

## **The PUSH (PIEDs UserS' Health) Audit - Data collected from GP Clinics across Australia -who are they, what are the adverse effects they experience and does harm reduction work?**

**BENG EU<sup>1</sup>, KEVIN LEE<sup>2</sup>, MATTHEW DUNN<sup>3</sup>, SCOTT GRIFFITHS<sup>4</sup>, DAVID BAKER<sup>6</sup>, MARK BLOCH<sup>7,11</sup>, CLARA SOO<sup>8</sup>, FIONA BISSHOP<sup>9</sup>, BELINDA WOZENCROFT<sup>10</sup>, JOSHUA DAWE<sup>5</sup>, MARK STOOVÉ<sup>5</sup>,**

<sup>1</sup>Prahran Market Clinic, Prahran, Australia, <sup>2</sup>Monash University, Melbourne, Australia, <sup>3</sup>Deakin University, Melbourne, Australia, <sup>4</sup>University of Melbourne, Melbourne, Australia, <sup>5</sup>Burnet Institute, Melbourne, Australia, <sup>6</sup>East Sydney Doctors, Sydney, Australia, <sup>7</sup>Holdsworth House Sydney, Sydney, Australia, <sup>8</sup>Hobart Place General Practice, Canberra, Australia, <sup>9</sup>Holdsworth House Brisbane, Brisbane, Australia, <sup>10</sup>View St Medical, Perth, Australia, <sup>11</sup>University of NSW, Sydney, Australia

**Chair:** Dr. Beng Eu, Prahran Market Clinic

**Chair's email:** beng@prahranmarketclinic.com

**Aim:** To present ground-breaking data from the PUSH AUDIT about 173 people who used non-prescribed PIEDs(Performance and Image Enhancing Drugs) who presented to GP Clinics in 5 Australian cities.

### **PRESENTATION 1:**

#### **The PUSH Audit – Design, recruitment and the role of GPs in harm reduction in the non-prescribed PIEDs use population**

**Presenting author:** Beng Eu

Presenter's email: beng@prahranmarketclinic.com

**Background:** The PUSH Audit was designed to collect data on patients using non-prescribed PIEDs (performance and image enhancing drugs) as well as those on prescribed testosterone attending GP Clinics. There has been no previous similar data collection. Data collected included demographics, types of PIEDs use, the reason for use, test results and the impact of GP engagement.

**Description of Intervention:** The recruitment of GPs was crucial to the success of the audit and GPs who expressed interest in this topic were targeted with education events. Clinics were further incentivised by being invited to collaborate on any work resulting from the data. The recruitment was hampered by the COVID 19 health crisis. Additional efforts were then made to increase the recruitment from the sites involved.

**Effectiveness/results:** 9 clinics across Australia enrolled into this audit. 206 audits for 173 people were recruited from the non-prescribed PIEDs group and 217 into the prescribed testosterone group. GPs felt that they made a difference in most of the subjects (80%)

**Conclusion and Next Steps:** Despite the unusual design of this audit and the challenges presented to recruitment, recruitment targets were achieved. The data is now being analysed for information that can be useful in describing and understanding the populations included. The adverse effects of non-prescribed PIEDs use can be identified and monitored.

The response of the GPs showed that there was a role they could play in harm reduction for the non-prescribed PIEDs population.

## **PRESENTATION 2:**

### **The Who, What, Why of PIEDs use and the adverse effects reported – Data from the PUSH Audit**

**Presenting author:** Matthew Dunn

Presenter's email: m.dunn@deakin.edu.au

**Introduction and Aims:** There has been little data collected about people who use PIEDs (performance and image enhancing drugs). The PUSH Audit collected data from 173 of these individuals and the who, what and why of this practice has been examined.

**Design and Methods:** The PUSH audit is a cross-sectional audit done from the perspective of 9 GP clinics in Australia. Data was collected from 173 people using non-prescribed PIEDs on the demographics, smoking status, PIEDs used, reasons for use and the adverse effects reported. Comparisons were made with a similar population of 217 men who were prescribed testosterone

**Results:** The age range and the BMI of this population were determined (age 37 v 55, BMI 27.76) The BMI median was close to the average BMI of men in Australia. The smoking rate was similar to the population average. The main reason for use was for body image improvement. The main PIEDs used was testosterone. Abnormal liver function was more common (45% v 25%) with non-prescribed PIEDs, and the liver abnormalities were also more severe in this group ( $p < 0.005$ ). Adverse events were reported by 70% in this group compared to 19% in the comparison arm.

**Discussions and Conclusions:** This audit demonstrates that the person who uses PIEDs is of average build and uses it for body image purposes. They are likely to be using testosterone as the main substance and are more likely to report adverse events as a result of their use. This information is useful in identifying the population and their risks.

**Implications for Practice or Policy (optional):** Knowing who this population is and the adverse events they experience will be crucial in identifying and engaging this population into healthcare and thereby being able to reduce harm. It also enables discussion with individuals who may present with an adverse event associated with PIEDs use.

