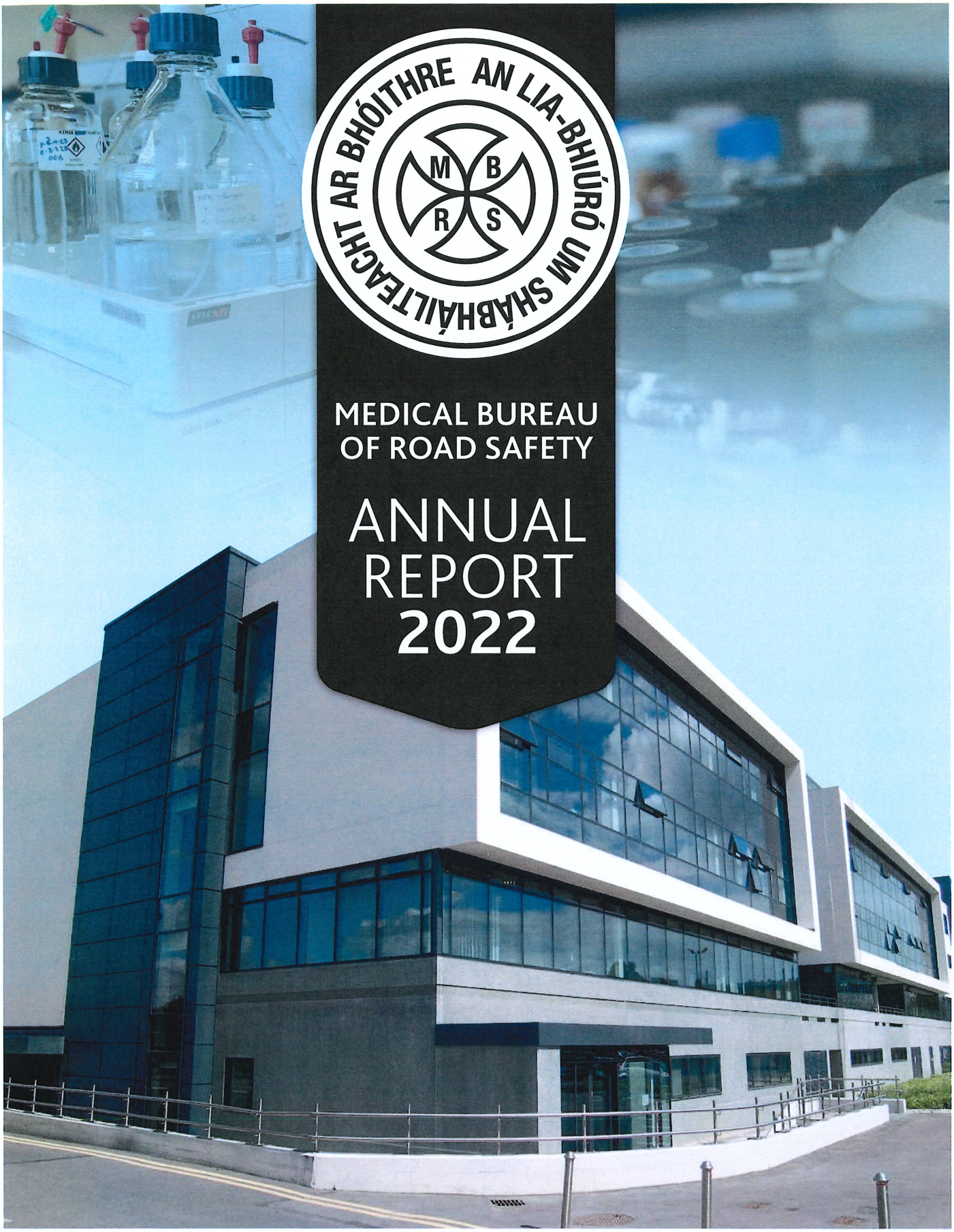


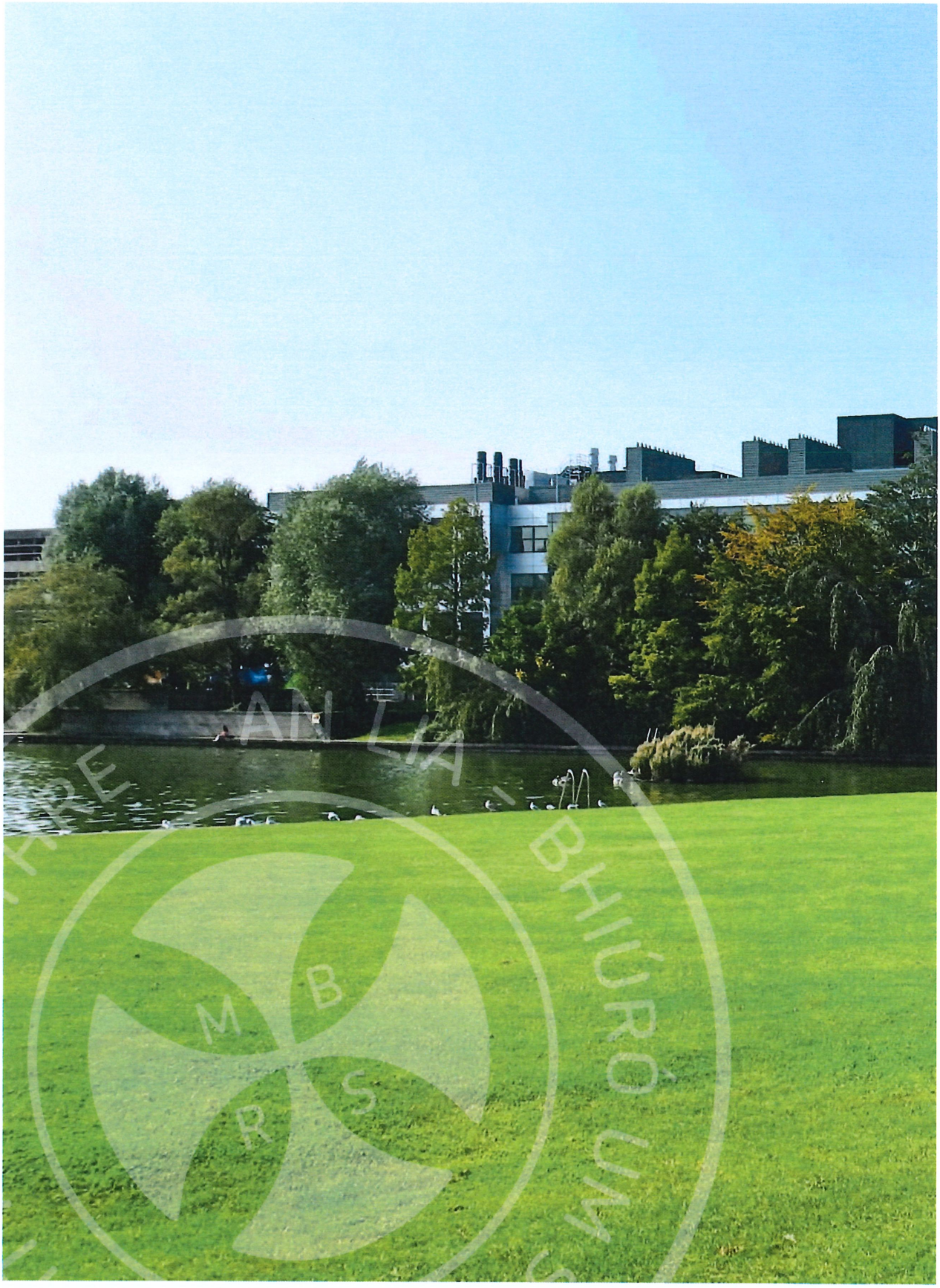
AN LIA-BHIÚRÓ UM SHÁBHÁILTEACHT AR BHÓITHRE

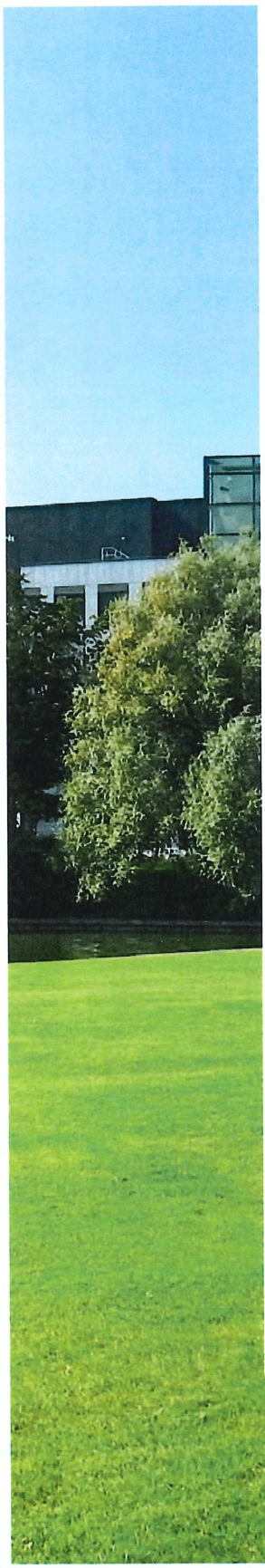
MBRS

# MEDICAL BUREAU OF ROAD SAFETY

# ANNUAL REPORT 2022

MEDICAL BUREAU OF ROAD SAFETY, HEALTH SCIENCES CENTRE, UNIVERSITY COLLEGE DUBLIN, BELFIELD, DUBLIN 4





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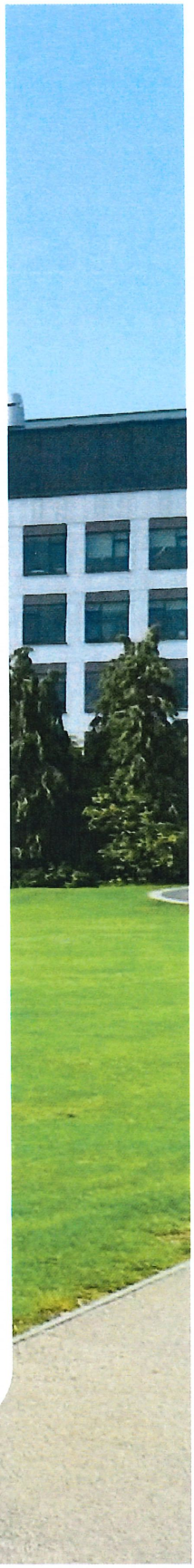
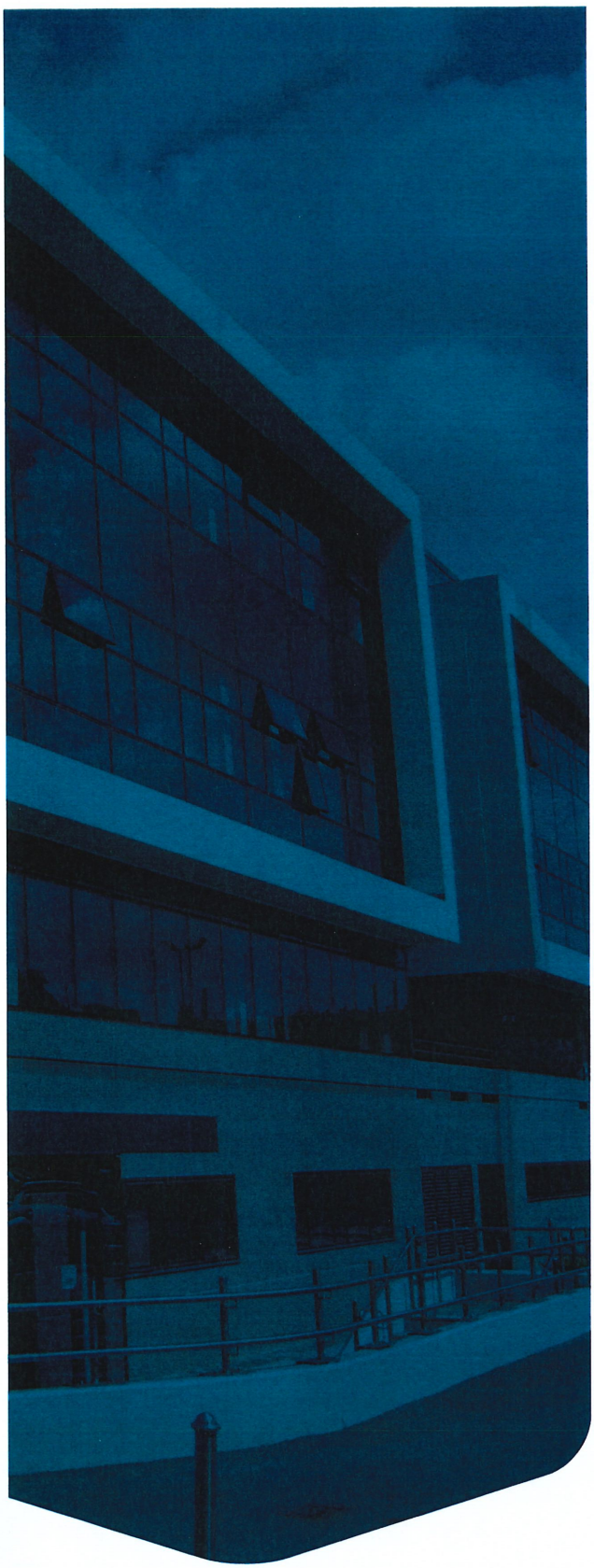




# Director's Introduction

The Annual Report for 2022 sets out a comprehensive account of the Medical Bureau of Road Safety's activity and performance for the year. It again provides relevant, current and important information, data and illustrative figures on driving under the influence of intoxicants. The Bureau continued to play an integral role in the Road Safety Strategy 2021 – 2030 with particular reference to Actions 23 and 119 on the Alcohol Interlock Devices Programme; Action 24 on Impairment Testing; Action 31 on consideration of legislation for Polydrug Traffic Offence penalties; and Action 163 of the programme for procurement and roll out of new Preliminary Drug Testing Devices. The Bureau also continues as one of the partners on other Actions of the Strategy and in the overall implementation of the strategy through its participation in the Road Safety Strategy Partnership Board and the Ministerial Committee on Road Safety.

The Bureau provides an integrated and high quality national forensic scientific and medical service in intoxicant detection and research. This plays an integral and central role in reducing deaths and injuries on Ireland's roads which tragically increased from 137 in 2021 to 155 in 2022. In redoubling its efforts to achieve the target of "vision zero" for road deaths and injuries by 2050 the Bureau continues its work in close partnership with the Department of Transport, An Garda Síochána, the Road Safety Authority and other national and international bodies.

The Covid-19 pandemic was a major challenge for the Bureau in 2020 and 2021, as for all individuals and organisations, requiring implementation of robust and workable health and safety measures to ensure that the essential functions of the Bureau continued to be carried out in a safe manner with minimal disruption to the forensic work. The dedication of the staff of the Bureau reflected their high standard of professionalism and ensured uninterrupted service into 2022 during which there was a return to a near-normality with easing of the pandemic measures.

The number of specimens received for analysis by the Bureau continued at a high level of 5,622 specimens, lower than in 2021 but still higher than the numbers in pre-Covid 2019 (4,854). Evidential Breath Testing numbers increased to 3,821 from 3,157 in 2021.

A major achievement in 2022 was in relation to Action 163 of the Road Safety Strategy which was brought to a successful implementation on time and within budget with the launch of the new roadside drug testing device, the Securetec DW6S preliminary drug testing system, introduced nationwide to replace the Dräger device in December. The newly available cassette system (not unlike the now-familiar Covid antigen test method) can test for Cannabis, Cocaine, Benzodiazepines, Opiates, and in addition a further two drugs, Amphetamine and Methamphetamine, at the roadside. The new system will increase the detection capacity of the Gardaí for drug intoxicated driving.

Alcohol remained the most frequently detected intoxicant in drivers and the median alcohol level in blood was 160mg/100ml and in urine was 198mg/100ml when specimens with no trace of alcohol were excluded. Alcohol intoxicated driving remains a very significant danger on Irish roads with many drivers driving when several times over the legally set limit of 50mg/100ml (blood) and 67mg/100ml (urine) with lesser limits of 20mg/100ml and 27mg/100ml for the specified drivers (learner, novice and professional or heavy vehicle driver).

For drug intoxicants other than alcohol the three most common detected drugs in 2022 continued to be cannabis, cocaine and benzodiazepines. The mean level of cannabis found in samples was 6.2ng/ml and of cannabis THC acid was 65ng/ml (the legal per se limits being 1ng/ml and 5ng/ml respectively). The mean level of cocaine was 34.1ng/ml and of benzoylecgonine was 604.6ng/ml (per se legal limits being 10ng/ml and 50ng/ml respectively). These results reflect the high levels found in cannabis and cocaine intoxicated drivers which are well in excess of the legal limits set by the Oireachtas.

The frequent finding of combinations of drugs and drugs with alcohol continued to be of concern.

The report sets out in detail the demographics of drivers who provided samples for analysis and includes a breakdown of specimens by county and also from drivers outside of Ireland. Analysis was carried out to assess the number of drivers who had repeat arrest specimens sent for analysis. In 2022 36 drivers were arrested three times and 172 drivers were arrested twice. The issue of repeat and high-risk DUI offenders requires to be addressed legislatively, in the prosecutorial process and also in medical rehabilitation. This needs to be done co-operatively by the Bureau and a number of other bodies.

