmental checklists and submit post-event reports to MSA.
2. During events they will report non-compliance to organisers or the chief steward and may ask for immediate remedial action.
3. Plays a very important role as an Environmental Educator.

ENVIRONMENTAL AWARENESS IS NOT ONLY ABOUT KNOWLEDGE, BUT ALSO ABOUT ACTIONS

Even though a cognitive approach seems to be the norm by raising awareness about current environmental issues, usually through the provision of relevant information to individuals to change their behaviour, MSA also identified the need to adopt a contextual approach where pro-environmental behavioural change campaigns and learning should be considered. This will ensure long lasting change and must involve competitors, organizers and spectators alike. In short it comes down to "practice what you preach through actions that are visible to all".

MSA's first attempts concentrated on very basic projects - Enviro Logo Competition, Enviro Awareness Banners, Enviro Messages in Publications, Annual Enviro Award, etc.

The idea was to lay a foundation and to encourage clubs and circuits to identify and manage their own environmental projects. Initiatives included, amongst others, tree planting, clean-up campaigns, recycling, cleanest pit competitions at events, signing of Enviro Charters by competitors, etc.

During events, banners are used for example at strategic areas, addressing typical environmental risks associated with motorsport activities like noise, water and soil pollution. Information displayed on these banners shows the do's and don'ts and is specifically designed to sensitize both competitors, spectators and circuit owners. The Banners are used at Sport Expos and hospitality units at circuits, and is colourful, visible and eye catching.

Environmental awareness messages are published from time to time in official race programmes, motoring magazines and on social media to sensitize spectators and motorsport enthusiasts.

One of the biggest challenges MSA faced, from the start, was to address the lack of an environmental educational programme and material related to motor sports since there was nothing available, not even from the international bodies. Over the years, educational and environmental information material was developed, which now forms an integral part of the education programme.

TRAINING SEMINARS

The training and appointment of Environmental Officers remain a key factor to ensure that competent and informed individuals are deployed at events. A primary duty of the MSA Environmental Panel is the training of Environmental Officers who officiate at every motorsport event in South Africa. Environmental Officers receive formal training at MSA Environmental Seminars. Upon successful completion of an examination they are accredited and licensed.

A lot of effort and time were spent to train the Environmental Officers as well as to develop a training programme and hosting training seminars. Seminars also aim to encourage environmental awareness and best environmental practices, and by providing mitigation guidelines to all the role-players involved in the sport.

This is probably one of MSA's biggest success stories, with expertise being shared with other African and International Federations. Hence, South Africa is well respected by the international motorsport fraternity for its environmental work, with some of the training material been translated into French and Spanish.

THE ROLE OF MOTOR SPORTS AS AN ENVIRONMENTAL EDUCATOR

The success of any ENVIRONMENTAL EDUCATION PROGRAMME depends on several factors.

From a motorsport perspective, it must be kept in mind that sportspeople are first and foremost involved in sport to compete, socialize and enjoy themselves. Environmental Education and Awareness therefore needs to be incorporated in a SKILLFUL and INTERESTING way. To prevent "over controlling" of role-players, a platform of understanding why environmental matters are of importance, must be created.

Sports people are some of the most influential individuals on earth. Through their behaviour, they may inspire others, both those that are directly involved in the sport and those on the outside looking in. By embracing best environmental practices and through environmental awareness sport can thus play a vital role in society. People are more likely to follow the examples set by individuals or organisations which they can associate with.

Therefore, the popularity of sports should be used as a platform to create awareness for environmental issues. Young Competitors are the future of motorsport; therefore, it is important to teach them from a young age to respect the environment. Youngsters are sensitized through various programmes.

Sport can also produce environmental leaders, for example the Environmental Ambassador's programme, using the fame of well-known competitors to raise environmental awareness among fans, spectators, sponsors, media, etc. The Ambassador's programme requires charismatic, well-spoken, passionate individuals who can lend their voice to environmental matters.

CONCLUSION

Co-operation with authorities is imperative in order to co-ordinate the interests of motorsport and the environment. National Legislation rules are supreme, but MSA's own internal control surely shows commitment to environmental matters.

MSA aims to be a leader among international motorsport federations in changing bad environmental habits and to set an example by acting and promoting sustainable practices at all its sanctioned events.

Our lifestyle today is inextricably linked with the natural environment. The future of motorsport activities and more generally of human activities depends on the sense of responsibility each of us will take on.

Footnote: Visit Motorsport South Africa's website www.motorsport.co.za for detailed information about the Environmental Code, Environmental Documentation, Training Documents & Video and the latest Environmental News.

Environmental advertising in official race programmes to sensitize spectators

Environmental banners to sensitize competitors and race venue owners on specific environmental matters related to motor sports (displayed at race circuits)

Environmental banner for display at expos and other venues

Various environmental information pamphlets for specific role-players

Knowledge, Practices And Challenges Of Health Care Waste Management Among Health Workers In Hospitals In Mbarara District, Uganda

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ABSTRACT

Health care waste (HCW) is very hazardous and has a higher potential for infection mainly affecting health workers, waste handlers, and patients. Proper health care waste management (HCWM) is very critical for prevention of infections and injuries arising from health care waste. This study was designed to assess the knowledge, practices and challenges of health care waste management among health workers in hospitals in Kamukuzi division of Mbarara district in order to generate useful information in designing appropriate interventions to improve health care waste management within this area. This was a descriptive cross-sectional study with collection of quantitative data using questionnaires and observational checklists while qualitative data was collected using a Key Informant interview guide. Simple random sampling was used to select 97 health workers within 3 hospitals in Kamukuzi division, Mbarara district. Quantitative data collected were entered in to EPIDATA version 3.2.0 and analyzed in SPSS 20 statistical software. Overall, most study participants 67 (69%) had high knowledge about HCWM. The reported practices for treatment of HCW were incineration 52 (53.6%) and open burning 30(30.9%). Common challenges mentioned include shortage of supplies necessary for HCWM such as collection containers, personal protective equipment (PPE), poor policy implementation and inadequate training of health workers and HCW handlers on proper HCWM practices. Most health workers were knowledgeable about HCWM and possessed acceptable HCWM practices. A multi-sectoral approach is however required to address challenges of HCWM within hospitals as well as allocation of more resources (human and financial) to HCWM within hospitals.

Key words: Health care waste, hospitals, health workers, knowledge, practices, challenges.