**Implications for Translational Research (optional):** This audit presents some important data to stimulate research questions and also to help translate to health care that would reduce the harm of PIEDs use.

**Disclosure of Interest Statement:** There has been no external funding received for this study. Internal costs have been funded by Prahran market Clinic and The Burnet Institute.

## **PRESENTATION 3:**

### **Effects of anxiety and depression on adverse health outcomes and harm management approaches among people who use non-prescribed performance and image enhancing drugs – data from the PUSH AUDIT**

**Presenting author:** Joshua Dawe

Presenter's email: [joshua.dawe@burnet.edu.au](mailto:joshua.dawe@burnet.edu.au)

**Introduction and Aims:** Chronic use of non-prescribed performance and image enhancing drugs (PIEDs) is associated with adverse health outcomes, including abnormal liver function, hypertension and polycythemia. Experiences of anxiety and depression may present barriers to the uptake of harm management approaches relating to the use of PIEDs in clinical settings, further increasing the risk of adverse health outcomes. The aim of this study is to investigate the association between self-reported anxiety and depression and (1) adverse health outcomes related to the use of non-prescribed PIEDs.

**Design and Methods:** Retrospective patient management system data was extracted from eight general practices across Australia to identify patients who reported use of non-prescribed PIEDs. Adjusted prevalence ratios investigated the association between self-reported anxiety and depression and the study outcomes. Covariates included age, smoking status, sexuality and contributing clinic.

**Key Findings:** Of the 171 patients identified, 50 (29%) reported experiences of anxiety and/or depression. Adverse effects relating to the use of non-prescribed PIEDs were higher among patients with self-reported anxiety and depression (PR:1.79, 95%CI:1.39-2.31). Planned changes to the usage of PIEDs following a consultation with a general practitioner were lower among patients with self-reported anxiety and depression (PR:0.53, 95%CI:0.33-0.84).

**Discussion and Conclusions:** Patients experiencing anxiety and/or depression experienced more adverse health outcomes related to their use of PIEDs, and were less likely to alter their use of PIEDs following clinical consultations. Enhancing pathways to mental health services in primary care settings is critical in supporting patients to employ harm management approaches relating to their use of non-prescribed PIEDs.

**Implications for Practice or Policy (optional):** Mental health management needs to be included as part of health management for people using non-prescribed PIEDs as this is a predictor for higher rates of adverse effects and lesser change of behaviour change.

#### **PRESENTATION 4:**

**The measured adverse effects of PIEDs use – what is real and what is over-stated?  
Measured adverse effects data from the PUSH audit**

**Presenting author:** Beng Eu

Presenter's email: [beng@prahranmarketclinic.com](mailto:beng@prahranmarketclinic.com)

**Introduction and Aims:** Performance and image enhancing drugs (PIEDs) use and its associated adverse effects has been little studied in Australia in a general population context. Most of what is known is presentations of severe adverse events - often to an acute emergency setting. This study aims to present data about measured adverse events in a population of people attending GP Clinics who use non-prescribed PIEDs.

**Design and Methods:** The PUSH audit is a cross-sectional audit done from the perspective of the GP from 9 clinics across Australia. Data recorded include haemoglobin, liver function, renal function, lipids, serum testosterone and blood pressure from 173 people. Comparison is made with 217 men who are prescribed testosterone.

**Results:** There was a significantly higher incidence of abnormal liver function in this group (43% v 25%) and the LFT results were also significantly more abnormal ( $p < 0.005$ ). There were also higher levels of testosterone and blood pressure ( $p < 0.005$ ). However, triglyceride and HDL levels were better in this group ( $p < 0.005$ ). There was no difference in the median haemoglobin results, abnormal HB results or renal function between the groups. Details of the clinical significance of these findings will be presented.

**Discussions and Conclusions:** This audit demonstrates the measurable adverse effects that can result from non-prescribed PIEDs use. These adverse effects need to be monitored closely to prevent any severe effects on their health. However, some of the expected adverse effects may be mitigated by healthier lifestyles in this population.

**Implications for Practice or Policy (optional):** Known adverse effects need to be monitored for in people who use PIEDs. Not all adverse effects are severe. This audit showed the adverse effects that should be monitored.

**Implications for Translational Research (optional):** Active monitoring for these side effects and also testosterone levels.

**Discussion Section:** This symposium will represent a unique opportunity for participants to see research results from an Australian study. There has been no previous comparable study. As 3 of the authors of this work will be present, there will be opportunity to discuss the history and background of this research, as well as the design and the analysis of the data. Participants' ideas, questions and debate will also inform the research team about other questions that this data may be able to answer which can also inform future research ideas. Participants can contribute to the future direction of research in this field. There will be expected discussion about how representative this sample was to the population of people using non-prescribed PIEDs and the clinical significance of the findings. There will also be discussion about how this data can be used in harm minimisation efforts in people working in this field.

**Discussant:** The Chair will lead the discussion

**Discussant's email:** beng@prahranmarketclinic.com

**Disclosure of Interest Statement:** There has been no external funding received for this study. Internal costs have been funded by Prahran market Clinic and The Burnet Institute.