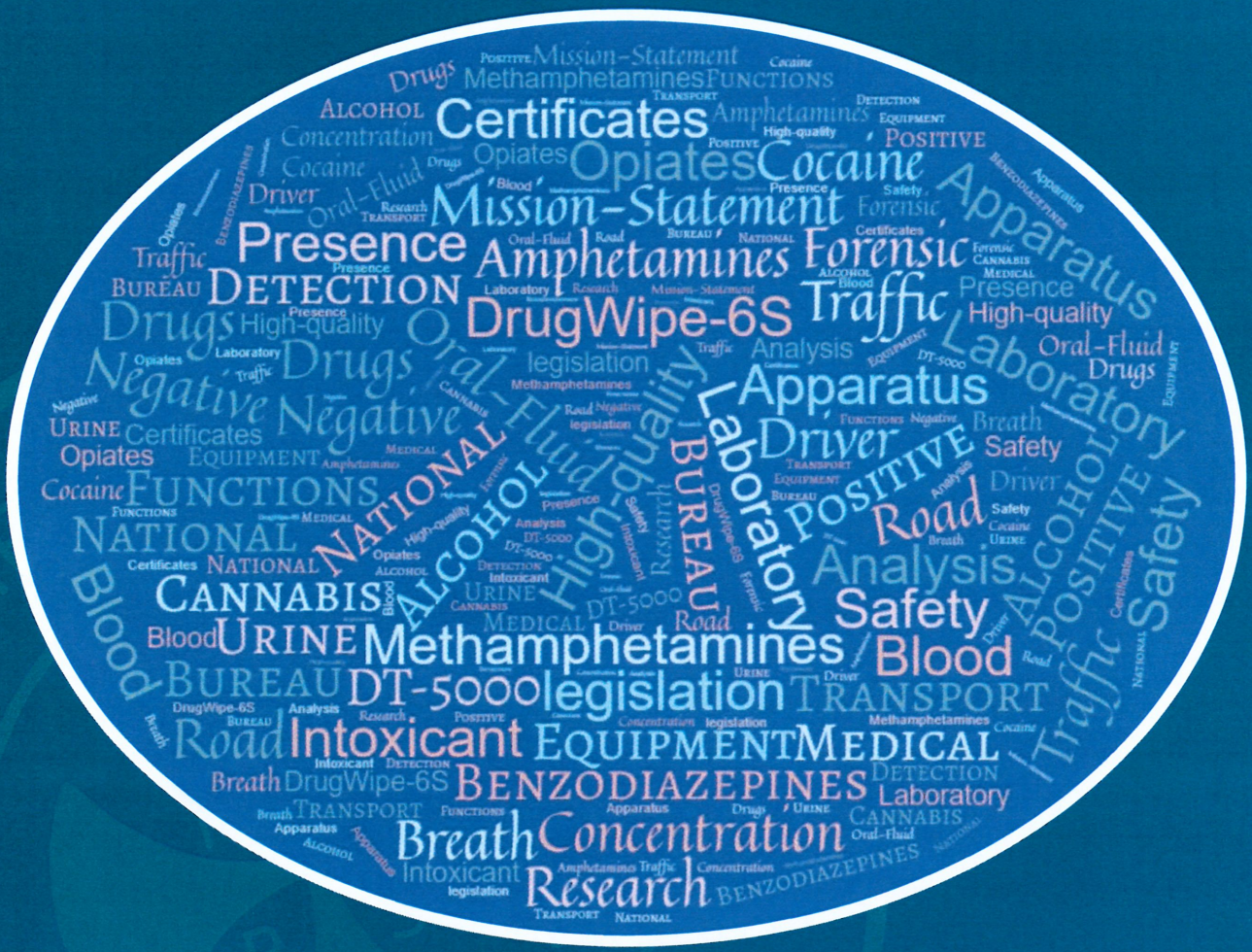
The Director and staff continued to attend courses and conferences in 2022 with a combination of hybrid and gradual return to in-person meetings. Staff of the Bureau continued to contribute to a variety of national and international specialists' bodies in forensic scientific testing for driving under the influence of intoxicants. The Bureau, through the Director, played a role in the International Council on Alcohol and Drugs in Traffic Safety (ICADTS) and two presentations were made at the ICADTS Conference T2022. The Bureau also continued its active membership on the National Office for Traffic Medicine and the Royal College of Physicians in Ireland on medical fitness to drive guidelines, although this office ceased to operate in 2022; and on the UK Department of Transport's medical advisory panel on alcohol, drugs and substance misuse and driving.

Thus 2022 was again a busy and productive year for the Bureau which looks forward to its ongoing and expert contributions to improve and support road safety for all road users into 2023.

**Professor Denis A. Cusack**
**Director**

# MISSION STATEMENT:

*"To provide a high quality national forensic service in alcohol and drug (intoxicant) detection in support of the effective operation of the road traffic legislation and contribution to transport safety and medical fitness to drive measures."*



# FUNCTIONS OF THE MEDICAL BUREAU OF ROAD SAFETY

The responsibility for chemical testing of intoxicants in driving in Ireland rests with the Medical Bureau of Road Safety which is a corporate body established in November 1968 by the Minister for Local Government under Part V of the Road Traffic Act, 1968.

The Minister's title was altered to Minister for the Environment & Local Government on 22nd July 1997. In June 2002, the Medical Bureau of Road Safety came under the aegis of the Minister for Transport under the Transfer of Departmental Administration and Ministerial Functions Order 2002.

From 2011 to September 2020 the Medical Bureau of Road Safety was under the Department of Transport, Tourism and Sport. The Medical Bureau of Road Safety is now under the remit of the Department of Transport.

The functions of the Bureau are laid down in the Road Traffic Acts 1968 – 2016.

When the Bureau was established in 1968 it commenced operating for Roadside Alcohol Testing, Blood and Urine Alcohol Analysis, the Issue of Certificates and provision of equipment for the taking of specimens (kits).

There have been many legislative changes such as the introduction of evidential breath alcohol testing (EBT) and driving under the influence of drugs (DUID), specimens provided in hospitals, specimens taken from drivers involved in collisions and mandatory intoxicant testing to include Preliminary Breath Alcohol testing (PBT) and Preliminary Drug Testing (PDT). The Bureau issues certificates under section 17 of the Road Traffic Act 2010 (as amended 2016), certifying the concentration of alcohol in blood or urine, certifying the presence of a drug or drugs in blood or urine and certifying the concentration of a drug or drugs in blood.

The Road Traffic Act 2018 introduced a more severe penalty for drivers having alcohol levels between 50mg/100ml and 80mg/100ml blood and equivalent in urine or breath, recognising that even at low levels of alcohol driving is impaired.

Statutory Instrument 385 of 2020 provided for the issuing of Certificates under section 17 of the Road Traffic Act 2010 for the presence of particular drugs rather than the class of drug only. Concentration of drugs for those listed with per se limits under the Road Traffic Act 2016 are issued on the same certificate where appropriate. This has streamlined the reporting process and offers more information to the Driver, An Garda Síochána and the Court.

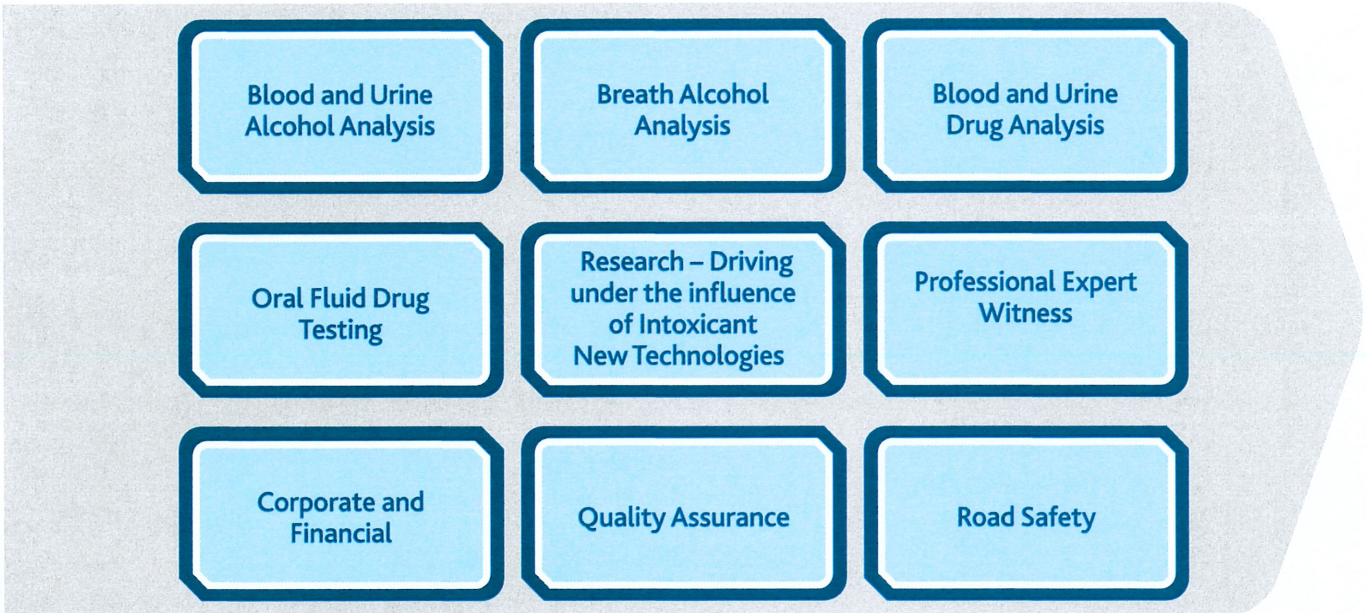
Through 2022 the Bureau continued to focus on its legal responsibilities as set out in the Road Traffic Acts (RTA) and lead in several Actions in the Government's Road Safety strategy 2021-2030 while playing a collaborative role in other actions lead by the RSA.

The Bureau operates to fulfil the interconnected functions below.

The Bureau continues to keep up to date with technology and use the best methods of analysis. It has kept abreast of innovation in instrumentation in the field of alcohol and drug detection both in the laboratory and outside of the laboratory – roadside and Garda stations.

The Bureau provides a service to the Department of Transport, the Courts, An Garda Síochána, the Aviation Authority of Ireland, defence, prosecution and the public.

The continued successful operation of the Bureau is dependent on the investment in staff training and skill enhancement. The Director is responsible for the day to day running of the Bureau in all of its Statutory functions under the Road Traffic Acts 2010 and 2016. The Chief Analyst is responsible for the day to day running of the laboratories and their programmes. Each programme has a programme manager at Principal Analyst level. The Senior Administrative Officer is responsible for the Corporate/Financial programme and for overall administration within the Bureau. The Bureau has a Quality Manager at Principal Analyst level.



# ACHIEVEMENTS & DEVELOPMENTS DURING 2022

## Preliminary Drug Testing

Preliminary Drug Testing (PDT) continued to increase at a moderate rate throughout the country. Action 163 of the Road Safety Strategy 2021-2030, to introduce an improved preliminary drug testing system for use by An Garda Síochána, was implemented on 1st December 2022. The Securetec DrugWipe was well received by operational Gardaí and provides them with a more transportable system with an increased number of drugs that can be detected at the roadside.

## Laboratory Preliminary Drug Screening

The Bureau continues to carry out Preliminary Drug Screening using LC-MS-MS for the analysis of drugs. All specimens which had an alcohol level of less than 100mg/100ml blood or equivalent were screened for the presence of drugs. The LC-MS-MS screening method allows the specific drug or drugs to be identified at this preliminary stage.

## Laboratory Confirmatory Drug Testing

All specimens that screened positive for a drug or drugs were forwarded for confirmatory analysis. In July 2021 the laboratory limited drug testing to confirm only one drug per specimen, this schedule of testing continued through 2022 which ensured that turnaround times were kept within reasonable times. Full confirmatory testing will be resumed in 2023. In many cases polydrug use was evident from the screening test. The Bureau certifies the presence of drugs and certifies the concentration of those drugs specified in Schedule 2 of the Road Traffic Act 2016. All laboratory drug testing is carried out in the Bureau's facility in University College Dublin.

## Preliminary Breath Alcohol Testing

Preliminary Breath Testing (PBT) devices are provided to An Garda Síochána for use at the roadside to test a driver's breath for the presence of alcohol. The Bureau continues to calibrate these devices twice yearly and there are approximately 1,400 available for use by the force.

## Evidential Breath Alcohol Testing

Evidential Breath Testing (EBT) instruments are tested twice yearly. The Bureau continued to maintain 87 evidential breath alcohol testing instruments in Garda stations nationwide.

## Quality Assurance

Following an audit by INAB (Irish National Accreditation Board) in early 2022, ISO 17025 accreditation was maintained.

The Bureau's flexible scope allowed additional analytes to be added to the drug testing panel with ease.

## Health, Welfare and Safety

The Bureau is committed to providing a safe environment for all employees, visiting engineers, Gardaí and others. The Bureau Safety Statement was reviewed and throughout the year Safety Monitors continued to assess and maintain the highest safety standards. University College Dublin's parent Safety Statement is adhered to and staff in the Bureau have access to the full suite of health and wellness offerings made available by the university. There were no reportable or significant accidents or incidents in the year.

## Knowledge Sharing and Development

Bureau staff and the Director continued to present at a number of meetings which were in the main held virtually. Training of Gardaí by the Bureau was resumed in 2022 after several years of not being provided due to Covid-19 safeguards.

Bureau scientists sit on national and international standards and knowledge sharing committees and working groups including OIML (International Organisation of Legal Metrology), CEN, Eurachem, UKIAFT (United Kingdom and Ireland Association of Forensic Toxicologists) and EMCDDA (European Monitoring Centre for Drugs and Drug Addiction). The work of these committees continued virtually. The Director is a board member of the International Council on Alcohol, Drugs and Traffic Safety.

## Consumables Supply to An Garda Síochána

The Bureau supplies consumables to An Garda Síochána to facilitate enforcement of the Road Traffic legislation with regard to intoxicated driving. Provision of such consumables is demand driven and the Bureau liaises closely with the Garda National Road Policing Bureau having oversight of all requests for stock and replacement devices.

# SPECIMENS RECEIVED IN THE LABORATORY FOR ANALYSIS

In 2022, a total of 5,622 blood and urine specimens were received for alcohol and/or drug testing. Of these, 3,793 proceeded to Toxicology for further drug screening. There were 3,821 driver's breath tested on Evidenzers in Garda Stations.

Of the 5,622 specimens received in 2022 this is a 4% decrease when compared to 2021 but a 16% increase on the pre-covid 2019 figure of 4,854. Of all specimens received 15% were urine and 85% were blood.

*Table 1: Total Number of Specimens Received within Programmes*

| Programme | 2022 | 2021 | 2020 | 2019 |
|---|---|---|---|---|
| **Alcohol Blood & Urine (page 16)** | **5,622** | **5,862** | **5,967** | **4,854** |
| **Toxicology Blood & Urine (page 24)** | **3,793** | **4,321** | **4,489** | **3,229** |
| **Evidential Breath Testing (page 18)** | **3,821** | **3,157** | **3,278** | **5,372** |

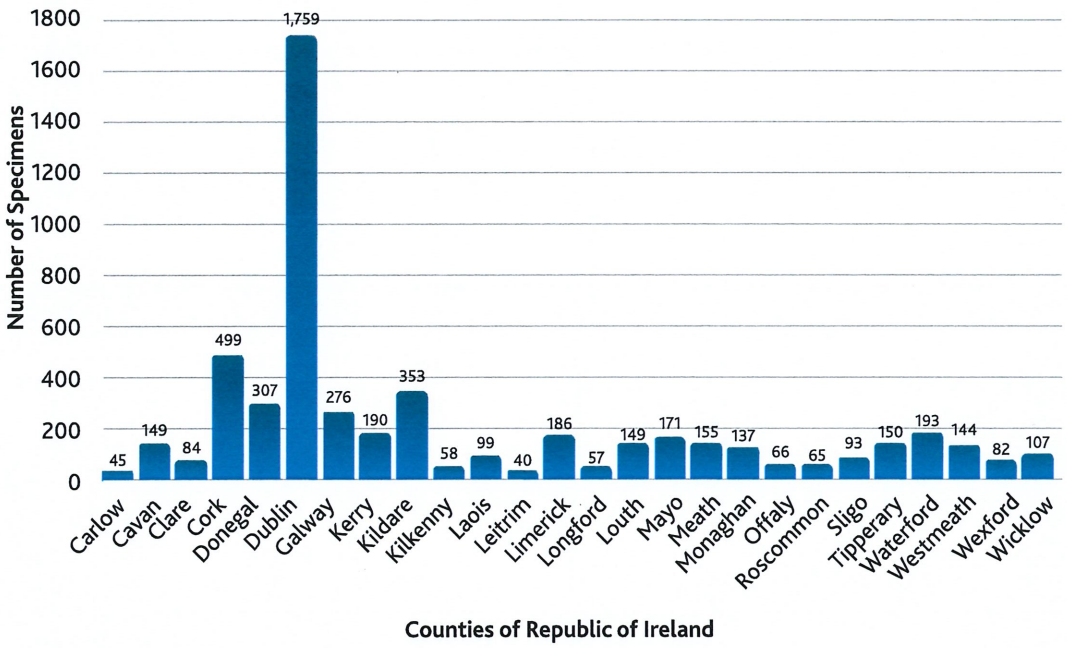



*Figure 1: Blood & Urine Specimens received by County of Garda Station*

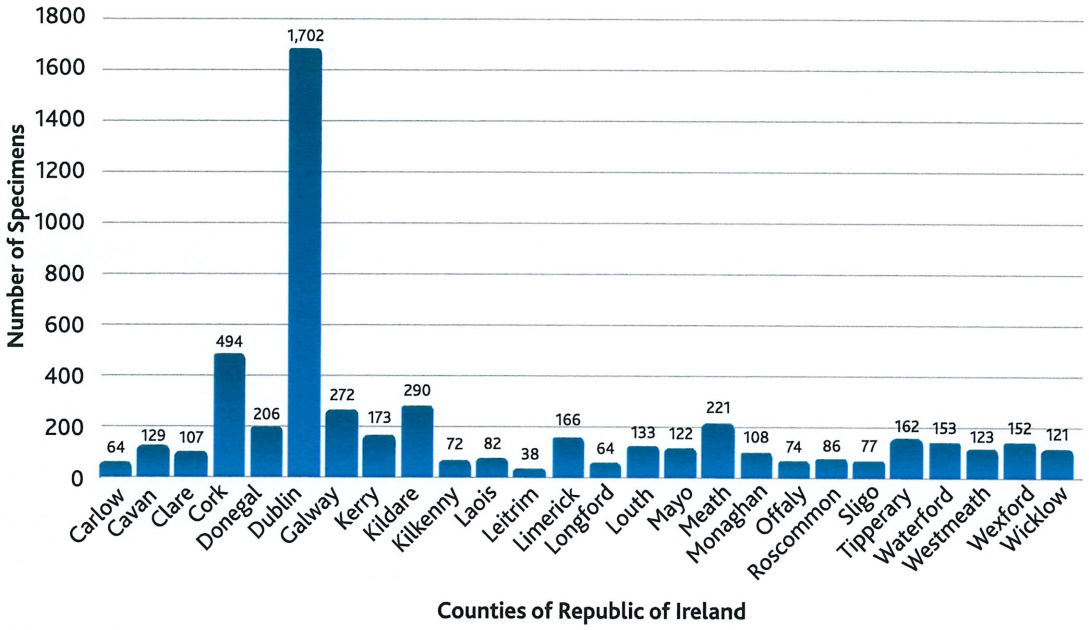



*Figure 2: Blood & Urine Specimens - County of residence of Drivers 2022*

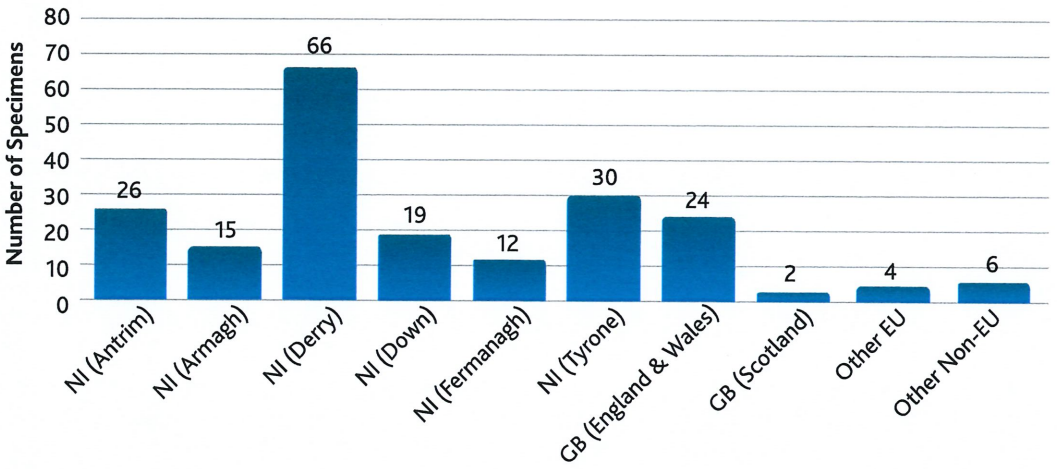



*Figure 3: Blood & Urine Specimens - Drivers from outside Republic of Ireland 2022*

(In 2022, 4% of drivers provided their residences as being outside of the Republic of Ireland)

The most prevalent county/country of residence provided by drivers outside of the Republic of Ireland was Derry, Northern Ireland with Derry residents accounting for more arrested drivers than four of the 26 counties. This may be due to the proximity to the border county of Donegal with Donegal Garda Stations having the 4th highest number of Blood and Urine Specimens received in 2022. This pattern has remained the same since 2021.