BACKGROUND

Proper health care waste management practices are an integral part of health care delivery for disease out-breaks prevention, environmental preservation and overall promotion of population health and safety. Unsafe health care waste management poses risks to health workers, patients, communities, and the environment **Invalid source specified.**. However, of all the waste management activities, HCWM is the most neglected by many health services providers resulting in significant exposure to occupational risks among health care workers **Invalid source specified.**, high incidence and prevalence of nosocomial infections **Invalid source specified.** and environmental contamination **Invalid source specified.**.

Over half of the world's population is at risk from illnesses that arise from improper health care waste management practices yet many of these infections are preventable if the syringes are disposed of safely. The World Health Organization (WHO) points out that every year an estimated 16 billion injections are administered worldwide, but not all of the needles and syringes are properly disposed of afterwards (WHO, 2015b). It has also been noticed that burning of medical waste, which is the most

common method of HCWM in developing countries, releases a number of hazardous gaseous compounds including hydrochloric acid, dioxins, furans and toxic metals such as lead, cadmium and mercury which pollute the environment. In developing countries such as Uganda, additional hazards occur from scavenging at waste disposal sites and the manual sorting of hazardous waste from health care establishments. In this study we sought to assess the knowledge, practices and challenges of HCWM among health workers in Mbarara district, Uganda.

METHODS

This study was conducted in Kamukuzi division of Mbarara district located in the Western part of Uganda. Study sites were Mbarara, Divine Mercy and Ruharo hospitals which are large medical establishments with a relatively larger number of health workers. Study respondents were health workers including doctors, nurses, laboratory Technicians and clinical officers. Key Informants were in charges of wards, senior nursing officers and hospital executive directors. The study was cross-sectional in design using both qualitative and quantitative data collection methods. Quantitative data was collected using semi-structured questionnaires and an observational checklist while a Key Informant interview guide was used to provide qualitative data. Simple random sampling was used to select a total of 97 study respondents of whom 11 were selected as Key Informants. Permission to conduct the study was obtained from Makerere University School of Public Health and the hospital administrations before commencement of research. A Consent form introducing the Principal Investigator and guaranteeing the confidentiality of the information received as well as the voluntary nature of participation was signed by both the study participants and the researcher. Codes were assigned to all participants to ensure anonymity and confidentiality. Quantitative data collected from observational checklists and questionnaires was coded and entered using EPIDATA version 3.2.0 and analyzed using SPSS 20 statistical software system version. Proportions of the study variables such as age and sex were computed and graphs as well as statistical tables were presented.

RESULTS

A total of 97 health workers participated in this study. Half of the study respondents 49 (50.5%) were aged between 36-45 years. Among respondents, 28 (29%) were medical doctors, 33 (34%) enrolled nurses, 22 (23%) mid-wives, 5 (5%) clinical officers and 9 (9%) laboratory technicians.

Knowledge of health workers about HCWM

All study respondents 97 (100%) reported that they had heard about HCWM and the colour codes used in waste segregation at the health facilities. In addition, all Key Informants 11 (100%) said that health workers within hospitals possessed knowledge about HCWM which they obtain through various ways.

> *"Health workers obtain knowledge about HCWM through continuous medical examinations (CMEs) organized by the hospital, medical school during professional training and the senior staff."* **(Key Informant 1-Ward in charge).**

Depending on the responses to the knowledge questions, respondents were categorized as either having high or low knowledge. Majority of respondents 67 (69%) demonstrated high knowledge. Knowledge on effects and benefits of HCWM was also high. Health workers 97(100%) and HCW handlers 94(97%) were mostly reported to be affected by poor HCWM. Injuries and infections were the most mentioned effects of poor HCWM. Respondents stated the benefits of proper HCWM as reduced incidence of diseases 97 (100%) and safer working environments 75 (77.3%).

Practices of HCWM among health workers

All study respondents 97 (100%) reported to practice segregation of HCW by following the recommended colour coding system. All sampled units 14 (100%) had colour coded waste containers

with covers but these were not present at all working stations within these units. One Key Informant had this to say,

> *"We use red waste containers for highly infectious waste, yellow safety boxes for sharps, brown waste containers for pharmaceutical waste and black waste containers for non-infectious waste."* **(Key Informant 4-Ward in charge).**

All respondents 97 (100%) said they did not re-use needles and disposed the used needles and syringes in the yellow safety box. Sharps were mostly observed to be disposed in safety boxes in the hospital units visited.

Final disposal methods of HCW

More than half of the respondents 51 (52.6%) said that incineration was the method used for final disposal of HCW. Others 31(32%) mentioned open burning while 15 (15.4%) stated that hospitals rely on a private company to manage the final disposal of HCW. The incinerator in one of the three hospitals visited was observed to be non-functional and not to have been used in a long time as some of HCW was observed to be burnt in offsite in open air. This also resulted into accumulation of large piles of health care waste at the incinerator.

Challenges faced by health workers in HCWM

Most of the respondents 84 (86.6%) stated that their hospitals faced challenges regarding HCWM due to shortage of supplies necessary for HCWM 81 (83.5%), lack of personal protective equipment (PPE) when handling HCW 35 (36%) and inadequate training of health workers and health care waste handlers 19 (19.5%).

This was also highlighted by the Key Informants as shown below:

> *"A non-functional incinerator at this hospital is a key challenge to proper HCWM amid other factors such as shortage of waste collection containers".* **(Key Informant 9, Nursing officer).**

> *"One of the contributing factors to challenges in HCWM is lack of supervision of HCW handlers due to poor administration".* **(Key Informant 6, Ward in *charge*)**

Lack of a proper waste disposal site and proper HCW disposal methods were mentioned as challenges to proper HCWM within hospitals. A quote from one of Key Informants stated:

> *"I do not even know who let this hospital begin to operate without a proper waste disposal site"* **(Key Informant 6, Ward in charge).**

Solutions to challenges faced by health workers in HCWM

Most of the health workers 84 (86.6%) proposed allocation of more resources to help improve HCWM while others suggested training 60 (61.8%) and sensitization 48 (49%) of health workers and HCW handlers. One Key Informant was quoted saying:

> *"National medical stores (NMS) needs to increase its supply of HCW collection containers to avoid shortages"* **(Key Informant 10, Nursing officer).**

DISCUSSION

Most of the health workers had adequate knowledge about proper HCWM. This is similar to findings of a study carried out in Mubende district (Nanfuka, 2005) that found health workers being very knowledgeable about management of health care wastes. In the study the high knowledge was attributed to respective schools of medical training and regular CMEs. Indeed, in this study, CMEs and information education and communication (IEC) materials were among the major sources of knowledge about HCWM. A good understanding of HCWM guides health workers to exercise proper HCWM practices. This in turn minimizes incidences of injuries from sharps and risks to spread of infections. IEC materials about HCWM should therefore be distributed throughout the hospitals especially at the working stations of health workers. This serves to guide health workers and HCW

handlers on how to handle HCW as recommended by the national HCWM guidelines so as to avoid unnecessary risks of infection and injuries.