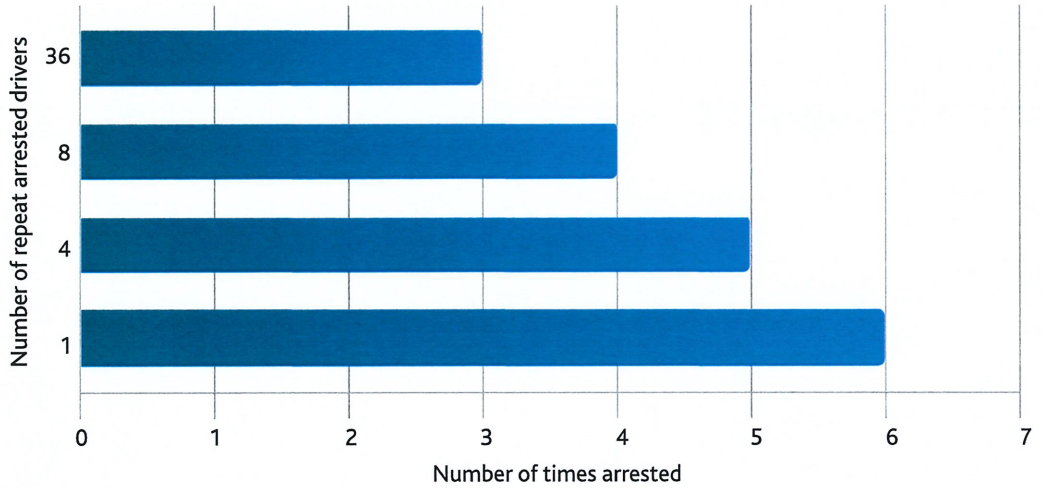



*Figure 4: Repeat Arrested Driver Specimens 2022*

The level of recidivism detected remains significant with 36 drivers arrested 3 times. 172 drivers were arrested twice in 2022.

## Analysis of Time

The most prevalent hours for intoxicant drivers are late evening or early morning.

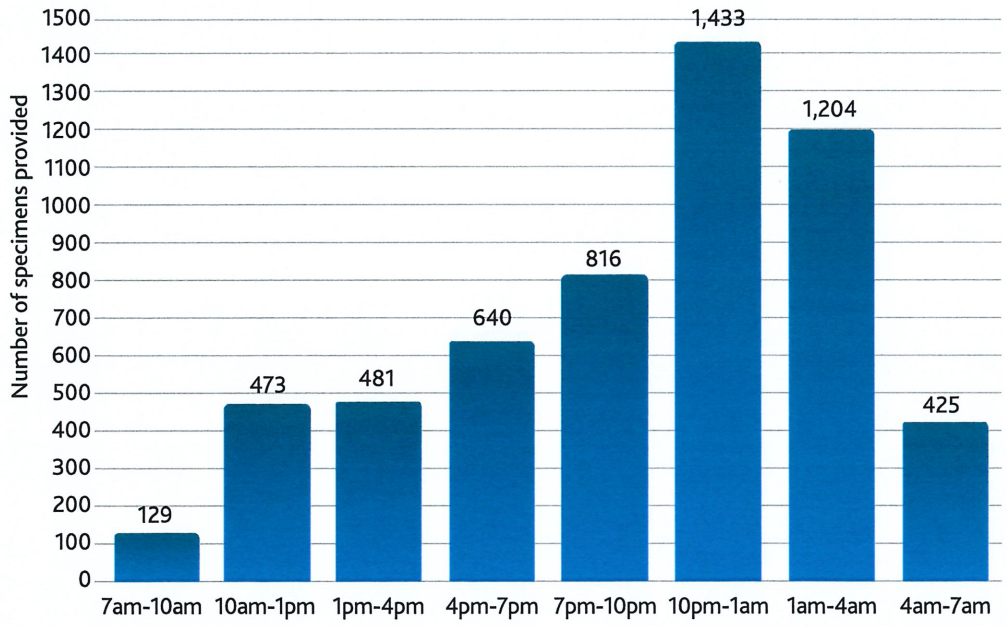



*Figure 5: Time Specimen Taken*

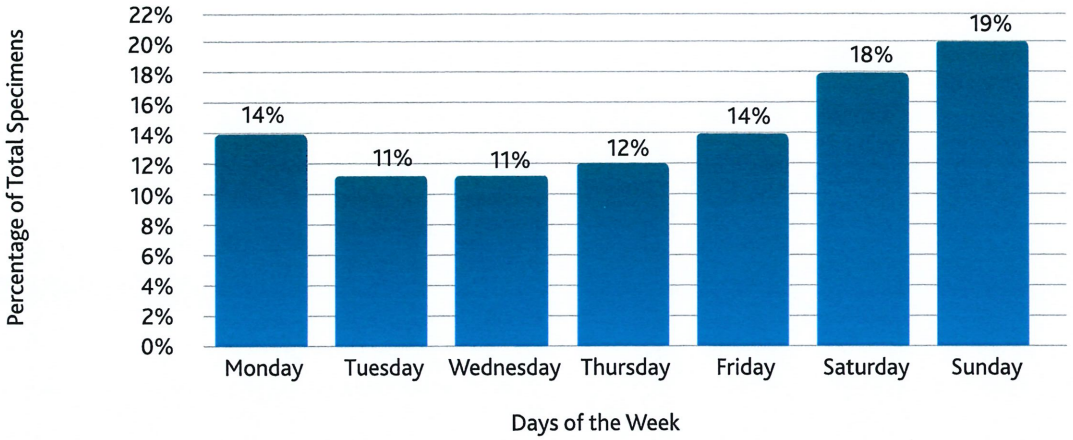



*Figure 6: Day of the Week Specimen Provided*

More specimens of blood and urine are provided on Saturday, Sunday and Monday than on any other day of the week. The highest numbers of specimens were taken between 10pm on Saturday evenings and 4am on Sunday mornings. The busiest hours for taking of specimens was between 1am – 2am on Sunday morning. However, intoxicated drivers are detected at all times on all days of the week.

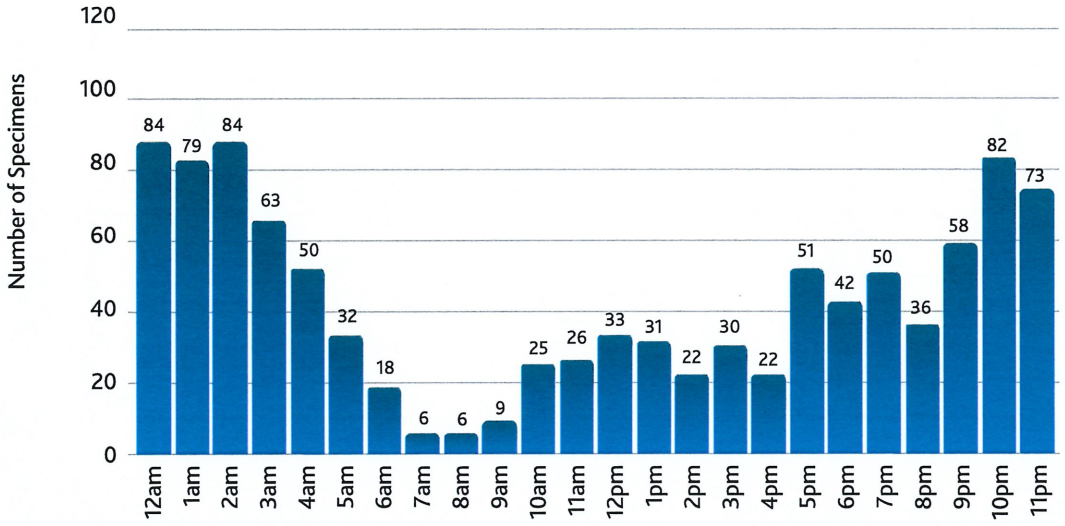



*Figure 7: Weekend Hours – Saturday*

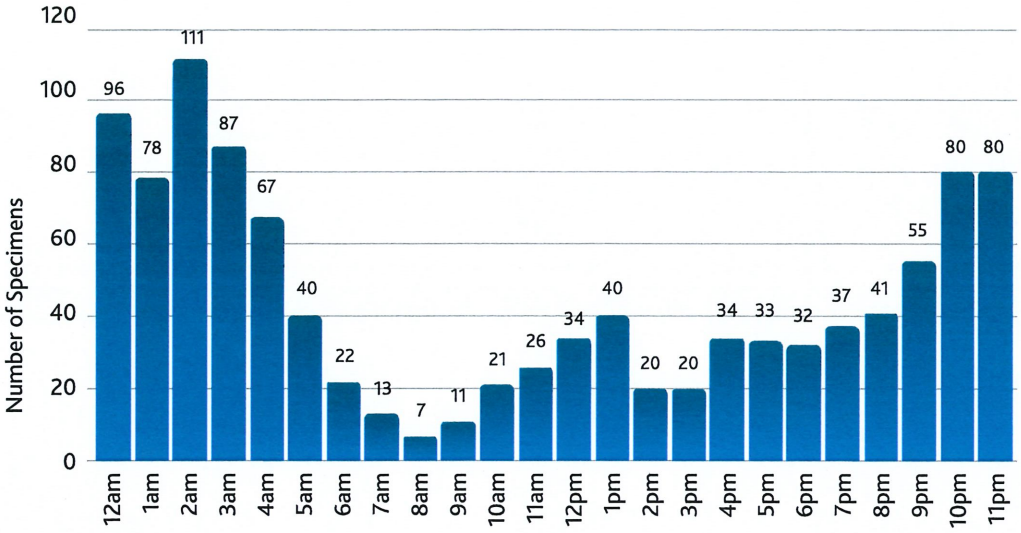



*Figure 8: Weekend Hours – Sunday*

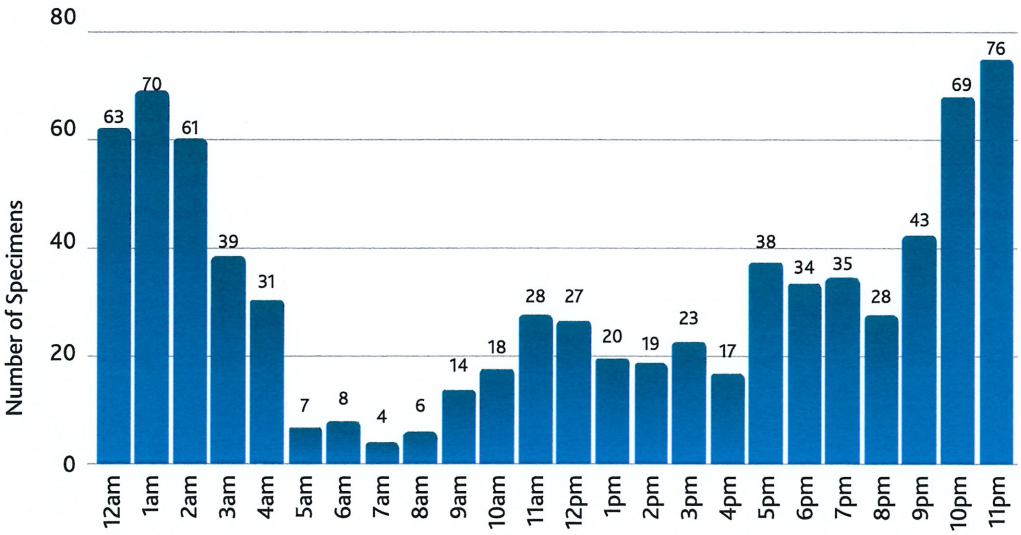



*Figure 9: Weekend Hours – Monday*

## Number of Specimens Provided in Hospitals

In 2022 there were 608 specimens provided in hospitals, this is 10.81 % of the total blood and urine specimens received. There has been an increase of 1.6% in specimens taken in hospitals in 2022 compared to 2021.

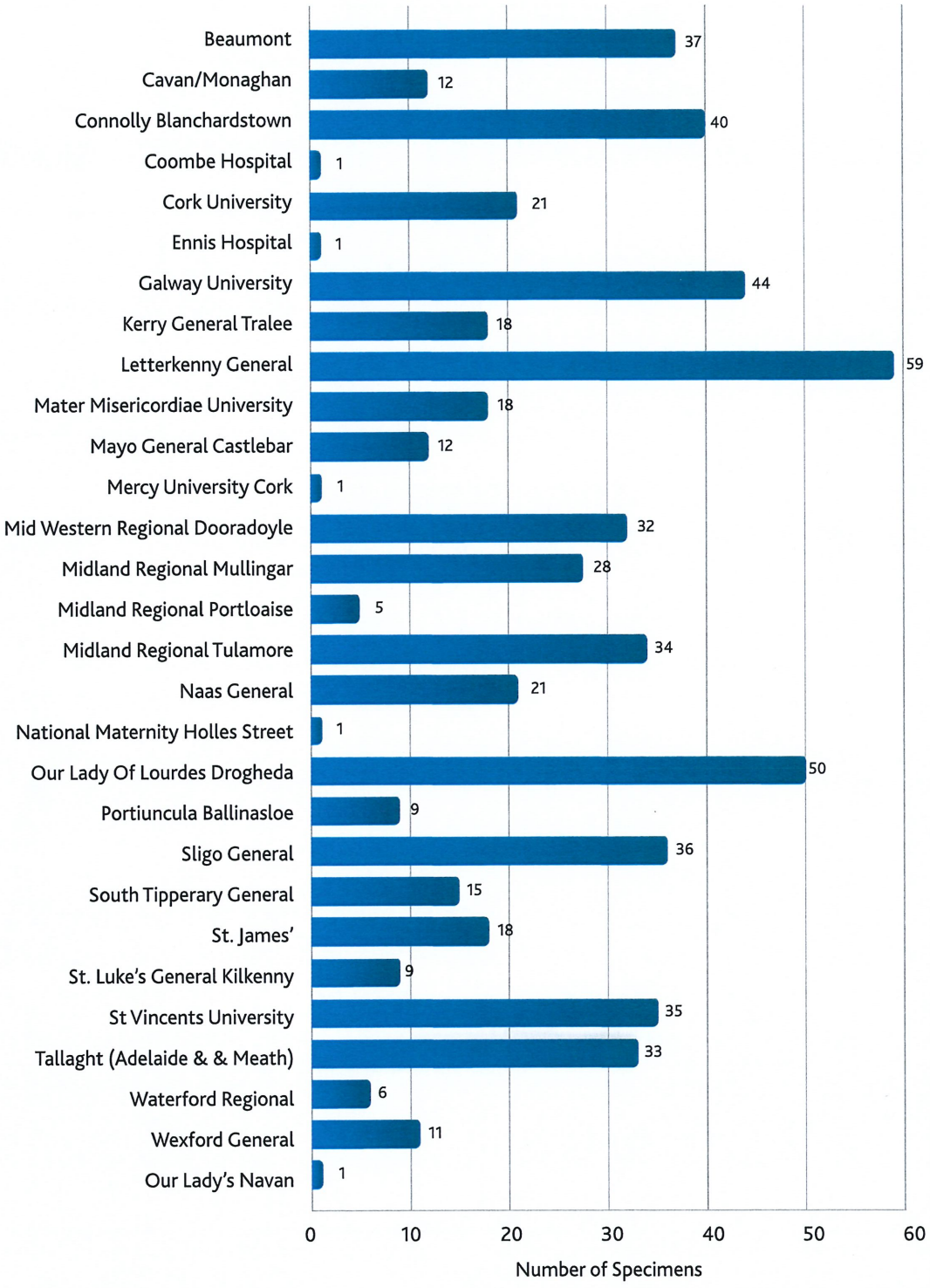



*Figure 10: Overview of hospital cases in 2022*

## Unconscious Drivers

In 2022, nine specimens were forwarded to the Bureau for analysis following blood taken from unconscious drivers compared to no specimens for unconscious drivers received in 2021.

## Gender Analysis

There has been an increase in the proportion of females arrested over the past 3 years.

*Table 2: Gender Profile of Specimens received – Blood & Urine*

| | 2022 | 2021 | 2020 |
|---|---|---|---|
| **MALE** | **85%** | **86%** | **87%** |
| **FEMALE** | **15%** | **14%** | **13%** |

## Age Profile

The age profile of drivers providing blood and urine specimens in the 25 – 34-year-old bracket continues to contribute to the greatest percentage of arrested drivers. 78% of total arrested drivers are under 45 years of age. There is a more even spread through the age categories in the female cohort than the male. The youngest arrested driver was 14 years old and the oldest was 96 years old. The youngest male driver was 14 years old and the youngest female driver was 15 years old.

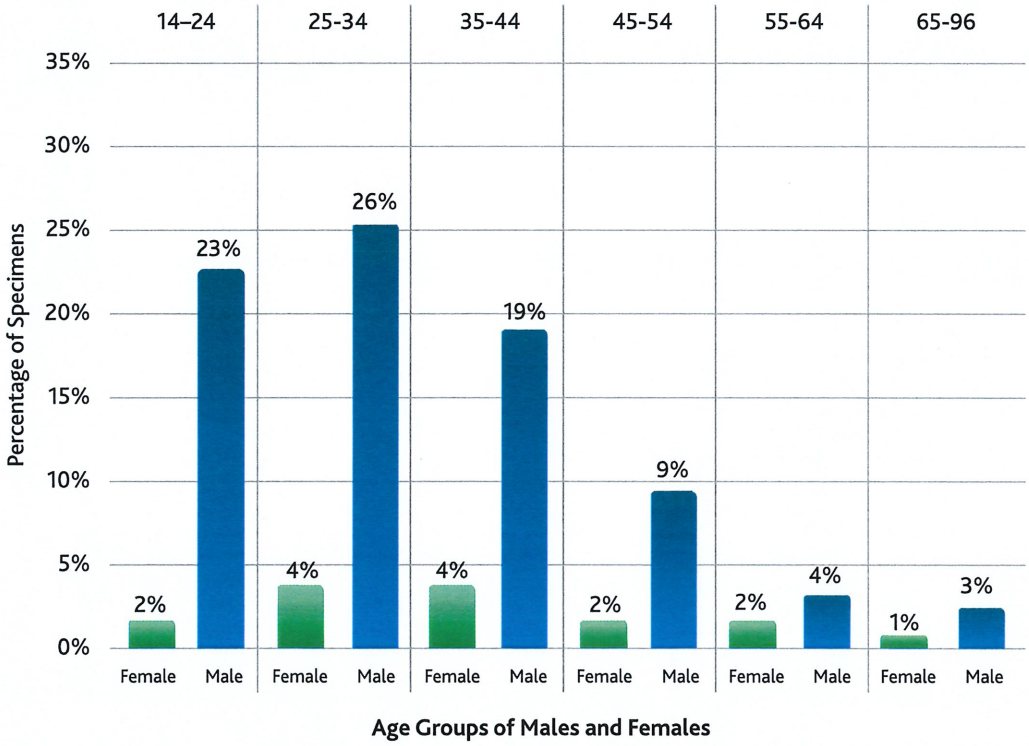



*Figure 11: 2022 Age Profile by Gender %*

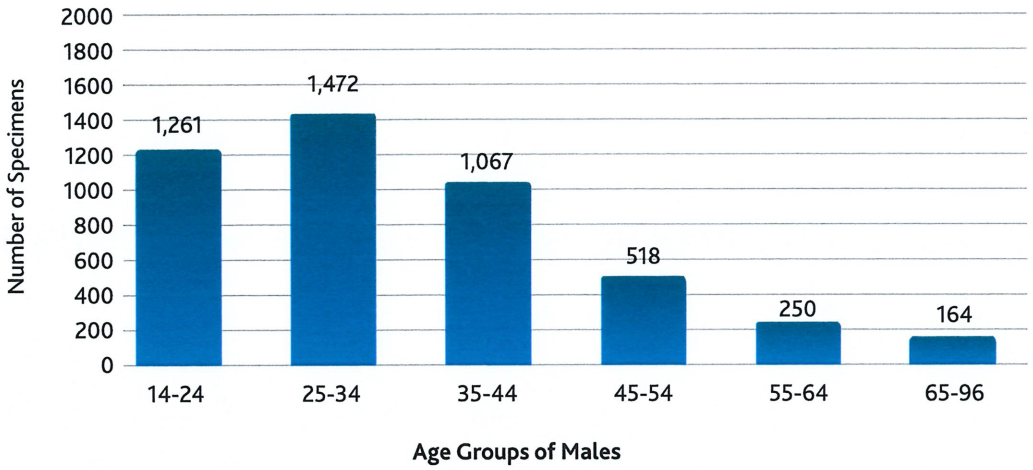



*Figure 12: 2022 Age Profile of Males*

Of all Male arrested drivers, 80% are under 45 years of age (85% in 2021)

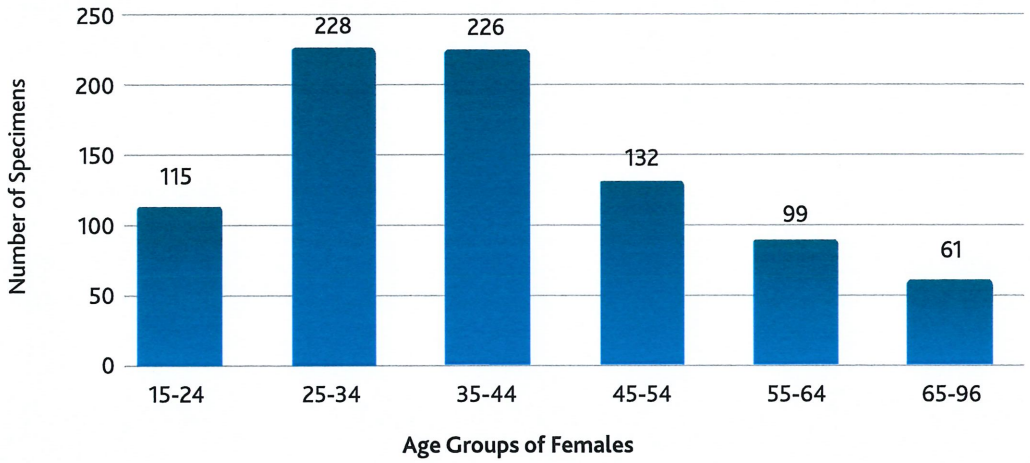



*Figure 13: 2022 Age Profile of Females*

Of all Female arrested drivers, 67% are under 45 years of age (68% in 2021)

# ALCOHOL PROGRAMME: BLOOD & URINE

This programme is led by Principal Analyst, Ms. Louise Lawlor.

The main functions of the Blood and Urine programme are:

- The receipt and analysis of specimens of blood and urine forwarded to the Bureau
- The determination of the concentration of alcohol in blood and urine specimens
- The issue of Certificates of Analysis
- The testing of spurious specimens
- Provision of expert assistance to the Courts and the Department of Transport
- Collection and analysis of data in relation to alcohol tests

## Provision of Blood and Urine Kits

Blood and Urine kits are assembled in-house. Blood and urine bottles for specimen collection are prepared with preservative and anticoagulant and preservative respectively in the laboratory. The kits consist of all items required for the forensic provision of blood and urine specimens under the Road Traffic Act. Each kit includes matched forms and tamper evident seals which are used to ensure proper chain of custody of the specimen from the point of provision in a Garda station or a hospital to receipt in the laboratory by the analyst.

The number and ratio of blood and urine kits issued reflects the specimens received.

*Table 3: Kits Prepared & Issued by the Medical Bureau of Road Safety*

| | Kits Prepared and Issued | | |
|---|---|---|---|
| | 2022 | 2021 | 2020 |
| BLOOD KITS | **5,200** | **6,400** | **6,400** |
| URINE KITS | **2,200** | **1,500** | **1,500** |
| JUGS | **2,780** | **1,700** | **1,700** |

## Blood and Urine Alcohol Analysis

Blood and Urine specimens are analysed using Headspace Gas Chromatography with Flame Ionisation Detection (HSGC-FID). Each specimen is analysed at least twice by two different scientists using two different HSGC-FID systems. The results of analyses must concur before issue of a Certificate of Analysis.

A total of 5,622 blood and urine specimens were received for analysis during 2022. 17 specimens were cancelled and did not have a certificate of analysis for alcohol concentration issued for reasons including: specimen clotted, specimen not sealed, insufficient for analysis, received under the 1994 Road Traffic Act and non-bone fide specimen purporting to be urine.

## Median Alcohol reported Level in Blood and Urine

The median alcohol level in blood was 160mg/100ml and in urine was 198mg/100ml for 2022, excluding specimens which had no trace of alcohol.

## Maximum Alcohol reported Level in Blood and Urine

The highest alcohol level found in blood was 415mg/100ml and in urine was 479mg/100ml.

## Lower Alcohol Concentration Specimens in Blood and Urine

54% of blood and urine specimens had no trace of alcohol.

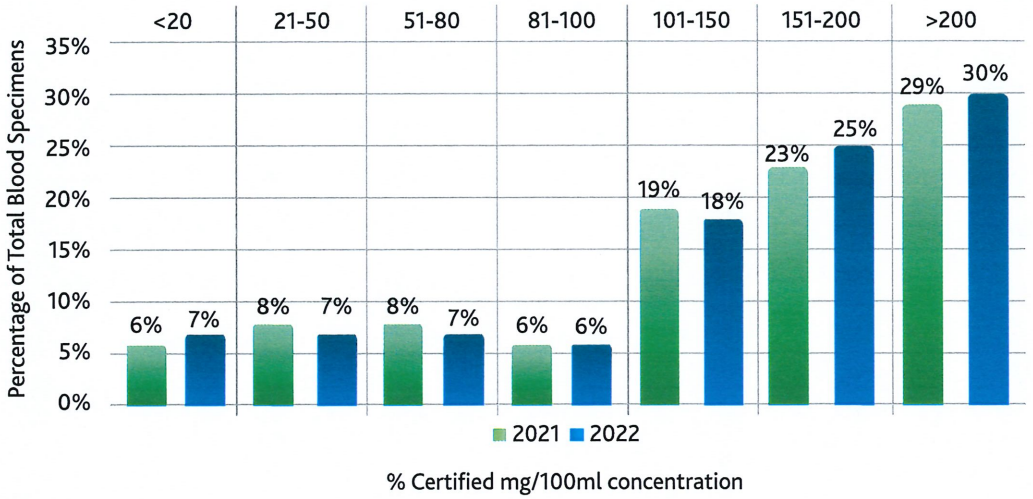



*Figure 14: Certified Positive Blood Alcohol Levels 2022 v 2021*

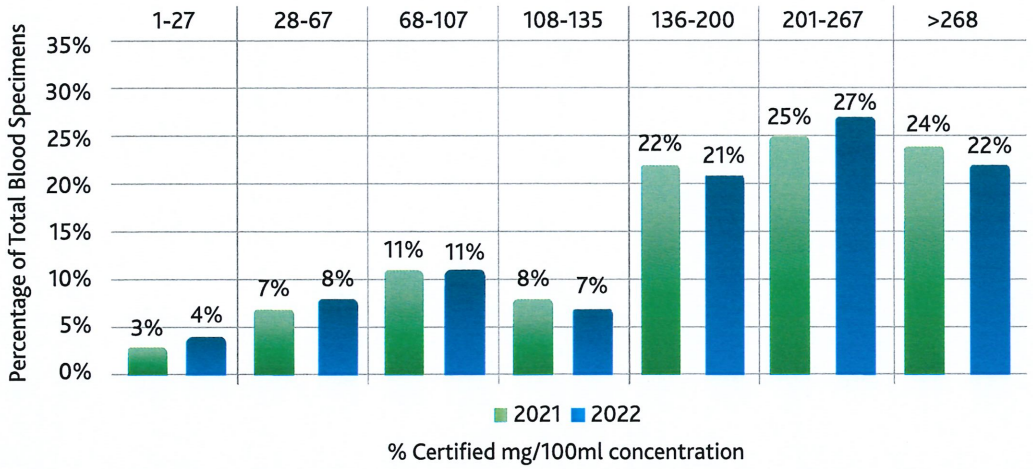



*Figure 15: Certified Positive Urine Alcohol Levels 2022 v 2021*

The levels stated on Figures 14 & 15 correspond to the graded penalty levels and higher concentrations.

On receipt of specimens for testing, the Bureau does not receive driver classification details, i.e., Drivers versus Specified Drivers (Professional, Learner and Novice Drivers) where the legal limits are reduced.

# ALCOHOL PROGRAMME: BREATH

This programme is led by Principal Analyst, Ms. Louise Lawlor. The alcohol breath testing section in 2022 included preliminary breath testing, evidential breath testing and the aviation breath testing programmes.

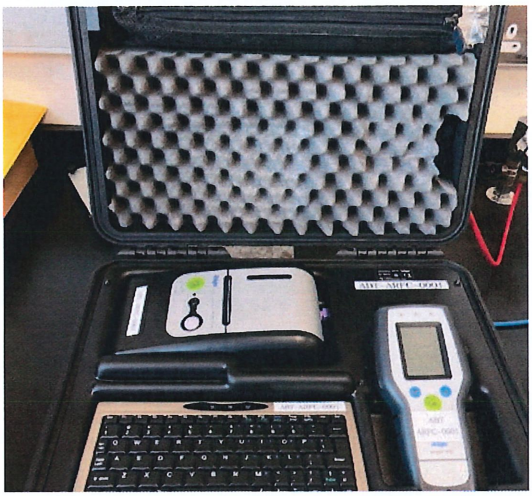
The main functions of the Breath Alcohol programme are:

- The approval, supply and testing of apparatus for indicating the presence of alcohol in the breath (roadside preliminary breath testing devices)
- The approval, supply and testing of apparatus for determining the concentration of alcohol in the breath (evidential breath testing instruments)
- Provision of expert assistance to the Courts and to the Department of Transport.
- Provision of training courses for EvidenzerIRL Operators and Supervisors.
- Provision of Train the Trainer courses for the Operation of the Dräger Alcotest 7510 device.
- Collection and analysis of data in relation to evidential breath alcohol tests.
- The approval, supply, and testing of apparatus for indicating the presence and concentra-tion of alcohol in breath for use by the Irish Aviation Authority (IAA).
- Provision of training courses for the operation of the Dräger Alcotest 8610 unit.

## Aviation Breath Alcohol Testing

The use of aviation breath alcohol testing is widely accepted throughout Europe as an essential component of air travel safety. The European Aviation Safety Agency (EASA) has established a set of guidelines for breathalyser testing in aviation ramp inspections, which includes a requirement that pilots and crew members undergo alcohol testing. The Irish Aviation Authority (IAA) is the responsible body for the safety regulation of Irish civil aviation and oversight of civil aviation security in Ireland.

The Bureau and the IAA engaged in a Memorandum of Understanding outlining an agreement by both parties, whereby the Bureau approves, supplies, and tests the Dräger Alcotest 8610 unit for the IAA breath testing scheme. This Agreement was renewed in 2022. Four devices remain operational within this scheme. The Bureau conducts testing and calibration of these devices on a 6-monthly basis. This testing ensures the accuracy and correct functioning of the devices and is accredited by the Irish National Accreditation Board (INAB) under ISO 17025 standard.




Dräger Alcotest 7510 device

## Roadside Breath Alcohol Testing

Roadside breath alcohol testing involves the use of alcohol breath analysers. The device detects the amount of alcohol present in a person's breath. The breathalyser is portable and can be carried by AGS members to be used at roadside checkpoints to test drivers for alcohol. When a driver exhales into the device, it measures the presence of alcohol in the breath. If the breath alcohol level is over the legal limit, the device will indicate a FAIL. If it is under the limit, the device will indicate a PASS.


The Dräger Alcotest 7510 devices are calibrated and tested on a 6-monthly basis by the Bureau. In 2022, a total of 2,243 calibrations were conducted on Dräger Alcotest 7510 breath testing devices. This testing ensures the accuracy and correct functioning of the devices and is accredited by the Irish National Accreditation Board (INAB) under ISO 17025 standard.

Devices are returned to the Bureau for testing and calibration. The Bureau has a total of 1,400 devices with approximately 1,200 in operation. A number of replacement devices were purchased at the end of 2022.

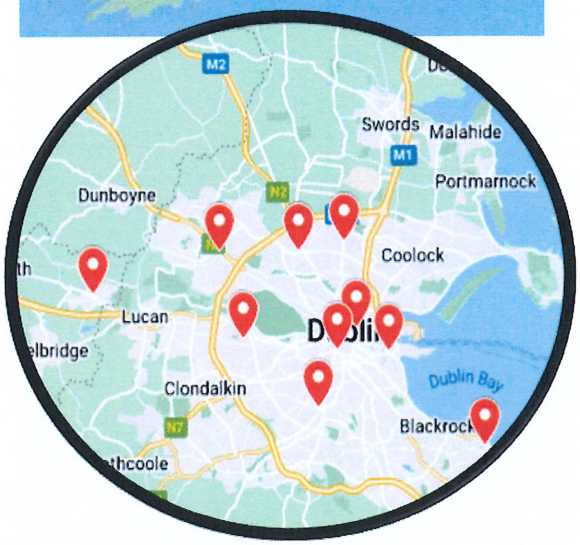
## Evidential Breath Alcohol Testing

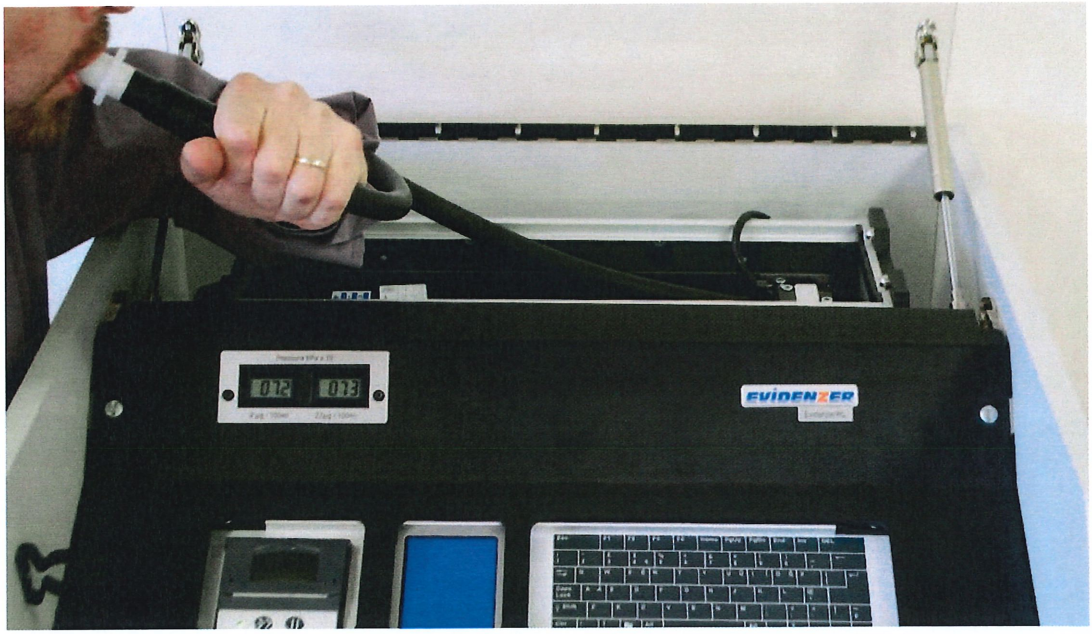
An evidential breath test instrument is used to analyse a driver's breath and determine the breath alcohol concentration (BrAC). The units of measurement are µg/100mL. The analysis is carried out by measuring the amount of alcohol in the breath specimen provided by the driver into the instrument.

Evidential breath test instruments are accurate, reliable, and used worldwide in road traffic enforcement.

One of the benefits of evidential breath test instruments is that they are non-invasive compared to other techniques such as blood or urine tests. The driver only needs to breathe into the instrument and the results are provided in real-time.

The Bureau supported and maintained 87 EvidenzerIRL instruments in Garda stations throughout Ireland in 2022, see the map below for approximate locations.




## Testing EBT instruments in Garda Stations

On a 6-monthly basis, a Bureau scientist undertakes testing of each EvidenzerIRL instrument installed in Garda stations. This includes linearity, accuracy, and repeatability (precision) tests. This testing is accredited by the Irish National Accreditation Board (INAB) under the ISO 17025 standard. It ensures the accuracy and correct functioning of the EvidenzerIRL instrumentation.