From the study, health workers were found to have proper HCWM practices. This is comparable to a study done in South India which had similar findings (Sengodan and Amruth, 2014). This is not surprising given the high level of knowledge of health workers about HCWM found in this study. This could also have contributed to the proper segregation practices found among the health workers. In addition, these facilities were provided with colour coded bins by the hospital administration or NMS (MoH, 2015). Regular CMEs about HCWM for health workers can also be considered as contributing factors to proper practices of HCWM (Nanfuka, 2005).

Shortage of supplies such as HCW collection containers and PPE was the major challenge to proper HCWM. This is attributed to allocation of few resources to HCWM as more focus is given to curative health care compared to preventive health care as reported by a study done in Minna (Saliu, 2014). Shortage of PPE also poses risks of infections and injuries especially to HCW handlers. Another challenge was lack of training on HCWM of health workers and HCW handlers. This finding is in line with a study done in Kenya which identified gaps in knowledge of health workers about HCWM due to health and safety in HCWM not being included in most of the training for health workers (Njagi, 2012). Continuity of organized training of health workers and HCW handlers is necessary to equip them with proper knowledge and skills on how to best handle HCW so as to avoid risks of infections and injuries by creating a safe working environment.

CONCLUSION

Most health workers have an adequate understanding of HCWM but this does not directly translate into proper HCWM practices within hospitals partly contributed to by the challenges experienced within the hospitals. Most hospitals rely on incineration or burning of HCW in open air because they are the cheaper options of HCWM. The challenges faced by health workers in handling HCW were shortage of supplies such as HCW collection containers and PPE, inadequate training of health workers and HCW handlers as well as poor policy implementation on HCWM in hospitals. To overcome these challenges, there is need for collaboration between sectors such as hospital administrators, local government officials and health professionals. More resources also need to be allocated towards HCWM to counter shortages of supplies necessary for HCWM such as waste collection containers. Continuous training of health workers and HCW handlers should be done to increase their knowledge and skills about HCWM.

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Measles Outbreak in Portugal

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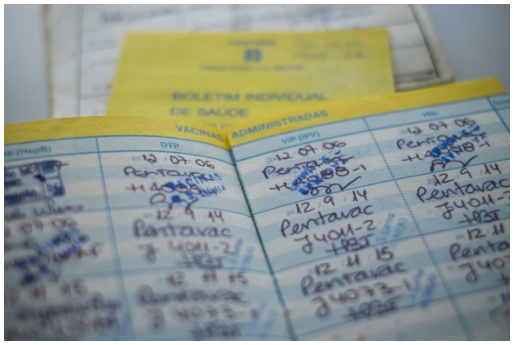
Measles is a disease that is manifested by the appearance of small white spots on the oral mucosa about a day or two before rashes appear, which initially appear on the face. According to the Portuguese Directorate General of Health, the complications of measles may include otitis media, pneumonia, febrile seizures and encephalitis. Adults usually have a more serious illness than children and immunocompromised patients may not have spots on the skin.



Measles, which is preventable by vaccination, is transmitted by air and by direct contact with nasal or pharyngeal secretions of infected persons. With an incubation period that can range from 7 to 21 days, the contagion occurs four days before and four days after the rash appears (rash). People who have had the disease or who have two doses of the vaccine (at 12 months and repeat at 5 years) are considered to be protected against measles for those under 18 years of age, and one dose when it comes to adults.

Measles-related vaccination in Portugal began in 1973 with a vaccination campaign for children between one and four years of age, which lasted until 1977. In 1974 the measles vaccine was included in the National Vaccination Plan. And in 1990 a second dose of the vaccine was introduced.

In Portugal, with free vaccination of children since 1974, and especially with the introduction of a second dose of vaccine in 1990, measles has become almost a forgotten or invisible disease. But between 1987 and 1989 had been notified in Portugal 12 thousand cases, accounting for 30 deaths. In fact, measles is one of the most contagious viral infections and, although usually benign, can be serious and even lead to death.

According to the various reports on notifiable diseases, including measles, between 2006 and 2014, Portugal recorded 19 cases of measles - almost all of them imported. In 2016, Portugal received a diploma from the World Health Organization (WHO) that officialized the country as being free of measles, because the few cases registered in recent years had been contracted in other countries.

The World Health Organization issued a statement in March 2017 that warned of the worsening of the measles situation in several European countries. The occurrence of measles outbreaks in some European countries, due to the existence of unvaccinated communities, put Portugal at high risk.

However, the number of measles cases in Portugal has exceeded that of the last decade in the first four months of 2017, according to several reports from the Portuguese Directorate General of Health (DGS).

Only in the first four and a half months of 2017, 28 cases of measles in Portugal were confirmed among 134 notifications received.

The epidemiological bulletin published, referring to the week of May 7 to 14, states that the confirmed cases are concentrated in the regions of Lisbon and Vale do Tejo (20), where the only death to date occurred, Algarve (7) and North (1).

Of the confirmed cases, 18 are reported to adults 18 years of age or older. According to the bulletin, measles led this year to the hospitalization of 13 people, all with discharge. Of the 28 confirmed cases, 17 did not have the vaccine.

In the regions of Lisbon and Vale do Tejo and in the Algarve, measles was confirmed in 12 health professionals, of whom 3 were not vaccinated.

In Portugal there is no reason to fear an epidemic of great magnitude, since the vast majority of people are protected because they were vaccinated or had previously had the disease.