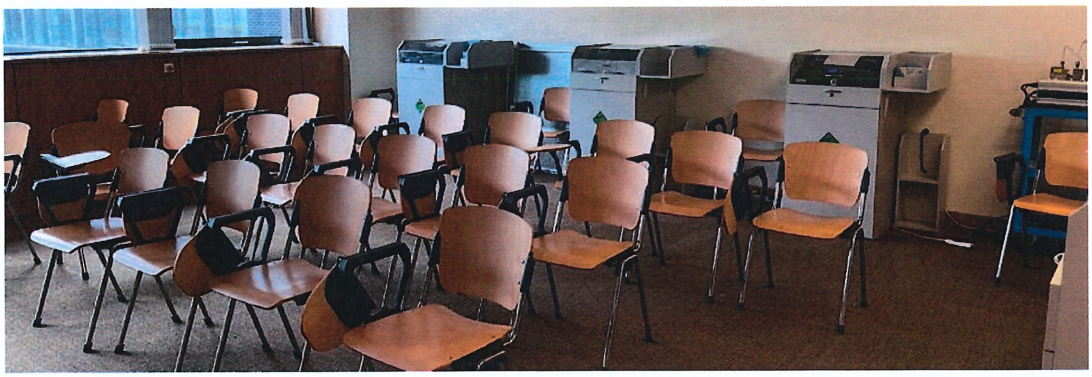
This onsite testing was carried out on 200 occasions in 2022 (191 in 2021). This testing is an essential element in assuring the quality of breath alcohol test results for evidential purposes.

## Training

The Bureau provides training to An Garda Síochána in the use of evidential breath testing instruments. There were thirteen EvidenzerIRL courses conducted in 2022. Four of these courses were Supervisor only training courses provided to those previously trained as Operators. The course is conducted onsite at the UCD Campus in conjunction with the Garda Training College. The operator course is one and a half days with an additional half day training for the Supervisor course.

There were 197 garda members trained in these courses in 2022. This was a positive return to training following the suspension of this course during the pandemic.

No Train-The-Trainer courses for the Dräger Alcotest 7510 device or the Dräger Alcotest 8610 device were required in 2022.



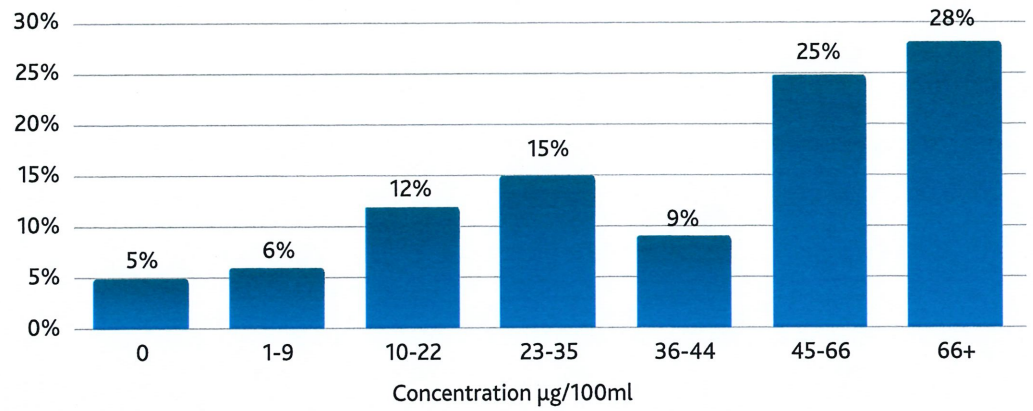



*Figure 16: Certified Alcohol Levels 2022* – Breath*

*(*2022 Reported statistics from 1st July 2021 to 30th June 2022)*

## Breath Alcohol Analysis

For the 2022 Annual Report statistics were calculated from evidential breath tests spanning from 1st July 2021 to 30th June 2022. Approximately 3,821 drivers were brought to Garda Stations and provided breath specimens for alcohol analysis. The Covid-19 pandemic lockdowns reduced the number of breath tests performed in 2020 (and in 2021). However, despite this, the number of breath tests in this timeframe showed a slight increase. In 3% of cases, the EvidenzerIRL Section 13 certificate could not be produced, for reasons such as Mouth Alcohol or Breath Difference. 13% of drivers either failed or refused to provide breath specimens. 85% of breath specimens undertaken were successfully completed and a Section 13 certificate issued.

Of all the drivers who successfully provided breath specimens, 95% of them registered a final alcohol result above zero.

## Median and Maximum Alcohol Level in Breath

Excluding breath specimens which returned a zero-alcohol result, the median certified alcohol level in breath was 51µg/100ml in 2022.

The maximum alcohol level in breath was 149µg/100ml in 2022.

## Analysis of Time

The greatest number of breath specimens in this time period took place between 10pm and 4am (57%) with a similar pattern to blood and urine specimens.

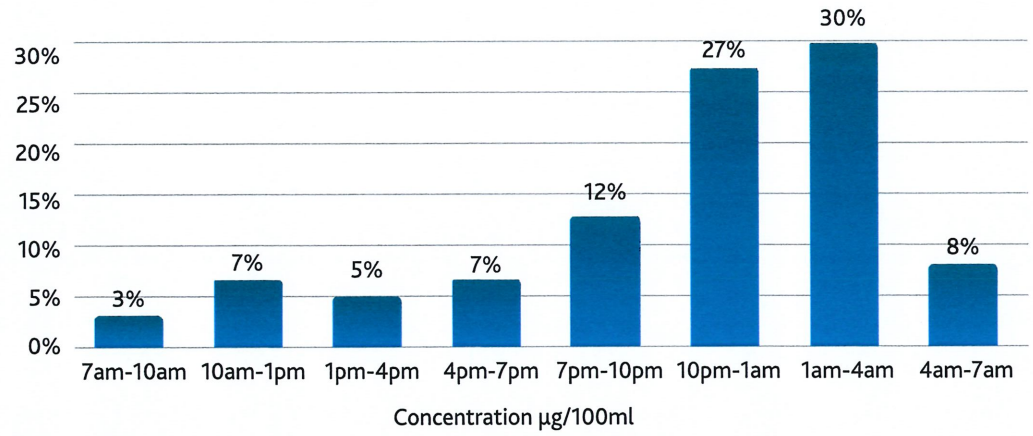



*Figure 17: 2022* Time Breath Specimen Provided*

*(*2022 Reported statistics from 1st July 2021 to 30th June 2022)*

## Gender in Evidential Breath Testing Specimens

The number of male drivers required to provide a breath specimen far exceeds the number of female drivers, the male to female ratio being approximately 6:1, the gender profile remained the same from previous years.

*Table 4: 2022* Gender Profile of Breath Specimens provided*

| | 2022 (reported*) | 2021 | 2020 | 2019 |
|---|---|---|---|---|
| **MALE** | 85% | 85% | 85% | 86% |
| **FEMALE** | 15% | 15% | 15% | 14% |

*(*2022 Reported statistics from 1st July 2021 to 30th June 2022– 1 unknown gender reported)*

## Age Profile in Evidential Breath Testing Specimens

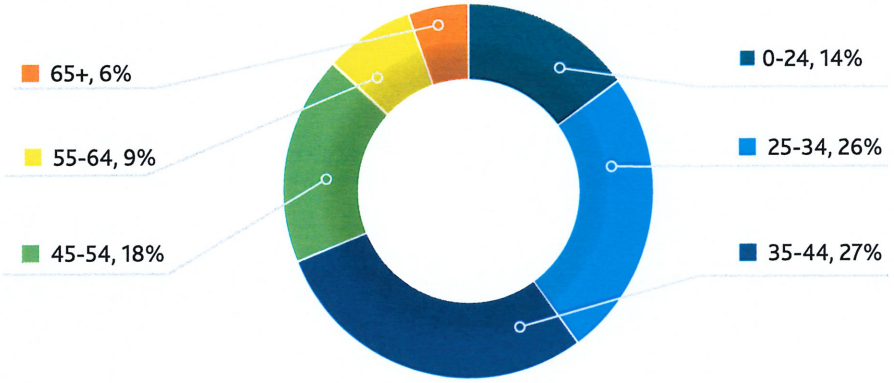



*Figure 18 (a): 2022* Age Profile of Drivers – Breath - % of total Male*

*(*2022 Reported statistics from 1st July 2021 to 30th June 2022)*

## Age Profile in Evidential Breath Testing Specimens

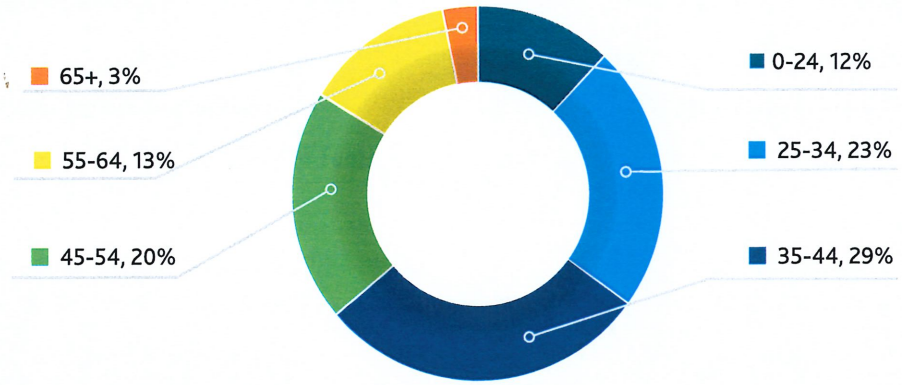



*Figure 18 (b): 2022* Age Profile of Drivers – Breath - % of total Female*

*(*2022 Reported statistics from 1st July 2021 to 30th June 2022)*

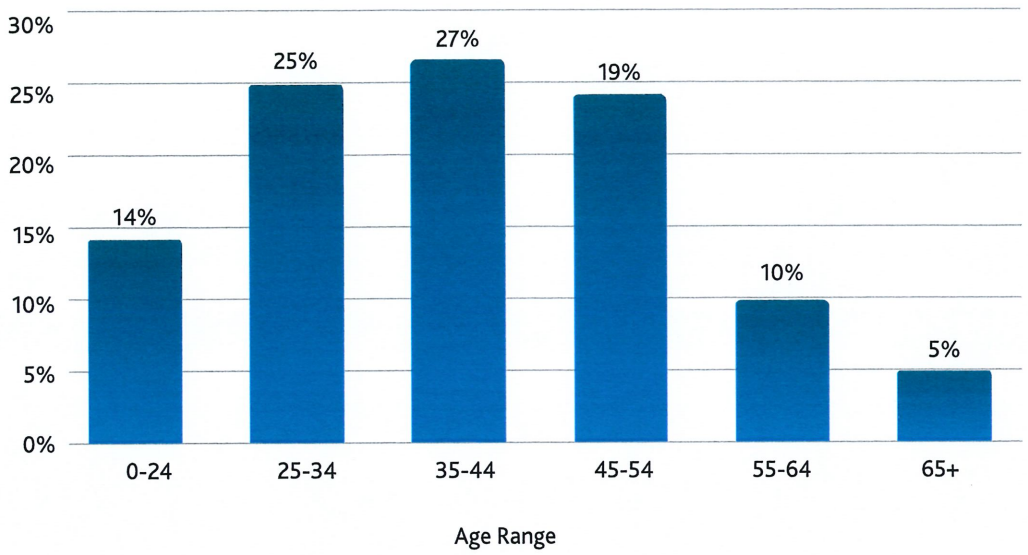



*Figure 19: 2022* Age Profile of Drivers – Breath*

*(*2022 Reported statistics from 1st July 2021 to 30th June 2022)*

The greatest contribution to the arrested driver numbers providing breath specimen is in the 35–44 years old category. The age group of 25-34 years contributes to 25% of the overall total breath tests.

The youngest driver who provided a breath specimen was 14 years old and the oldest was 84 years. The median age was 38 years (female,39 years). There were fourteen drivers under 17 years who provided breath specimens.

# TOXICOLOGY PROGRAMME

This programme is led by Principal Analyst, Dr Richard Maguire. The main functions of this programme in 2022 were:

- The analysis of blood and urine specimens for the presence and/or concentration of a drug or drugs.
- The issue of Certificates of Analysis for the presence and/or concentration of a drug or drugs.
- Provision/maintenance of Preliminary Drug Testing Devices (oral fluid) and quality control of consumables.
- Analysis of oral fluid for quality control purposes.
- Development of new methods of drug testing and improvement of existing methods.
- Provision of expert assistance to the Courts, the Department of Transport and An Garda Síochána.
- Collection and analysis of data in relation to toxicology tests.
- Research on drugs that cause impairment in drivers.

## Roadside/Station Based Preliminary Drug Testing (PDT)

The Preliminary Drug Testing programme was introduced in 2017 and was effective from 13th April 2017. During 2022 there were two different systems of preliminary drug testing in use. From the 1st of January 2022 to the 30th of November 2022 the Dräger Drugtest 5000 was in use. This system relied on an analyser to conduct the drug test. Following competitive tender, the Securetec DrugWipe 6S replaced the Dräger DT5000 from 1st December 2022. The DrugWipe 6S does not require an analyser using a cassette only system.

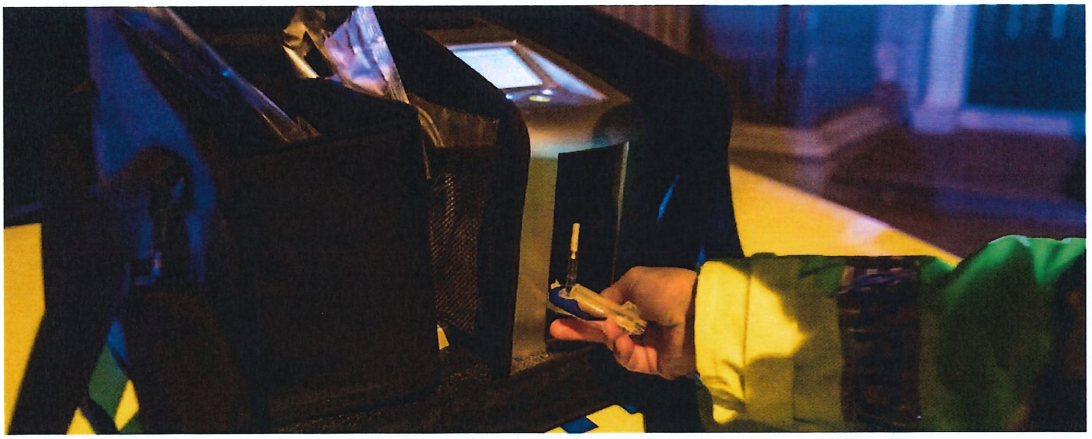
### Dräger Drugtest 5000

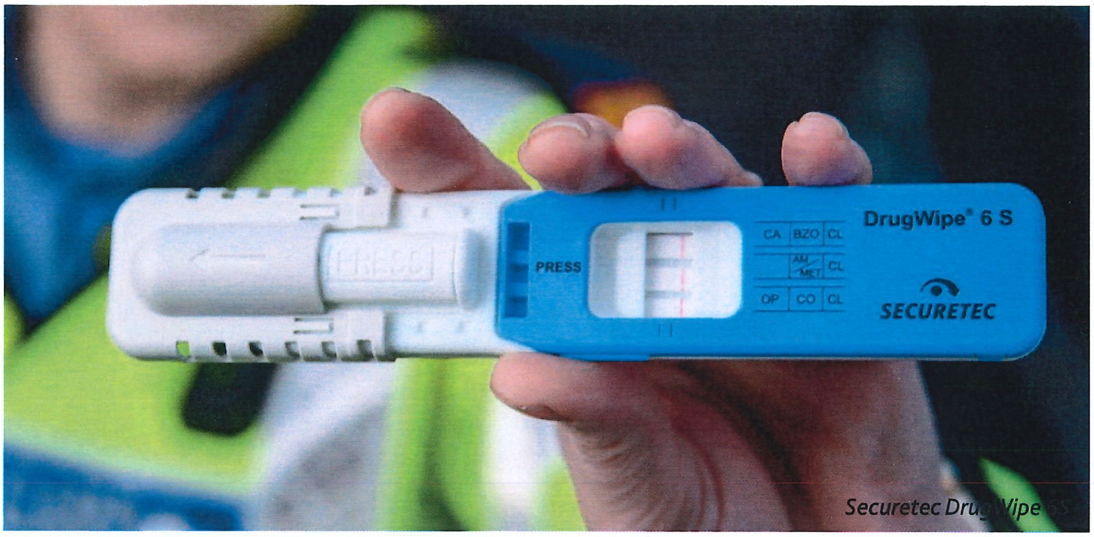
This analyser could detect cannabis, cocaine, opiates and benzodiazepines in oral fluid and was used at the roadside and to a lesser extent in Garda Stations. The analysers distribution throughout its lifetime of use is shown below.

*Table 5: DT5000 Analysers Distribution*

| Year | Mobile | Stationary | Hybrid | Training College |
|---|---|---|---|---|
| **2017** | 47 | 86 | n/a | 5 |
| **2018** | 60 | 86 | n/a | 5 |
| **2019** | 75 | 86 | n/a | 5 |
| **2020** | 75 | 87 | 45 | 5 |
| **2021** | 93 | 86 | 44 | 5 |
| **2022** | 93 | 86 | 44 | 5 |

**Distribution of DT5000 analysers 2017-2022 (hybrid refers to station-based systems that were also releasable for the roadside)**






*Securetec DrugWipe 6S*

Regular performance testing and maintenance of DT5000 analysers (6-monthly period) continued throughout 2022. Operation of the DT5000 devices by An Garda Síochána ceased at midnight on the 30th of November 2022. The number of tests conducted during the period January to November 2022 are shown in table 6 below.

*Table 6: DT5000 Analysers – Mobile and Station*

| Analyser Use Type | Number of Tests |
|---|---|
| Mobile only | 7,222 (8,897 in 2021) |
| Station Based | 1,460 (1,916 in 2021) |
| Total | 8,682 (10,813 in 2021) |

**Note: this covers 01/01/22 to 30/11/22 only**

### Securetec DrugWipe 6S

A tender was published in August 2021 for procurement of a system that could be used without the need for a separate electronic analyser. This procurement was conducted in close partnership with An Garda Síochána and was completed in August 2022. The winning bidder was Securetec with their DrugWipe 6S (DW6S) cassette. The new product, in addition to detecting cannabis, cocaine, opiates and benzodiazepines in oral fluid like the previous system, also detects Amphetamine, Methamphetamine and Ecstasy type drugs like MDMA (See below).

The introduction of the new testing system enabled additional drugs to be tested in the driving population and placed a test that is more deployable than the previous system in the hands of road safety enforcement. In 2022, 5,900 DW6S cassettes were issued to An Garda Síochána.

## Oral Fluid Testing and Prevalence 2022

The Bureau also managed the quality control testing of the STKs and DW6S cassettes received throughout 2022 to ensure that they met the required technical requirements.