More than 500 cases of measles have been reported this year alone in Europe, affecting at least seven countries, according to the World Health Organization (WHO), which warns that many cases of measles occur because of parents who do not want to vaccinate their children

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An Exploratory study of Consumer's perceptions and attitudes towards Functional Foods: The Health Claims

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ABSTRACT:

The overall aim was to carry out an exploratory study of consumer's perceptions and attitudes towards functional foods. The quantitative technique selected for this study was an online survey of Irish consumers. The survey consisted of twenty-six questions and was released online to participants after a pilot study was carried out first. The questions asked, focused on the consumer's demographic background, their knowledge of functional foods, their awareness of functional foods, how they perceive them and their willingness to use these functional products. The questions were set as multiple choice answers or the samplers were asked to rank using the likert scale. The survey was carried out and completed by 152 respondents. The amount needed to have substantial results was 100 respondents, so this exceeded the expected amount. It was concluded from the survey that consumers do not have a lot of information about functional foods, nor do they have much trust in the health claims that are on food labels. The attitudes the consumers have toward functional foods is that they do accept the functional foods. Although, the consumers do not have much knowledge on how functional foods work, and what their benefits are they are still willing to try the foods and do believe legislation should be in place for them. Consumers believe that functional foods or foods with health claims on the labels, can be a way to lead a healthier diet and that these foods are generally 'healthier foods'.

Keywords: *functional foods, legislation, health claims, consumers.*

INTRODUCTION

In recent years, many trends have hit the international food markets. Low fat, low in sugar, fat free, high protein, paleo, gluten free, are all examples of just some of the trends that have become popular in the past forty to fifty years. People are more health conscious and aware, and not only do they want food that tastes great, and satisfies hunger, but consumers want food that will give their body added health benefits. In every aspect, food is changing. The Irish Food Service market is worth 6.3 Billion Euros. (www.bordbia.ie, 2015), and this is rising year in year out. In Ireland, food is a massive industry, and this can be seen just from the sheer worth of the market. Food is changing, science is changing, nutrition is changing, and people are also changing. New science developments constantly lead to newer foods, and new ways of cooking and preparing foods. Consumers are consistently seeking for changes in the food market, many of the changes that arise do very well, are successful and stay in the market but, there is also a very large amount of food products and developments that fail within the first year of launching and never have any success.

The number of people suffering from illnesses in Ireland is growing annually. One in three people in Ireland will develop cancer during their lifetime, and on average, thirty-seven thousand people are new cases each year. This number is expected to rise to over 40'000 people by the year 2020 (www.cancer.ie). More than half of the over-50 population suffer with two or more chronic diseases. General health in the elderly people in Ireland has decreased dramatically, and is expected to continue this way. The era of chronic illnesses is still definitely thriving, although health care and science research is continually improving in Ireland, the amount of people suffering with illnesses is still rising each year. With consumers stringent for new food products with added health benefits, the revolution of Functional Foods was created.

Japan is the origin place of Functional Foods, the early 1980s was when these foods were launched. Although these foods are on the market and quite popular with consumers, and research has been carried out on them, they are still not quite understood in many countries and by many consumers. In addition to this these foods are not well legislated in Ireland. This research consists of three main parts: 1. The research and literature already existing about FF, where the concept was created and how it has been developed in the market worldwide. 2. The methodology of carrying out this research, focusing on consumers in Ireland. 3. The results and conclusion of this study and as well as the consumer's perceptions of these FFs will be discussed finally.

1.1 FUNCTIONAL FOODS

Functional foods, hold a diverse range of different definitions, as different institutions and bodies define 'Functional Foods' differently. All definitions have similarities with only minor differences. When the two words are split, it must be a food either natural or artificial, and it must hold a function as either benefiting the body or changing something within the body. *''Functional foods are defined as – any modified food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains''* (American Dietetic Association, 1995). FFs are foods that withhold a function in the body, foods that provide more to the body than just flavour or an appealing taste. *''Functional foods are foods or dietary components that may provide a health benefit beyond basic nutrition''* (International Food Information Council, 2006). *'Functional foods aim to maintain health, improve wellbeing and create the conditions for reducing the risk of disease'* (Heasman and Mellentin, 2001). *''Functional Foods represent one of the most interesting areas of research and innovation in the food industry''* (Schaafsma, Kok, 2005). *''Functional foods for health…is dedicated to the improvement of human health and the reduction of health care costs through research and education related to the identification of food components and the development of food products which have disease- preventative and health promoting benefits''* (Functional Foods for Health Program, 1999)

FFs were defined in the first published book by Goldberg as *''any food that has a positive impact on an individual's health, physical performance or state of mind in addition to its nutritive values''* (Goldberg, 1994). The area of FFs can be quite controversial. Some may argue that food can be used as medicine, and others, like larger drug manufacturing companies, would argue against this. In many eastern countries, foods are used for medical purposes and to even treat certain illnesses in some cultures. *''Functional food science represents one of the more controversial areas of food and health because it suggests using food and the components of food in relation to the treatment or prevention of disease- the territory of drug development rather than food consumption''* (Heasman & Mellentin, 2001). FFs definition can vary, depending on its phrasal and whom the definition comes from. In general, FFs are foods that maintain a function within the body. These foods could work towards preventing cardiovascular diseases, preventing the onset of certain cancers, relieving tiredness,

improving physical performances, helping people who suffer with allergies or maintaining general health and wellbeing.

1.2 Legislation of Functional Foods in the European Union.

As of yet, FFs have not been defined by legislation in Europe, because EU legislation does not consider FFs or nutraceuticals as specific food categories. There is a broad consensus that the EU needs a clear regulatory body for FFs to protect consumers. Consumers need a clear understanding of functional foods, and they generally want to have confidence in the scientific criteria behind FFs and their health claims. The EUFIC: European Food Information Council provides consumers with much needed information about foods and labelling. *''Due to the increasing interest in the concept of 'Functional Foods' and 'Health Claims', the European Union set up a European Commission Concerted Action on Fundamental Food Science in Europe (FUFOSE)''* (Functional Foods, EUFIC, 2006). This programme was set up to investigate and support the production of food products that may have a beneficial effect on a physiological function in the body, or a food that can support the health and well-being as well as reduce the risk of disease in a person.