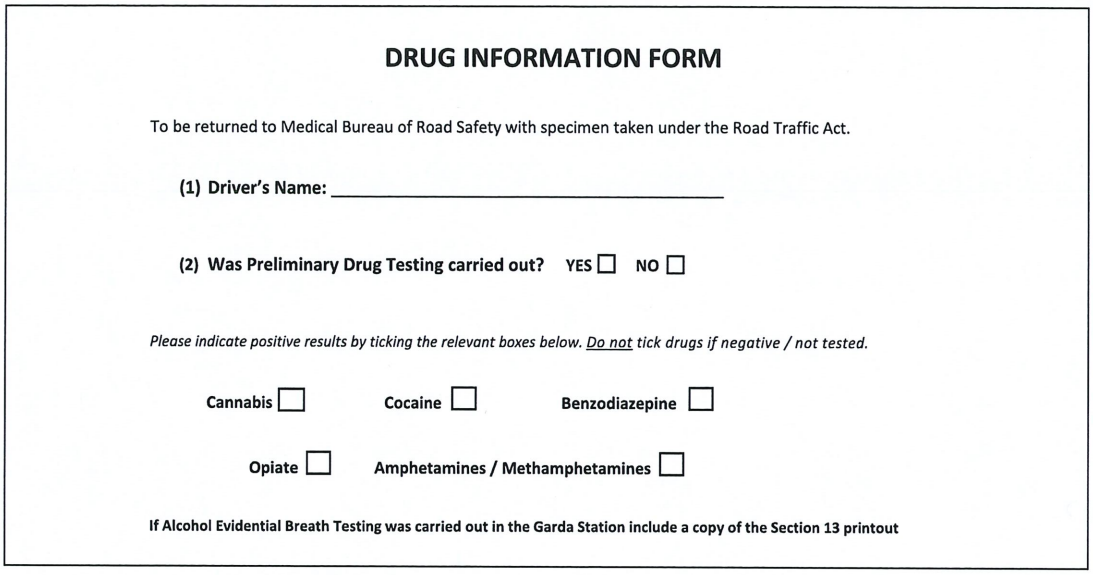
The number of tests on the DT5000 analysers available to An Garda Síochána were collated for 2022. The number of tests conducted on DT5000 analysers in 2022 was 8,682 (10,813 in 2021). The prevalence for each drug for the period of use of the DT5000 in 2022 is shown below (See Table 7). This is not a measure of enforcement activity as that system does not distinguish between tests conducted for training, demonstration, quality control or enforcement purposes.

*Table 7: Prevalence of drugs detected by the DT5000*

| Drug Class | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| **Cannabis** | 66% | 63% | 66% | 62% |
| **Cocaine** | 43% | 45% | 43% | 49% |
| **Opiates** | 13% | 14% | 11% | 11% |
| **Benzodiazepines** | 6% | 7% | 8% | 9% |

**Prevalence of drug positives from downloads from DT5000 testing conducted between the 1st of January and the 30th of November 2022.**

When an oral fluid sample is collected from a driver for testing, and is positive for a drug or drugs, the Bureau requests that An Garda Síochána submit a "Drug Information Form" indicating the results of the test. Following the introduction of the DW6S a new Drug Information Form was introduced so that the results for the Amphetamine/Methamphetamine test would be captured.



**DRUG INFORMATION FORM**

To be returned to Medical Bureau of Road Safety with specimen taken under the Road Traffic Act.

**(1) Driver's Name:** _____

**(2) Was Preliminary Drug Testing carried out?** YES ☐ NO ☐

*Please indicate positive results by ticking the relevant boxes below. Do not tick drugs if negative / not tested.*

**Cannabis** ☐ **Cocaine** ☐ **Benzodiazepine** ☐

**Opiate** ☐ **Amphetamines / Methamphetamines** ☐

**If Alcohol Evidential Breath Testing was carried out in the Garda Station include a copy of the Section 13 printout**

*Drug Information Form introduced in December 2022*

The Drug Information Form enables a comparison of the performance of the oral fluid testing with laboratory testing.

In 2022, 1,606 (1,837 in 2021) specimens were returned with a "Drug Information Form" indicating that an oral fluid PDT test had been carried out. Of these, 1,603 (1,832 in 2021) indicated a positive drug result for at least one of the four drugs that the DT5000 can detect. Of the positive cases in 2022 the prevalence of drugs detected by the DT5000 is shown in table 8.

*Table 8: Prevalence of drugs detected by the DT5000 & DW6S*

| Drug Class | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Cannabis | 66% | 67% | 69% | 66% |
| Cocaine | 43% | 46% | 45% | 48% |
| Opiates | 8% | 8% | 6% | 6% |
| Benzodiazepines | 4% | 5% | 5% | 5% |
| Amphetamines | n/a | n/a | n/a | 3% |

**Prevalence of drugs positives reported on drug information forms received for the DT50000 and the DW6S 01/01/22-31/12/22. (Amphetamines detection was only possible from the 01/12/22 – 31/12/22)**

## Laboratory Testing

### Blood and Urine Specimen Overview

There were 3,793 specimens analysed for the presence of a drug or drugs which is a 12.2% decrease on the number of specimens analysed in 2021. The number of specimens requiring drug analysis between 2015 and 2022 is shown below.

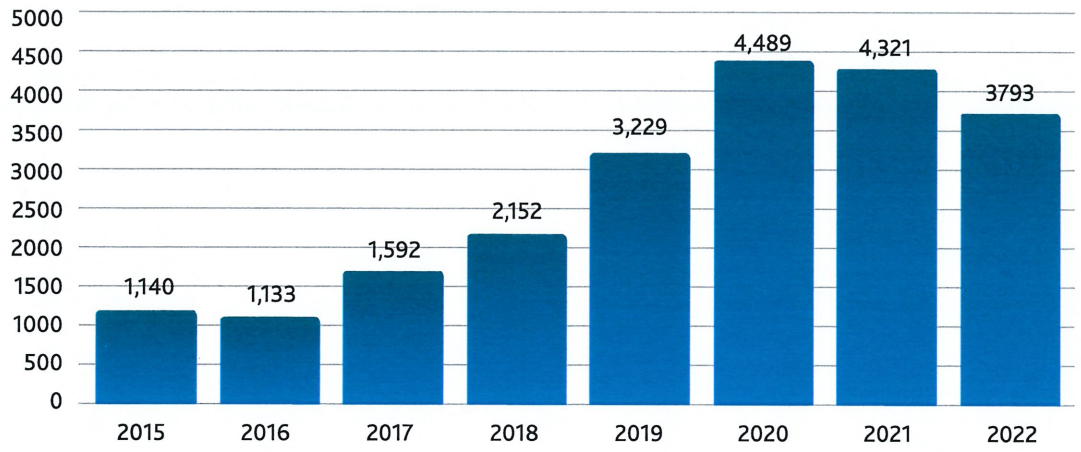



*Figure 20: Number of Toxicology Specimens Screened for drugs (2015 – 2022)*

Toxicological analysis was required for 67.5% of all specimens received (74% in 2021). The Bureau policy since the beginning of 2020 has been to test all specimens for drugs where the alcohol result is under 100mg/100ml in blood or the equivalent 135mg/100ml in urine.

There were 14 specimens (40 in 2021) over the above alcohol concentrations which were specifically requested for drug testing by An Garda Síochána. There were 8 Evidential Breath Testing negative specimens (11 in 2021) sent to the Bureau for drug testing.

The measures introduced in the 2016 Road Traffic Act empowered the Gardaí to take blood where drugs were indicated by a preliminary oral fluid or impairment test. This resulted in a change in the ratio of specimen type towards blood rather than urine with 89% (91% in 2021) of specimens analysed for toxicology being blood and 11% being urine (9% in 2021).

Initial screening testing was conducted for cannabis, cocaine, opiates/opioids (e.g. morphine, codeine, methadone and tramadol), benzodiazepines, amphetamines (e.g. amphetamine, methamphetamine, MDA, MDMA) and anti-histamines (diphenhydramine) using Liquid Chromatography with Mass Spectrometry (LC-MS-MS). Psychoactive substances from the benzodiazepine class Adinazolam, Flualprazolam, Flubromazepam and Flubromazolam were added to the screening method in 2022.

Of the 3,793 specimens tested in 2022 (4,321 in 2021) 2,828 (3,412 in 2021) were found to be positive for at least one drug class on preliminary laboratory drug testing. 965 were negative for the drugs targeted by the Bureau at the thresholds used by the Bureau (909 in 2021). This drug positive figure represented 75% of Toxicology specimens (79% in 2021) and 50% of all specimens received in the Bureau (58% in 2021).

Figure 21 shows the prevalence of the drugs detected in all specimens of blood and urine. As in previous years Cannabis remains the most prevalent drug. Cocaine remains the second most prevalent.

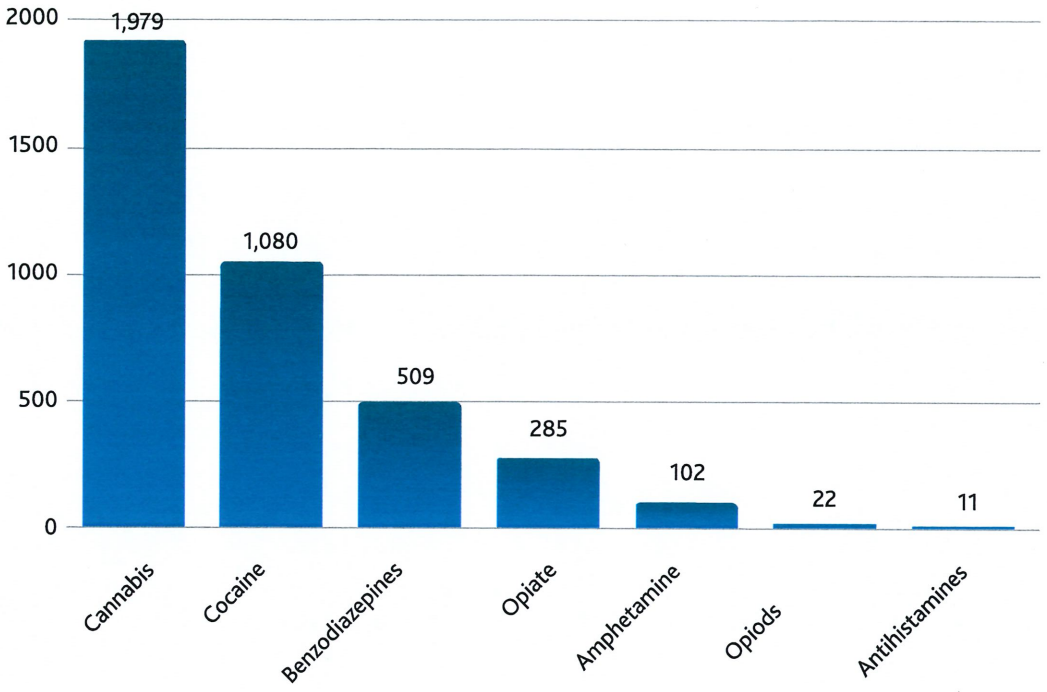



*Figure 21: Drug Prevalence Screening 2022*

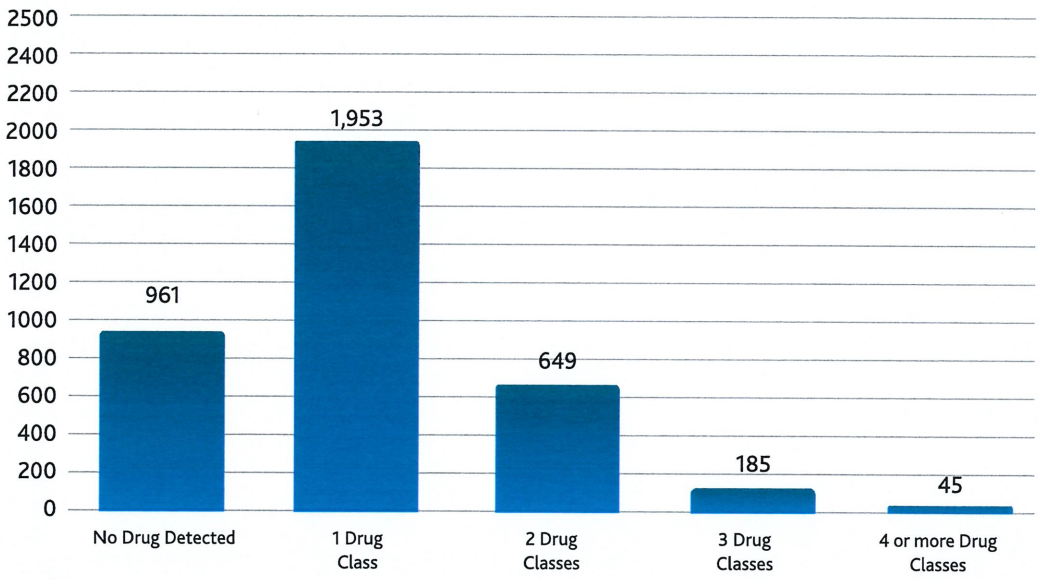



*Figure 22: Drug Screening - No. of classes detected per specimen 2022*

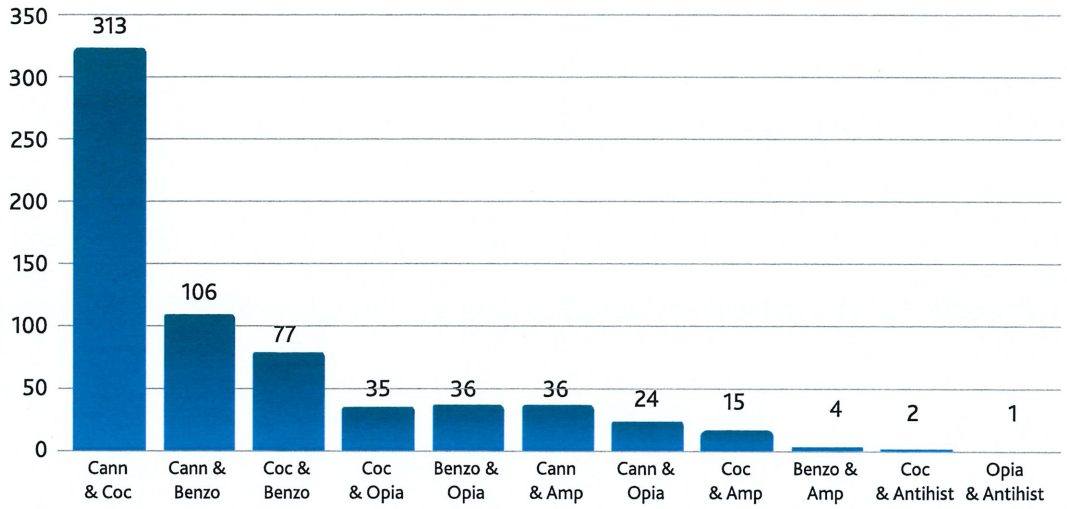



*Figure 23: Drug Screening – Prevalence of Combinations where two drugs were detected per specimen 2022*

*(Cann: Cannabis, Coc: Cocaine, Benzo: Benzodiazepine, Opia: Opiate, Amp: Amphetamine, Antihist: Antihistamine)*

The gender profile was 86.8% male and 12.9% female (0.3% gender not stated) based on screening positive data which is like the breakdown in 2021 (90.3% male, 9.1% female, 0.6% gender not stated).

The age profile of positive specimens is shown below with 83% being age ≤ 44 and under and 63% under 34.

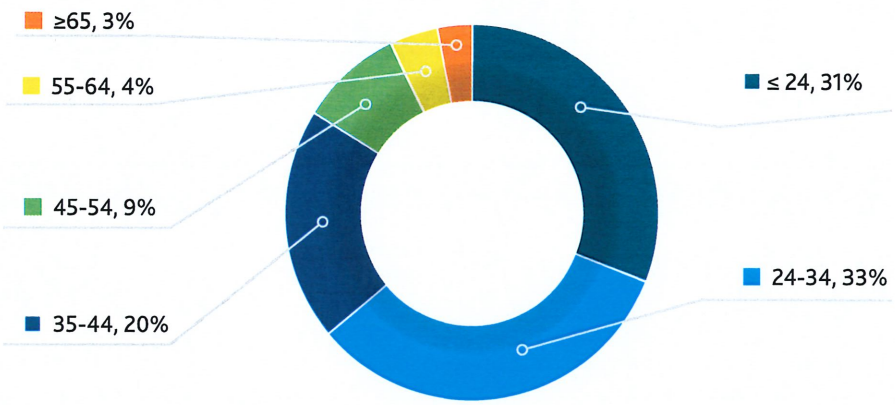



*Figure 24: % Total Screening Positive by Age 2022*

## Confirmatory Analysis

Once a positive specimen is detected at the initial screening test, confirmation is carried out using Gas Chromatography with tandem Mass Spectrometry for Cannabis and Liquid Chromatography with tandem Mass Spectrometry for all other drugs. In 2022 the number of specimens was lower but comparable to the previous year.

In each case a small number of specimens could not be confirmed due to specimen volume limitations.

Due to the significant increase in the number of specimens received for drug testing since 2017 the policy of confirming all drugs detected at screening subject to specimen volume was reviewed. This led to a change in policy in 2021 whereby the specimen was forwarded to only one confirmatory test method. This was implemented for specimens received on or after the 1st of July 2021. It is planned to revert to confirming all drugs detected at screening following further review.

The distribution of confirmatory tests for 2019 to 2022 is shown in table 9 below.

The reporting of the benzodiazepines Chlordiazepoxide, and the sedative Zolpidem, were added to the confirmatory drug panel in 2022.

*Table 9: Confirmatory testing for the various drugs/classes*

| Drug Class | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Cannabis | 1,747 | 2,606 | 2,353 | 1,949 |
| Benzodiazepines | 475 | 535 | 369 | 101 |
| Cocaine | 852 | 1,494 | 1,239 | 889 |
| Opiates/Opioids | 308 | 453 | 313 | 214 |
| Amphetamine/ Methamphetamine | 157 | 193 | 107 | 54 |
| Anti-histamines | n/a | n/a | 7 | 6 |
| Total | 3,539 | 5,281 | 4,388 | 3,213 |

**Prevalence of drugs positives reported on drug information forms received for the DT50000 and the DW6S 01/01/22-31/12/22. (Amphetamines detection was only possible from the 01/12/22 – 31/12/22)**

## Legal Limits

The 2016 Road Traffic Act (enacted April 2017) introduced per se legal limits for Cannabis, Cocaine and Heroin in whole blood (see table 10).

| Drug | Legal Limit |
|---|---|
| $\Delta^9$-Tetrahydrocannabinol (Cannabis) | 1ng/ml |
| 11-nor-9-carboxy-$\Delta^9$-tetrahydrocannabinol (Cannabis) | 5ng/ml |
| Cocaine | 10ng/ml |
| Benzoylecgonine (Cocaine) | 50ng/ml |
| 6-acetylmorphine (Heroin) | 5ng/ml |

*Table 10: Per se levels*

## Mean *Per Se* Drug Levels

The mean level of Δ9-Tetrahydrocannabinol (Cannabis) was 6.2ng/ml in 2022 (5.7ng/ml in 2020, 6.0ng/ml in 2021).

The 11-nor-9-carboxy-Δ9-tetrahydrocannabinol (Cannabis) level was 65ng/ml in 2022 (55.6ng/ml in 2020, 58.8ng/ml in 2021).

The mean level of Cocaine was 34.1ng/ml in 2022 (35.1ng/ml in 2021).

The Benzoylecgonine level was 604.6ng/ml in 2022 (600.8ngml in 2021).

For reporting, an uncertainty of measurement is taken away from the raw analytical figure. The averages presented here are based on raw analytical figures.

The Analytes targeted in Drug testing are listed in table 11.

*Table 11: Analytes targeted in LC-MS-MS Screening analysis*

| # | ANALYTE | Class/Type |
|---|---|---|
| 1 | 6-Acetylmorphine | Opioid |
| 2 | 7-Aminoclonazepam | Benzodiazepines |
| 3 | 7-Aminoflunitrazepam | Benzodiazepines |
| 4 | 7-Aminonitrazepam‡ | Benzodiazepines |
| 5 | Adinazolam | Benzodiazepines |
| 6 | Alpha-Hydroxyalprazolam | Benzodiazepines |
| 7 | Alpha-Pyrrolidinopentiophenone | Cathinone |
| 8 | Alprazolam | Benzodiazepines |
| 9 | AM-2201 | Cannabinoid |
| 10 | Benzoylecgonine | Cocaine |
| 11 | Benzylpiperazine | Cathinone |
| 12 | Bromazepam | Benzodiazepines |
| 13 | Chlordiazepoxide | Benzodiazepines |
| 14 | Clobazam | Benzodiazepines |
| 15 | Clonazepam | Benzodiazepines |
| 16 | Cocaethylene | Cocaine |
| 17 | Cocaine | Cocaine |
| 18 | Codeine | Opioid |
| 19 | Desalkylflurazepam | Benzodiazepines |
| 20 | Demoxepam | Benzodiazepines |
| 21 | Diazepam | Benzodiazepines |
| 22 | Dihydrocodeine | Opioid |
| 23 | Diphenhydramine | Anti-histamine |
| 24 | EDDP | Methadone |
| 25 | Estazolam | Benzodiazepines |
| 26 | Etizolam | Benzodiazepines |
| 27 | Fenfluramine | Amphetamine |
| 28 | Fentanyl | Opioid |
| 29 | Flualprazolam | Benzodiazepines |
| 30 | Flubromazepam | Benzodiazepines |
| 31 | Flubromazolam | Benzodiazepines |
| 32 | Flunitrazepam | Benzodiazepines |
| 33 | Fluoxetine | Anti-depressant |
| 34 | Flurazepam | Benzodiazepines |
| 35 | Gabapentin | Anti-convulsant |
| 36 | HU-210 | Cannabinoid |
| 37 | Hydrocodone | Opioid |
| 38 | JWH-018 | Cannabinoid |

| # | ANALYTE | Class/Type |
|---|---|---|
| 39 | Ketamine | Dissociative Anaesthetic |
| 40 | Lorazepam | Benzodiazepines |
| 41 | Lormetazepam | Benzodiazepines |
| 42 | Methylenedioxyamphetamine | Amphetamine |
| 43 | Methylenedioxyethylamphetamine | Amphetamine |
| 44 | Methylenedioxymethylamphetamine | Methamphetamine |
| 45 | Methylenedioxypyrovalerone | Cathinone |
| 46 | Meperidine | Cathinone |
| 47 | Mephedrone (4-MMC) | Cathinone |
| 48 | Methadone | Methadone |
| 49 | Methylphenidate | Cathinone |
| 50 | Midazolam | Benzodiazepines |
| 51 | Morphine | Opioid |
| 52 | N-Desmethylflunitrazepam | Benzodiazepines |
| 53 | N-Desmethylzopiclone | Z-drug |
| 54 | Nitrazepam | Benzodiazepines |
| 55 | Nordiazepam | Benzodiazepines |
| 56 | Norfentanyl | Opioid |
| 57 | Norketamine | Dissociative Anaesthetic |
| 58 | Normeperidine | Cathinone |
| 59 | O-desmethyltramadol | Opioid |
| 60 | Oxazepam | Benzodiazepines |
| 61 | Oxycodone | Opioid |
| 62 | Oxymorphone | Opioid |
| 63 | Phenazepam | Benzodiazepines |
| 64 | Prazepam | Benzodiazepines |
| 65 | Pregabalin | Anti-convulsant |
| 66 | S-Amphetamine | Amphetamine |
| 67 | S-Methamphetamine | Methamphetamine |
| 68 | Temazepam | Benzodiazepines |
| 69 | Trifluoromethylphenylpiperazine | Cathinone |
| 70 | THC | Cannabinoid |
| 71 | THCA | Cannabinoid |
| 72 | Tramadol | Opioid |
| 73 | Triazolam | Benzodiazepines |
| 74 | Zaleplon | Z-drug |
| 75 | Zolpidem | Z-drug |
| 76 | Zopiclone | Z-drug |
| 77 | Zopiclone-N-Oxide | Z-drug |

# QUALITY ASSURANCE

The Bureau has an established Quality Management System which is integral to the work of the Bureau and is accredited to ISO/IEC 17025 (2017) standard (General requirements for the competence of testing and calibration laboratories). Compliance with this standard was assessed by INAB (Irish National Accreditation Body), in April 2022.

This year the Bureau sought to

**1)** extend its Scope of Accreditation for the Aviation Breath Test Method

**2)** apply for a Flexible Scope of accreditation in the Alcohol programme

**3)** introduce new drugs and change an existing detection limit in the Toxicology programme

**4)** maintain accreditation for existing tests

Following the INAB assessment, the Bureau's Scope of Accreditation was extended to include the Aviation Breath Test method. This Test Method enables the Bureau to test the Dräger Alcotest 8610 Preliminary Breath Testing devices which identify and quantify Ethanol in a gaseous matrix.

The application to allow the Flexible Scope of Accreditation, which is regularly and successfully used within the Toxicology programme, to be applied within the Alcohol programme was approved. This allows the Bureau to make changes, within defined criteria to the Alcohol Test Method, which are implemented and the results reported as accredited.

The Flexible Scope of Accreditation was utilised in the Toxicology Programme to: (1) introduce 3 new drugs to the Benzodiazepine Confirmation Test method namely Chlordiazepoxide, Zolpidem and Demoxepam. The addition of these analytes allows the Bureau to identify, confirm and report the presence of these drugs in blood and urine specimens; and (2) lower the detection limit of Methadone in blood specimens. Lowering the detection limit in the Screening Test method to match the Confirmatory Test method has increased the number of specimens containing Methadone being identified and confirmed.

ISO 17025 accreditation was maintained for the following tests:

- Blood and Urine Alcohol Analysis
- Evidential Breath Testing
- Preliminary Breath Testing
- Preliminary Drug Testing
- Drug Testing in Oral Fluid
- Laboratory Preliminary Drug Screening
- Cannabis confirmation in Blood and Urine
- Benzodiazepine confirmation in Blood and Urine
- Multidrug confirmation in Blood and Urine
- Qualitative Drug Confirmation in Blood and Urine

Full details of the Bureaus' Scope of Accreditation is available at:

https://www.inab.ie/inab-directory/laboratory-accreditation/testing-laboratories/

# PROFICIENCY TESTING

Over the course of 2022 the Bureau continued its involvement in all Proficiency testing schemes (see Table 12) in which it participates with very little disruption.

Performance across all schemes was acceptable.

*Table 12: Proficiency Testing Programmes*

| Programme | Provider | Scheme | No. Specimens | Analytes |
|---|---|---|---|---|
| Toxicology | CAP | Drugs of Abuse in Whole Blood and Urine | 8 specimens per annum | Amphetamines & Stimulants<br>Cannabinoids<br>Cocaine & Metabolites<br>Minor Tranquilisers<br>Non - Opiate Narcotics<br>Opiates |
| | Labquality | Drugs of Abuse in Urine | 6 specimens per annum | Amphetamines & Stimulants<br>Cannabinoids<br>Cocaine & Metabolites<br>Minor Tranquilisers<br>Non - Opiate Narcotics<br>Opiates |
| | LGC Standards Proficiency Testing | Drugs of Abuse in Urine | 12 specimens per annum | Over 210 analytes are available including Amphetamines & Stimulants.<br>Cannabinoids<br>Cocaine & Metabolites<br>Minor Tranquilisers<br>Non - Opiate Narcotics<br>Opiates, Creatinine, pH, Specific Gravity |
| | LGC Standards Proficiency Testing | Toxicology | 8 specimens per annum | Amphetamines & Stimulants<br>Cannabinoids<br>Cocaine & Metabolites<br>Minor Tranquilisers<br>Non - Opiate Narcotics<br>Opiates |
| | LGC Standards Proficiency Testing | Drugs in Oral Fluid | 12 specimens per annum | Amphetamines & Stimulants<br>Cannabinoids<br>Cocaine & Metabolites<br>Minor Tranquilisers<br>Non - Opiate Narcotics<br>Opiates |
| | LGC Standards Proficiency Testing | Toxicology – Benzodiazepines | 8 specimens per annum | Diazepam, Nordiazepam, Temazepam, Oxazepam, Nitrazepam |
| | LGC Standards Proficiency Testing | Toxicology - Z – Drugs | 8 specimens per annum | Zopiclone, Zaleplon, Zolpidem |
| Alcohol in Blood and Urine | Labquality | Blood | 8 specimens per annum | Alcohol |
| | Labquality | Urine Quantitative | 4 specimens per annum | pH, Creatinine, Urea & specific Gravity |
| | LGC Standards Proficiency Testing | Tox - Blood & Tox - Urine | 24 specimens per annum | Alcohol |
| Evidential Breath Testing | CTS, Inc. | 568 Breath Alcohol Simulator Solution Analysis | 2 solutions per annum | Alcohol |

# FINANCIAL INFORMATION

The Medical Bureau of Road Safety derives its finances from an Annual Grant from the Department of Transport. The total grant allocation for the Bureau for 2022 was €6,290,000.

# CORPORATE GOVERNANCE

The Board of the Medical Bureau of Road Safety was established under the Medical Bureau of Road Safety (Establishment) Order, 1968. The functions of the Board are laid down in the Road Traffic Acts 1968 – 2016 and their regulations. The Board is accountable to the Minister for Transport and is responsible for ensuring good governance and performs this task by setting strategic objectives and targets and taking strategic decisions on all key business issues. The regular day-to-day man-agement, control and direction of the Medical Bureau of Road Safety are the responsibility of the Director and the senior management team. The Director and the senior management team must follow the broad strategic direction set by the Board, and must ensure that all Board members have a clear understanding of the key activities and decisions related to the entity, and of any sig-nificant risks likely to arise. The Director acts as a direct liaison between the Board and manage-ment of the Medical Bureau of Road Safety.

## Board Members

The Board of the Medical Bureau of Road Safety comprises of five members (including the Director) and is appointed by the Minister for Transport.

| BOARD MEMBERS | | |
|---|---|---|
| Name | Position | Attendance Record |
| Dr. Declan Bedford | Chairman | 4 of 4 |
| Professor Denis Cusack | Board Member and Director | 4 of 4 |
| Professor Patricia Fitzpatrick | Board Member | 4 of 4 |
| Mr. Sean Quigley | Board Member | 4 of 4 |
| Ms. Joan O'Brien | Board Member | 4 of 4 |

## Bureau Membership and Meetings

During 2022 the Medical Bureau of Road Safety held four meetings. These meetings were held on 11th March (zoom), 9th June (zoom), 29th September (in person) and 28th November (in person) 2022.

## Schedule of Fees and Aggregate Expenses paid to Directors during 2022

During 2022 the following fees were paid:

| BOARD FEES PAID | | | |
|---|---|---|---|
| Board Member | Type of Fee | Paid 2022 | Paid 2021 |
| Dr. Declan Bedford | Fee for Chairperson of Board of State Body<br>Fee for Non-Executive members of Boards of State Bodies | €8,974<br>- | €8,978<br>- |
| Ms. Joan O'Brien | Fee for Non-Executive members of Boards of State Bodies | €5,982 | €5,988 |
| Mr. Sean Quigley | Fee for Non-Executive members of Boards of State Bodies | €5,983 | €5,987 |
| Professor Patricia Fitzpatrick | No Fee for Non-Executive members of Boards of State Bodies | - | - |

The Board has established one committee:

## Audit and Risk Committee

The Audit and Risk Committee comprises of three Board members. The role of the Audit and Risk Committee (ARC) is to support the Board in relation to its responsibilities for issues of risk, control and governance and associated assurance. The ARC is independent from the financial management of the organisation. In particular, the Committee ensures that the internal control systems including audit activities are monitored actively and independently. The ARC reports to the Board after each meeting, and formally in writing annually. The members of the Audit and Risk Committee are: Mr. Sean Quigley, Chairperson, Dr. Declan Bedford, Professor Patricia Fitzpatrick until 10th March 2022 and was then replaced by Ms. Joan O'Brien. There were 4 meetings of the ARC held during 2022.

## Governance Oversight Committee

The role of the Governance Oversight Committee is to support the Board in meeting legal and statutory requirements, as well as adopting good practice. The members of this committee are Representatives from the Department of Transport, the Director, Senior Administrative Officer and Administrative Officer from the Medical Bureau of Road Safety. There were 4 meetings of the Governance Oversight Committee held in 2022.

## Compliance

The Board has adopted the Code of Practice for the Governance of State Bodies (2016) and has put procedures in place to ensure compliance with the Code. An Oversight Agreement has been made with the Department of Transport and the Medical Bureau of Road Safety was in full compliance with the Code of Practice for the Governance of State Bodies for 2022.

## Disclosure

Section 22 of the Protected Disclosures Act 2014 requires the Publication of an Annual Report each year relating to the number of protected disclosures made in the preceding year and any actions taken in response to such disclosures. Pursuant to this requirement, the Medical Bureau of Road Safety confirms that no protected disclosures were received in accordance with the provisions of the Protected Disclosures Act, 2014 for the period from 1st January 2022 – 31st December 2022.

## Statutory Requirements

The Medical Bureau of Road Safety confirms that it complied with its statutory requirements during 2022.

## Ethics in Public Office

The members of the Board who held office at the 31st December 2022 had no interests for the purposes of the Ethics in Public Office Acts 1995 and 2001.

## External Financial Audit

The Comptroller and Auditor General performed the annual audit of the 2021 Financial Statements during 2022. No issues were raised during the audit. The annual audit of the 2022 Financial Statements takes place in 2023.

## Internal Audit

The Internal Audit function is a key element in informing the Board on the effectiveness of the system of internal financial control. The internal auditor operates in accordance with the Code of Practice for the Governance of State Bodies. An Internal Audit report was prepared in relation to 2022.

## Procurement

Competitive tendering is the normal policy utilised by the Medical Bureau of Road Safety in the procurement process. It affirms that it complied with procurement procedures and relevant EU Directives as set out in the Code of Practice for the Governance of State Bodies during 2022.

## Strategic Planning

The Bureau compiled its Annual Strategic Plan for 2023 and its Five-Year Strategic Plan 2023 – 2027 and both strategies were forwarded to the Minister. The Plans set out the Bureau's key objectives over the coming year and years in conjunction with its key actions to achieve these objectives.

## Prompt Payment of Account

The Board acknowledges their responsibility for ensuring compliance in relation to the Prompt Payment of Accounts Act. Under an agreement with University College Dublin, suppliers are paid in the first instance by the College which is then reimbursed by the Bureau.

It is the policy of the Medical Bureau of Road Safety to ensure that all invoices are paid promptly. University College Dublin, as a public-sector body, is required to comply with the requirements of the Act in relation to payments to suppliers for the supply of goods or services and therefore has strict procedures in place.

In the case of a small number of suppliers, the Bureau will issue payment by cheque directly to the supplier. The controls in relation to processing of invoices, credit notes and dealing with supplier disputes can only provide reasonable and not absolute assurance against material non-compliance with the Act.

## Public Spending Code

The Public Spending Code commenced in September 2013 and updated previous guidelines, circulars and directions in relation to capital appraisal and value for money.

The public spending code is designed to ensure that the State gets the best possible value for the resources at its disposal. The code applies to both capital and current expenditure and outlines what is required of public service managers at different points of the expenditure lifecycle such as appraising, planning, approving, implementing and reviewing.

The Board acknowledges their responsibility to the Public Spending Code and can confirm compliance in 2022.

## Professional Witness

The area of road safety traffic enforcement and in particular driving under the influence of intoxicants, alcohol and drugs is one of the most litigated areas in the criminal law sphere in Ireland. The Bureau provides expert witness in cases before the Courts. In 2022 there were 5 court attendances by Bureau staff.

Reports and opinions were provided to both Defence and Prosecution parties to assist the Court in many other cases.

# MEDICAL BUREAU OF ROAD SAFETY

## STATEMENT OF INCOME AND EXPENDITURE AND RETAINED REVENUE RESERVES FOR THE YEAR ENDED 31 DECEMBER 2022

| | Note | 31/12/2022 | 31/12/2021 |
|---|---|---|---|
| **INCOME** | | € | € |
| Oireachtas grants | 5 | 6,290,000 | 5,939,000 |
| Professional fee income | | 4,242 | 5,730 |
| **Total Income** | | 6,294,242 | 5,944,730 |
| **EXPENDITURE** | | | |
| Salaries and pension contributions | 15 | 3,213,579 | 3,215,311 |
| Board members remuneration | 16 | 20,939 | 20,953 |
| Direct costs associated with service delivery | 6a | 997,538 | 962,073 |
| Office and laboratory supplies | 6b | 817,633 | 573,642 |
| Administration costs | 6c | 854,917 | 743,591 |
| Depreciation | 7 | 793,774 | 786,521 |
| **Total Expenditure** | | 6,698,380 | 6,302,091 |
| **Deficit for the period before appropriations** | | (404,138) | (357,361) |
| **Transfer from/(to) capital account** | 8 | 183,166 | 594,373 |
| **(Deficit)/Surplus for the year after appropriations** | | (220,972) | 237,012 |
| Balance brought forward at 1 January | | 1,002,443 | 765,431 |
| Balance carried forward as at 31 December 2022 | | 781,471 | 1,002,443 |

The statement of income and expenditure and retained revenue includes all gains and losses recognised in the year.

# STATEMENT ON INTERNAL CONTROL

## SCOPE OF RESPONSIBILITY

I, Dr. Declan Bedford, Chairman of the Medical Bureau of Road Safety, acknowledge the Board's responsibility for ensuring that an effective system of internal control is maintained and operated. This responsibility takes account of the requirements of the Code of Practice for the Governance of State Bodies (2016).