The FUFOSE project focused mainly on six areas of science and health and these were: growth, development and differentiation, substrate metabolism, defence against reactive oxidative species, functional foods and the cardiovascular system and the effects of foods/behaviour on psychological performance (EUFIC, 2006). This EU action supports two main types of health claims that may be used on FFs. These claims are *''1.) 'Enhanced function' claims that refer to specific physiological, psychological functions and biological activities beyond their established role in growth, development and other normal functions of the body. And 2.) 'Reduction of disease risk' claims that relate to the consumption of food/food component that might help reduce the risk of a specific disease or condition because of specific nutrients/non-nutrients contained within it.''* (FUFOSE) Although the EU labelling requirements prohibit attributing any foodstuff to preventing, curing or healing any human disease, each country within the EU has different perceptions of the labelling legislation in place, due to the absence of a health claims organization. The European Food Safety Authority (EFSA) released a list of two hundred and twenty-two different approved health claims effective from December 2012. *''Most notable from this list was the exclusion of probiotics and antioxidants, thus prohibiting such claims to be placed on packaging in most member states of the EU''* (Attitudes to Food- Mintel 2013). This change influenced Activia, which is a branch brand of Danone. The original packaging from 2009 had a health claim on the label which stated, *'helps improve digestive transit'* but this was then removed from the packaging after the list was released. This is just one example, where the company did not have substantial scientific back-up evidence for the product and the health claim therefore had to be removed. A case study on EU legislation with FFs was carried out by a consultant with Berry Ottaway and Associates, P. Berry. The case study was regarding a powdered beverage mix which could be made up using any liquid, mainly milk, fruit juices or water. The beverage provided protein, carbohydrates and fats as well as fibre sources and fructo-oligosaccharides (prebiotic benefits). The product was being developed outside of the EU and efforts were made to access the EU market. This product fell under the dietetic range. *''There is a specific directive in force, 96/8/EC, which controls both the composition and labelling of foods marketed as meal replacements for use in weight control diets''* (Edited by Glenn R. Gibson and Christine M. Williams.). These products must comply with very strict regulations, and this product did not do so, therefore it fell into the range of convenient healthy beverages, which were applicable to a varied range of lifestyles. This case study covered the composition of the product and investigated each part of the product in detail. One of the most vital aspects of the product concept was the nutrition and health claims for the product. This is a very difficult legal area. The EU has legislation on food labelling, like previously stated. The legislation 79/112/EC prohibits the attribution of any foodstuff the property of preventing treating or curing any human disease. Constant further studies were needed to support any claims being made

with regards to this food product. *''The most detailed requirements are given in the British code on health claims. This requires that the claim must be based on a systematic review of all the available scientific evidence relating to the validity of the claim''* (Edited by Glenn. R Gibson et al. Ch. 2 page 37). The scientific research was required to back up and certify that this food product would contribute to a positive physiological benefit.

In 2003, Europe launched a new functional food network for the European food industry called the *FunctionalFoodNet*. It was mainly used for providing information to companies about FFs. It was targeted towards SMEs (small and medium enterprises) rather than large international corporations. Over 190 companies participated in Fine. This network was closed in 2010, but whilst it was open and running it helped with developments of new FFs. Companies could communicate and interact with one another on business deals, and possible ventures together on creating FF products. The network aimed to strengthen the FF industry, and to continue to create and innovate products and healthier foods.

1.3 Health Claims

Health claims are very important in relation to FFs. *''One of the most taxing and time consuming aspects of public policy in relation to FF is health claims''* (Clare. M Halser). Health claims are what drives FF out of stores and into consumer's hands. It's the aspect of the labelling that convinces the consumer that this product does something beneficial toward their health. The creation of FFs depends on the ability to make a health claim for the product. Creating a health claim can be an extremely expensive procedure, as scientific trials must be carried out to prove the benefits of the product. Health claims can be both vague or definite. As an example, a vague health claim would state 'this product helps the immune system' compared to a definite health claim that would state 'this product is rich in Vitamin C'. *''FF are marketed directly to consumers, who are unable to assess the implied health claims.''* (Craig, J. C., & Hodson, E. M. (2002).*87*, 118-23.). It is the government, and food regulator bodies responsibility to ensure consumers are not being misled by health claims on foods, and that these health claims are scientifically backed up with evidence. The key areas of FFs with regards to safety is the health claims and the validating of them. Another main area of safety is identifying and screening new potential functional ingredients for development in food products. New ingredients go through extensive research and tests before they are added to food products, and once they are added, then the claim they declare must be proven to work firstly via scientific trials or experiments. Consumers mainly worry if FFs are safe to consume daily as part of a normal diet. Constant research is being carried out on FF, and with the development of the FF industry over the past fifty years, it has been proven that FFs are safe to consume as part of the normal diet, and the aims of FFs is for added health benefits and the potential to prevent some illnesses.

2 METHODOLOGY

2.1 The Survey

The survey consisted of 26 questions in total, and was completed by 152 respondents. During this research, Quantitative research type is used. This type of research is deductive, using previous theories and established views already to go alongside the new findings and statistics.

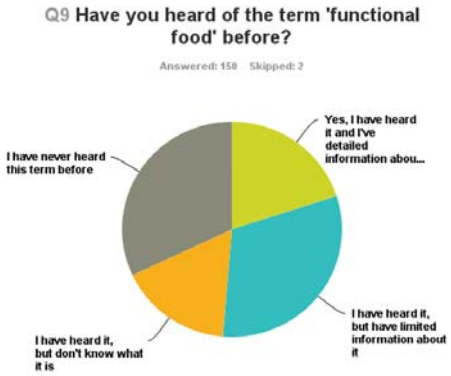
A selection of products was chosen that are FF products, which are found on the Irish food market in stores and supermarkets. These foods provide some sort of health benefit and most them do carry health claims on the packaging or labelling. The selected products in the survey are:

- Probiotics Yogurt
- Cholesterol Lowering Drinks
- Kefir (fermented milk drink)
- Fortified Milk
- Omega 3/DHA Eggs
- Margarine with added plant Stanols
- Probiotic yogurt drinks (Benecol)

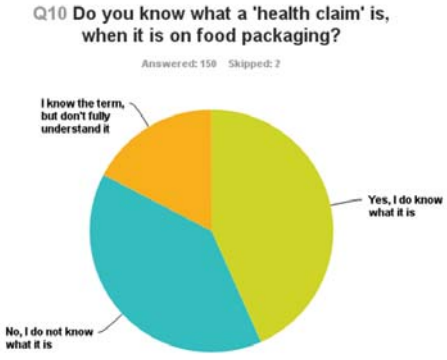
These FF products, would be considered some of the most popular foods on the market with their added health benefits, so the respondents were asked if they firstly knew about the product and if they had ever used them. Secondly they were asked about their willingness to use these products. The survey was designed to question the consumer about their demographics, knowledge and interest into functional foods and health claims in the Irish industry.

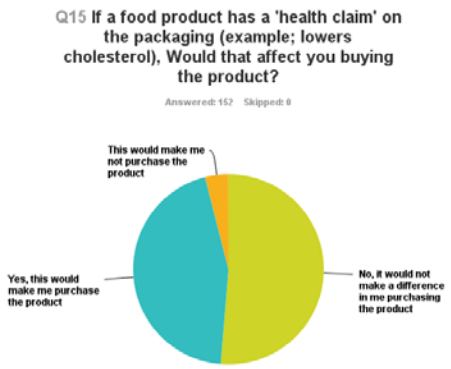
3. RESULTS

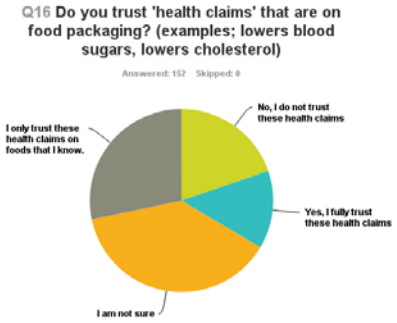
The results of the survey was split up into sections, and the consumers demographics were compared along with their knowledge of FF's and health claims. The graphs show how the questions were answered. The first chart shows the question 'have you heard of the term functional foods before'/ the majority had either never heard of FF's, or head of them but didn't know what they were.



The second chard asks the consumers do they know what health claims are. The majority answer that they do know what health claims are. Further results show though that the consumers don't fully understand health claims and their meanings.







3.1 Survey Findings

The survey was completed by 152 respondents. No specific target of consumers was aimed at for this survey, it was general consumers who carried out the survey. It was circulated to online platforms and email links.

The survey was semi split into sections. The first section was demographic questions, age, gender, occupation, education, family size and financial situation. The section was passed on people's interest and knowledge in health and nutrition and on FF and their purpose. The third section was based on consumer's awareness of FF, have they noticed them in shops before and were they aware of their contribution to the diet. The next section was based around their attitude: does claims on foods affect them purchasing the product, do they have much trust in these claims on labelling. Another section of the survey was based around the consumer's current health situation and their diet, and should FF be consumed as part of a daily diet. The final section of questions was based on general statements around FF, this was getting the consumers perceptions of FF and did they believe in them, do they agree that FF help the body in some way or do they disagree.

3.2 Demographics

The findings from the survey showed 46 males and 106 females completed the survey. This roughly was a 30%/70% ratio. Most the occupants were aged between 18 and 24 years of age with 75% of the respondents at this age. There were zero respondents age 65 or older, so no elderly people completed the survey. 64 people have full time jobs; this is almost half the respondents at 42%. The findings show that most people were single with a response rate of 70%. 10% were married. Most respondents at 48% have an institute or University degree. 7% have a doctorate/master's degree. With regards to household size, this varied greatly. 29% had four people living in the household, this was the most frequent answered. Second largest household size was three people with 21% answering with this. An average monthly household income was asked to get a rough idea of what kind of expenditure people were at. 30% of people were in between 3'500- 5'000 Euros a month. 14% of people were at under 2,000 Euros a month which would be considered a low income.

3.3 Knowledge/Interest

55% of people said they had a very general interest in health and nutrition. Only two people said they had absolutely no interest in it at all. The respondents were asked if they had ever heard of the tern 'functional food' before. 32% of people said they had never heard the term, and 17% said they had heard the term, but did not have any idea what it was. Respondents were asked about their knowledge of Health claims. 43% said they knew what a health claim was with 40% saying they did

not know what is was. Consumers were asked about the purpose of FF other than just satisfying hunger. 40% said they agree that FF have a purpose, 26% said they neither agreed nor disagree and 0.6% said they did not agree at all. A list of food products was then given. Respondents were asked to choose each food that they thought to be a FF out of the list.

4. DISCUSSION

Each part of the survey was designed to target specific areas, like the consumer's attitude, their demographic features, the consumer's perception of FF and their knowledge and interest in health, nutrition and diet. All these factors are very important for the research and for the findings of the survey. Functional foods are still considered a relatively new area to Irish consumers, and there are only few research papers and studies done on this subject in Ireland. Due to FFs being an innovative area and still under research and development, it could be expected that Irish consumers are not fully aware of what FFs are. Therefore, at the beginning of the survey that the respondents completed, a definition of FFs was given so as the consumer could have a brief understanding of the topic, even if they had not heard of FFs before.

4.1 Demographics

The survey was completed by 152 people in total. The demographic factors of all the respondents was collected with the first few questions of the survey. These can be seen in Table 2. Almost 70% of the participants were women, who in general in Ireland, carry out the food shopping for the household. Due to women being more inclined to buy food more often, it could be expected that they know about FFs more so than men. A comparison test was carried out. 30 people fully understood FFs and had heard of them previously, only 23% of them were men compared to 77% women. According to Urala (2005), female consumers have more potential to become FF users compared to males. This directly relates to the findings that women have more knowledge about FFs more so than men.

A large amount of the participants were in the age range of between 18-24 years of age. When age is analyzed, 75% were aged 18-24 and along with the 25-34 year olds these two age groups combine to 90% of the participants. The age of consumers, does greatly affect their attitude toward FFs. Elderly people, who may have little to no knowledge about FFs may not be as open minded about these foods as people who understand their functions and how they work. Elderly people tend to generally be consistent with foods that they know and trust, and would not be as open as younger adults like the 18-34 year olds to try new foods. The findings from this research relate to a study carried out by Childs and Poryzees (1998; 443), younger adults in the age range of 20-30 are more interested in preventative effects of eating behaviour whilst older consumers don't see much of a link between food and health/disease. The consumers were asked about their willingness to try some FF products, and for one example of a probiotic yoghurt, 61% of the 18-24 year olds said they were strongly willing to try this product. These findings do clash with studies done by Poulsen (1999) and Verbeke (2005; 52) where they found that older consumers show higher intentions of buying FF products and that they tend to accept these products more. Urala (2005) also shows that the elder consumers show more of an interest in disease preventative foods compared to younger consumers. This could be due to the rise in the amount of people suffering with diseases and illnesses. In this survey, when the consumers were asked if a product had a health claim on the labelling, would the claim affect them purchasing it. 60% of the 55-64year olds said a health claim would not change their decision, and 43% of 45-54 year olds said the same. Also the majority of people said they were not sure if they trusted health claims on foods. 60% of the 55-64age range respondents said they trusted health claims, but only on products or brands they know and use. 39% of the 18-24 year olds said they were unsure about trusting health claims, with only 15% of that age range fully trusting them.