## Purpose of the System of Internal Control

The system of internal control is designed to manage risk to a tolerable level rather than to eliminate it. The system can therefore only provide reasonable and not absolute assurance that assets are safeguarded, transactions authorised and properly recorded and that material errors or irregularities are either prevented or detected in a timely way.

The system of internal control, which accords with guidance issued by the Department of Public Expenditure and Reform has been in place in Medical Bureau of Road Safety for the year ended 31 December 2022 and up to the date of approval of the financial statements.

## Capacity to Handle Risk

The Medical Bureau of Road Safety has an Audit and Risk Committee (ARC) comprising of three Board members. The ARC met four times in 2022.

The Medical Bureau of Road Safety has also established an internal audit function which is adequately resourced and conducts a programme of work agreed with the ARC. The internal audit function has been outsourced to an external company.

The ARC has developed a risk management policy which sets out its risk appetite, the risk management processes in place and details the roles and responsibilities of staff in relation to risk. The policy has been issued to all staff who are expected to work within the Medical Bureau of Road Safety's risk management policies, to alert management on emerging risks and control weaknesses and assume responsibility for risks and controls within their own area of work.

## Risk and Control Framework

The Medical Bureau of Road Safety has implemented a risk management system which identifies and reports key risks and the management actions being taken to address and, to the extent possible, to mitigate those risks.

A risk register is in place which identifies the key risks facing the Medical Bureau of Road Safety and these have been identified, evaluated and graded according to their significance. The register is reviewed and updated by the ARC and Board on an annual basis. The outcome of these assessments is used to plan and allocate resources to ensure risks are managed to an acceptable level.

The risk register details the controls and actions needed to mitigate risks and responsibility for operation of controls assigned to specific staff. I confirm that a control environment containing the following elements is in place:

- procedures for all key business processes have been documented,
- financial responsibilities have been assigned at management level with corresponding accountability,
- there is an appropriate budgeting system with an annual budget which is kept under review by senior management,
- there are systems aimed at ensuring the security of the information and communication technology systems,
- there are systems in place to safeguard the assets, and
- control procedures over grant funding to outside agencies ensure adequate control over approval of grants and monitoring and review of grantees to ensure grant funding has been applied for the purpose intended.

## Ongoing Monitoring and Review

Formal procedures have been established for monitoring control processes and control deficiencies are communicated to those responsible for taking corrective action and to management and the Board, where relevant, in a timely way. I confirm that the

following ongoing monitoring systems are in place:

- key risks and related controls have been identified and processes have been put in place to monitor the operation of those key controls and report any identified deficiencies,
- reporting arrangements have been established at all levels where responsibility for financial management has been assigned, and
- there are regular reviews by senior management of periodic and annual performance and financial reports which indicate performance against budgets/forecasts.

## Procurement

I confirm that the Medical Bureau of Road Safety has procedures in place to ensure compliance with current procurement rules and guidelines and that during the year ended 31 December 2022 the Medical Bureau of Road Safety complied with those procedures.

## Review of Effectiveness

I confirm that the Medical Bureau of Road Safety has procedures to monitor the effectiveness of its risk management and control procedures. The Medical Bureau of Road Safety's monitoring and review of the effectiveness of the system of internal control is informed by the work of the internal and external auditors, the Audit and Risk Committee which oversees their work, and the senior management within the Medical Bureau of Road Safety responsible for the development and maintenance of the internal financial control framework.

I confirm that the Board conducted an annual review of the effectiveness of the internal controls for 2022 on the 9th March 2023.

## Internal Control Issues

No weaknesses in internal control were identified in relation to 2022 that require disclosure in the financial statements.

## Tax Compliance

The Medical Bureau of Road Safety is committed to compliance with taxation laws and was compliant during 2022.

## Breaches in Control

No breaches in control were identified in relation to 2022 that require disclosure in the financial statements.

## Material Losses or Frauds

There were no material losses or frauds identified in relation to 2022 that require disclosure in the financial statements.

On behalf of the Board of the Medical Bureau of Road Safety:

**Dr. Declan Bedford**
**Chairman**

# FREEDOM OF INFORMATION

During 2022 the Bureau received four requests which were dealt with as follows:

| Decision | Number of Requests |
|---|---|
| **Granted** | **1** |
| **Administrative Pathway** | **3** |
| **Total** | **4** |

| Category of Requester | Number Received |
|---|---|
| Journalist | **0** |
| Solicitor | **0** |
| Other | **4** |
| Total | **4** |

# EQUALITY AND DIVERSITY

The Medical Bureau of Road Safety is committed to respecting gender equality, diversity and inclusion for the benefit of its employees, stakeholders, outside agencies and the public and has adopted the UCD Policies and Procedures in this regard.

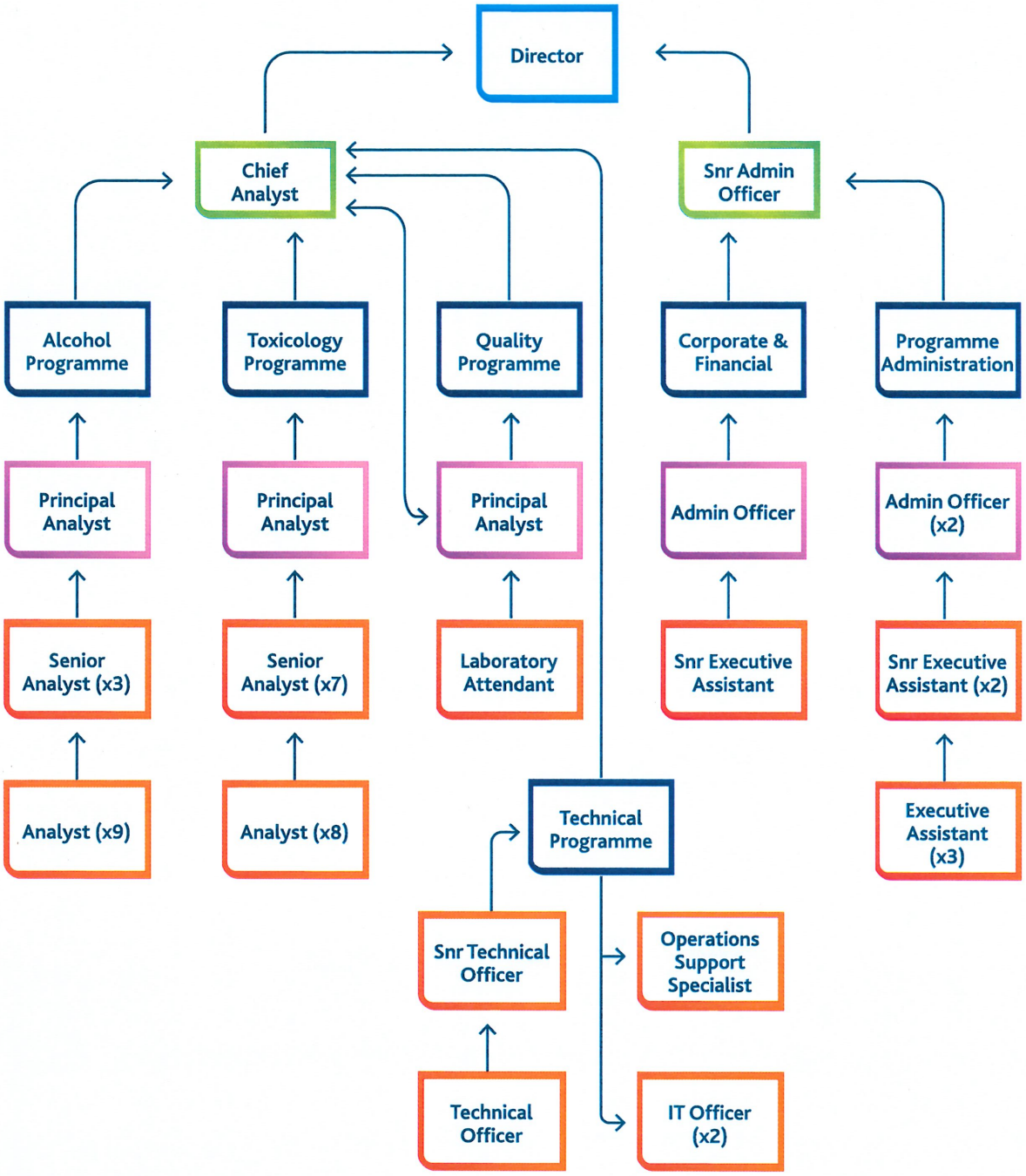
# STAFFING

The Bureau continued during 2022 to operate within its delegated sanctioned staff number under the Employment Control Framework. In January 2022 the bureau received sanction from the Department of Transport for a further 7 members of staff. This figure included: 2 Senior Analysts, 4 Analysts and 1 Technical Analyst.

The recruitment process for the additional staff continued throughout 2022.

# MEDICAL BUREAU OF ROAD SAFETY

## ORGANISATIONAL CHART



# COURSES AND CONFERENCES ATTENDED BY STAFF IN 2022

| | COURSES AND CONFERENCES ATTENDED BY STAFF IN 2022 |
|---|---|
| 1. | The Director attended the Medico-Legal Society meeting on Capacity (Virtual) on 20th January 2022. |
| 2. | One Senior Analyst and eight Analysts attended Agilent Troubleshooting training (LCMS MS) on 26th Jan-uary 2022 at the MBRS. |
| 3. | The Director presented to the Road Safety Authority Board on alcohol interlocks (Virtual) on 27th January 2022. |
| 4. | One Principal Analyst, four Senior Analysts and seven Analysts attended an Integration Review meeting on 31st January 2022 at the MBRS. |
| 5. | The Director attended the NOTM Working Group on Traffic Medicine in the Royal College of Physicians of Ireland, Dublin on 7th February 2022. |
| 6. | The Director attended a Virtual Meeting of the Medical Advisory Panel on Alcohol, Drugs and Driving, UK Department of Transport, London on 2nd March 2022. |
| 7. | A Principal Analyst attended an online meeting of the Chemistry Network Group on 22nd March 2022. |
| 8. | The Director attended the NOTM Subgroup Meeting on Alcohol in Traffic Medicine in the Royal College of Physicians of Ireland, Dublin on 31st March 2022. |
| 9. | The Director attended and presented at the Road Safety Easter Campaign Launch, Dublin on 13th April 2022. |
| 10. | The Director attended the Medico-Legal Society meeting on Negligence and Breach of Duty (Virtual) on 28th April 2022. |
| 11. | A Principal Analyst attended the online TIAFT conference: Alcohol, a Global Perspective on 10th May 2022. |
| 12. | A Senior Analyst and an Analyst attended the IMSS 2022 conference on 18th May 2022 at University Col-lege Dublin. |
| 13. | A Senior Analyst and an Analyst attended a Biotage meeting at FSNI, Carrickfergus, NI on 30th June 2022. |
| 14. | The Director addressed the Oireachtas Committee on Transport on Intoxicated Driving, Leinster House, Dublin on 30th June 2022. |
| 15. | An Analyst attended a HPLC Troubleshooting Course, online, on 4th July 2022 at the MBRS. |
| 16. | A Principal Analyst attended "Alcohol and Traffic Safety" – A Selective Review (hosted by IACT, online) on 18th August 2022. |
| 17. | An Analyst attended the two-day UKIAFT 2022 conference on 25th and 26th August 2022 in St. Helier. Jersey. |
| 18. | The Director attended and presented at the 23rd International Council on Alcohol, Drugs and Traffic Safety Conference, Rotterdam, The Netherlands, on 28th to 31st August 2022. The Chief Analyst and Principal Analyst were also in attendance. |
| 19. | A Senior Analyst attended the TIAFT conference from 5th to 8th September 2022 in Versailles, France. |

| COURSES AND CONFERENCES ATTENDED BY STAFF IN 2020 | |
|---|---|
| **20.** | A Principal Analyst commenced an MSc. In Management Studies with UCD Smurfit School in September 2022. |
| **21.** | Four Analysts and an Executive Assistant attended a one day training course in Courtroom Training Skills on 8th September 2022 at the MBRS. |
| **22.** | The Director attended the Annual Forensic Conference of the Coroners Society of Ireland, Bantry, Co. Cork on 9th – 10th September 2022. |
| **23.** | Five Analysts attended a 1-day training course in Courtroom Training Skills on 22nd September 2022 at the MBRS. |
| **24.** | A Senior Analyst attended the IMSS 2022 conference from 24th to 28th September 2022 in Belfast, Northern Ireland. |
| **25.** | An Analyst attended a Borkenstein Drugs Course (Philadelphia, PA) online, from 26th to 30th September 2022. |
| **26.** | An Analyst attended an online GC Troubleshooting course on 29th and 30th September 2022. |
| **27.** | The Director attended a Meeting of the Medical Advisory Panel on Alcohol, Drugs and Driving, UK Department of Transport, London on 12th October 2022. |
| **28.** | The Director attended and presented at Forensics 2022 Conference, Caparica, Portugal on 14th – 16th October 2022. |
| **29.** | Three Administrative Officers, one Facilities Support Specialist, four Senior Analysts, one IT Officer and one Senior Executive Assistant attended a 1-hour Fire Marshall Training course held by UCD SIRC on 26th October 2022 |
| **30.** | A Senior Analyst attended SOFT 2022 from 30th October to 3rd November 2022 in Cleveland, Ohio, USA |
| **31** | The Director attended and presented at the Road Safety Christmas Launch, University College Cork on 1st December 2022. |
| **32.** | An Analyst attended a 3-hour online TIAFT Continuing Education Seminar on Cannabis on 7th December 2022. |
| **33.** | Throughout 2022, 14 UCD courses were attended by Bureau staff members ranging from communication courses to People and Project Management. These are offered as part of the UCD People Development Programme. |

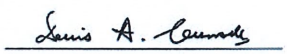
# ENERGY CONSUMPTION

Under the Government's commitment to improve public energy efficiency by 33% in 2022 the Medical Bureau of Road Safety has registered for and is reporting through the SEAI online sys-tem. The Bureau's main energy usage is gas and electricity which is necessary for operating a forensic laboratory and ancillary facilities, e.g. heating and lighting, laboratory equipment, air handling, computers and servers.

The Bureau utilises initiatives to improve energy efficiency. A Building Management System (BMS) is used to monitor and control heating, air handling units, water boiler (direct hot water supply) and extractor fans. Each of the four floors of the Bureau's premises is managed individu-ally and automatic controls are scheduled accordingly. Energy efficient light bulbs, movement sensors and timer switches are fitted throughout the building to minimise energy consumption.

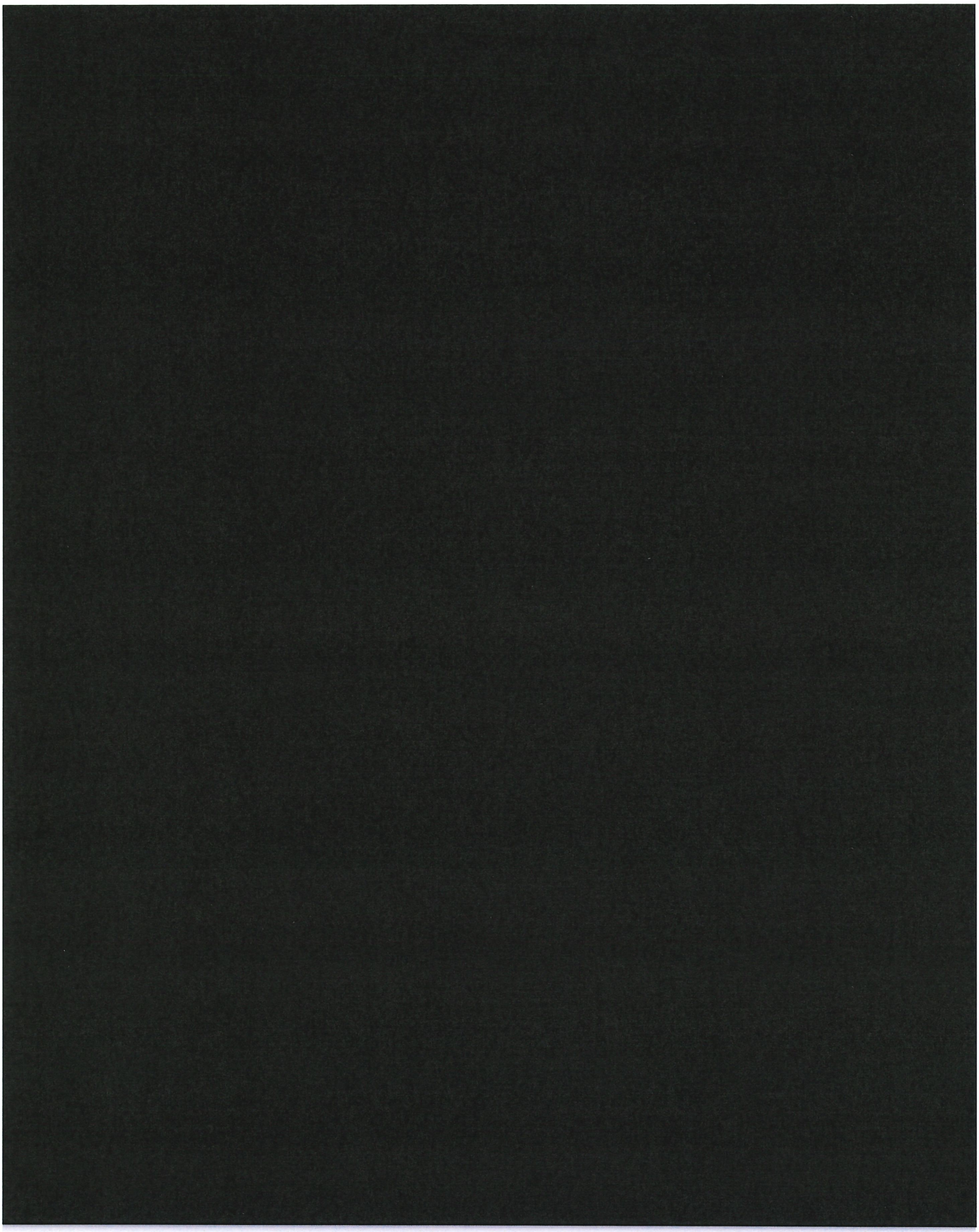
# LEGAL DISCLAIMER

The descriptions and statistics contained within this report are of a condensed and general informative nature only. They should not, by themselves, be relied upon in determining legal rights or other decisions under the Road Traffic Acts. Readers and users are advised to verify with their legal advisors any information on which they may wish to rely.



Professor Denis A. Cusack,
Director.

Dr. Declan Bedford,
Chairman.



MEDICAL BUREAU OF ROAD SAFETY, HEALTH SCIENCES
CENTRE, UNIVERSITY COLLEGE DUBLIN, BELFIELD, DUBLIN 4