The majority of people are also single, with 70% of the respondents considered single. Only 9% are married with 20% of the respondents in relationships. This demographic feature affects the consumer's attitude: because if a person is buying only for themselves they have less to consider like buying for other people, they are free to try new foods and also may have more expenditure to spend on food for one person rather than for five people. Although, marital status is not a very significant factor, it is probably the factor that least affects consumer's attitudes and perceptions of FF. Demographic factors do play an important part in analyzing the results and understanding the consumer's attitudes and perceptions toward FFs.

Education is also an important demographical factor. In general, the more educated a person is, the more knowledge and understanding they could have. According to Anttolainen, Luoto et al., (2001), FF buying consumers are found to be more educated than non FF consumers. Higher education is considered either a university or institute degree and a masters or doctorate degree. Secondary school or equivalent education is considered middle education. Primary school is considered to be lower education. 58% of the participants have higher education levels with the rest being at middle education at 40%. 4% had doctorate degrees, which is the highest level of education a person can receive. 7% had master's degree, and 48% had Institute or University degrees. This shows that most the samplers were very well educated in general. When comparing education with the respondent's knowledge of FFs, 76 people in total had heard about FF and either had good or limited information about them. 35 out of the total 76 respondents had a University or Institute degree.

The monthly household income is also a demographic factor which was considered in the survey. This is an important factor to know, because income then reflects onto that consumer's financial situation. The person's income can greatly affect their attitude toward FF, because if they have a large amount of money to spend on foods/groceries each week they can then purchase more products at higher costs, compared to a person with a little amount of finances available, that will only purchase the necessities with regards to food. 30% of people were in the range of 3500 to 5000 Euros a month, which is an average for Irish consumers. Over 5,000 Euros is considered a high wage in Ireland and 28% of the respondents were at this rate. It could be expected that the people with doctorates have the higher wage, but only four out of the six reported to have an income of more than 5'000 a month. Since FFs generally have a slightly higher price than normal convenience foods, the income of the household will determine whether the consumers buy on a budget or spend a generous amount on foods each week. A low income is considered as less than 2'000 Euros a month, and almost 14% are sitting at that range. Although income is an important factor in consumer's attitudes, this demographic factor relates to the amount of people in each household. Some consumers may have a very high income, but also more people to purchase food for, or vice versa with a very low wage and only a singular person to purchase for. 80% of those at the lower income are in the age range of 18-24 and 38.10% of them are full time students, so this low income can be expected. The IFIC carries out frequent studies with American consumers about FF and their attitudes toward them, and they found the most common barrier to FF consumption is costs. Over half of the consumers (55%) identified that as their major reason for not consuming FFs. This shows how FF products are generally more expensive than conventional products in the stores.

Another aspect that can affect the consumer's perception of FF is the culture in which the person is in. Some cultures aim to stick with natural foods, non-processed and products that have been

minimally touched before hitting the shelves of shops. Other cultures, sometimes more developed ones like foods that have been processed and see these as more convenient for the fast paced lives, in cities or built up urban areas. Food products greatly differ from country to country with the globalization of the FF industry. Per a study carried out by Jonas and Beckmann (1998; 28) cultural differences do affect perception of food and diet relationship. The Danish consumers showed a strong reluctance toward foods that had been modified and fortified, because these processes seem totally unnatural to them. But the English consumers perceived them as a convenient way of maintaining a healthy diet, therefore they were positive about the FF products in that study. With regards to Irish consumers, in general they would perceive these foods as processed and fortified but their attitude of them would still be accepting of them. From this survey, 55%, so more than half of the respondents think that FF should be consumed daily, and almost 40% of them think that FF products make it easier to follow a healthy diet. This shows how culture can affect a consumer's attitude towards food.

4.2 Knowledge of Functional Foods

The participant's knowledge of FF was questioned. The answers were categorized into 1. Yes, having knowledge about FF, 2. Yes, but having limited knowledge about FF and 3. No knowledge at all about FF. Having information or already existing knowledge of FF will affect the consumer's attitude toward FF. 20% of the respondents stated that they had heard of FFs and also had detailed information about them, compared to 32% of people who had never even heard of the term 'functional food' before. If a consumer has not heard of FF before, their perception of them can be different and may be not as accepting as someone who knows about the foods and what they do. The respondents were asked about their interest in health and nutrition. It could be expected that a person who is very interested in their own health and well-being would be informed and know about FFs. 23% of the respondents had detailed knowledge on FF and were very interested in 'Health and Nutrition'. If a person has no interest in health/nutrition, then it would be expected they would have no knowledge of FF or of health claims on packaging. Out of the consumers who were 'not very interested' in health/nutrition, 17% of them had never heard of the term FF. 49% of consumers had not heard of FF before, and also did not know what a health claim was. These findings do show that having knowledge in FF does change people's thoughts on FF.

4.4 Diet/Health and Functional Food Perceptions

The consumers were asked about their diet, do they consider it to be healthy, do they maintain a balanced, nutritional diet. This is a key area to focus on when looking at consumer's attitude. Consumers who have a positive attitude toward FF, would generally try and eat a balanced/healthy diet on a daily basis, compared with someone who does not eat healthily, they would generally not be as open to FFs. 40% said they try to eat a healthy, balanced diet every day, and 10% said they did not at all. How the consumers perceive FF is vitally important? Whether they perceive them as safe or unsafe, healthy/unhealthy, or clear and understandable. On the other hand, consumers may think that these foods are just confusing with all different claims and notices on the packaging. The qualities of the FFs should be communicated to the consumer clearly, so that they can understand what they are purchasing and if this product will benefit them in any way. The consumers were asked to rank a few different statements, using the Likert scale (1-5). These statements included: 1. Functional foods are completely necessary in the diet, 2. FF make it easier to follow a healthy diet, 3. FF help the body fight disease, 4. FF are only for people who are ill or in bad health, 5. FF are too expensive and 6. FF are false advertising. Each statement was responded to by 152 consumers. With regards to statement number one, 43% said they were unsure if FF are really necessary in the diet, but 12.5% said they completely agreed, and that FF do pose benefits that are necessary. 40% said

they agreed that FF make it easier to follow a healthy diet, this shows that the consumers perceive FFs as a sort of 'health foods'.

When asked about FF and if they are too expensive, 32% said they felt they are too pricey, this is compared to other convenience foods in stores. When the last statement was given, about FF being false advertising and not proven to work, 53% said they were unsure about this. Meaning they neither agree nor disagreed with this statement. This could be due to consumers not fully trusting these foods, and believing that they have added health and nutritional benefits.

The difference is with functional foods, consumers can not perceive them just by the flavour or texture of the product, because they are health benefits the product is promoting. Therefore, the consumer has to trust the health claims that accompany the product.

CONCLUSIONS

To conclude this research, the results have investigated and evaluated the consumer's attitude and how they perceive functional foods in the Irish food market. Not many research studies have been carried out on Functional Foods in Ireland. Therefore, the findings here have been compared to studies from both the EU and the US. The findings show that there is a significant amount of consumers who do have knowledge and understand functional foods. There are also consumers who have never heard of functional foods before and who also have no knowledge of what health claims are. With consumer trends and an always changing food market, the functional food industry has been very successful and continues to grow annually. People are becoming more and more comfortable and accepting of these products, knowing that they have added health benefits to the body. Consumer's still do not seem to have one hundred percent trust in the health claims that are on the food labels, this could be due to many occurrences of misbranding and false advertising by companies around the world. With regards to health claims, consumers are still quite uneducated on what they are and their functions on a food label. More information on health claims could be made available for consumers to understand what they are purchasing. Regulations and legislation has eventually been put in place in the US, and there are labelling laws for the EU that restrict certain health claims. Some consumers perceive FFs as sort of 'health foods' and think of them as following a healthy diet, when this is not the case and FFs are meant to supplement an already healthy diet and add extra health and nutritional benefits. They are not the main part of a healthy, balanced diet which is what some consumers perceive them to be. This study shows there are many factors that affect the consumer's attitude toward functional foods, and with how they perceive them. Demographic factors play a large role in affecting attitude which can be seen with the comparisons between the FF knowledge and gender, age and education. The aims of the study were met; the study was carried out in the form of a survey and results were analyzed to look at the attitude of consumers and how they perceive functional foods.

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14th ANNUAL SCIENTIFIC CONFERENCE

Conference dates: 6th and 7th April 2017

Venue: Silver Springs Hotel, Kampala, Uganda

Guest of Honour: Hon. Dr. Joyce Kaducu Moriku, Minister of State for Primary Health Care, Uganda

THEME: PUBLIC HEALTH INTERVENTIONS: A KEY RESPONSE TO EMERGING AND RE-EMERGING GLOBAL HEALTH CHALLENGES

Conference objectives

1. To discuss the current state of emerging and re-emerging global health challenges.
2. To demonstrate how public health interventions are a key to solving global health challenges.
3. To create a platform for sharing experiences and encourage public health innovations.
4. To demonstrate the importance of multi-sectoral collaboration in handling complex health challenges.

The conference had key note addresses from Dr. Kibuuka Hannah – Executive Director Makerere University Walter Reed Project (Uganda) and Dr. Linda Gibson – Senior Lecturer in Public Health at Nottingham Trent University (UK). Overall, 50 abstracts were received from 10 countries around the world, 39 were accepted and 29 presented (oral and poster) in 8 sessions in which over 180 participants attended. Several topics were presented including: open defecation; water, sanitation and hygiene (WASH); food hygiene; nutrition; disabilities; tuberculosis treatment; student-led interventions; one health; community health workers; surveillance for public health emergencies; domestic accidents; occupational hazards; Personal Protective Equipment (PPE); and career guidance for early environmental health professionals. After each session, there were discussions followed by a 10 minutes expert opinion. At the end of the conference, a draft statement for the conference was read to the participants. The 14th MUEHSA conference was a big success and an outstanding contribution to Environmental Health and we look forward to the 15th annual conference in 2018.

Minister of State for Primary Health Care Dr. Joyce Kaducu Moriku (left) during the opening plenary.

Conference participants during one of the sessions.

Students pose for a photo with the Minister and other dignitaries.

STATEMENT OF THE 14th ANNUAL SCIENTIFIC CONFERENCE BYMAKERERE UNIVERSITY ENVIRONMENTAL HEALTH ASSOCIATION (MUEHSA)

The world today continues to grapple with emerging and re-emerging infectious diseases that can appear suddenly and in full force. Through annual scientific conferences, MUEHSA and Makerere University School of Public Health build a platform for sharing and discussing sustainable solutions to public health challenges affecting the region and the world at large. This 14th Annual scientific conference's theme was: Public health interventions: a key response to emerging and re-emerging global health challenges. To achieve the objective of reducing the impact of emerging and re-emerging disease through public health interventions and innovations, we had over 180 participants from 3 nations including Uganda, Somalia, UK and Rwanda.

Recognizing the current state of emerging and re-emerging global health challenges, and the health sector's efforts to control the most recent major public health emergencies of both local and international concern, the conference informed by 8 sessions and expert discussion recognized the significance of enhancing of efforts to focus on people-centred public health interventions, as a key response to emerging and re-emerging global health challenges.

In addition, the deliberations at the conference raised the following points:

1. Increasing use of counterfeit vaccination cards at entry and exit points of Uganda is a risk to the health of travellers and the health of the international community. This situation has the ability to cause significant damage to the reputation of the nation's health system and result in fewer travellers to Uganda which can reduce revenue from tourism, and international business. Government and other concerned authorities should make strict efforts to end this.
2. Despite the continuous misunderstanding on a number of factors embedded in the proposed community health extension workers' program in Uganda, our nation deserves the best reach for primary health care possible. We agree that the ministry of health's program is for the enhancement of the efforts towards achieving health for all people in Uganda. We recommend that clarification on emerging queries is immediately done especially for the rest of the human resources for health as well as the Village Health Teams directly affected by initiation of this program.
3. Health is about interdependence. Being that the determinants of health of populations cut across different aspects of life, so should the methods to protect, restore and maintain it. We promote synergy of sectors and partnerships to ensure sustainable response to emerging and re-emerging diseases. The one health approach should therefore further be developed and implemented.
4. Innovation in public health is a pillar for resilience against emerging and re-emerging diseases. It is important that the health sector continues to research, design and redesign innovative approaches for the promotion of health. Students/youths/young people and others should be engaged in innovation to promote public health and reduce occurrence of emerging and re-emerging diseases.
5. Depression is now one of the leading causes of ill health and disability worldwide. Gender-based violence, post traumatic events, accidents and torture are major contributors to depression and psychiatric disorders.
6. Occupational health is a neglected field of public health. The disadvantaged people in life continue to be taken advantage of by being placed in high-risk positions without provision of necessary personal protective equipment. Health regulations concerning safety have been poorly implemented. More research is needed in order to inform policy formulation and formulation of more programs focused on occupational health.