

7.12 OXYCODONE,

Tablet containing oxycodone hydrochloride, 10 mg, 20 mg, 40 mg, 80 mg (controlled release), OxyContin[®], Mundipharma Pty Ltd (and Novacodone[®] and Oxycodone Sandoz[®], Sandoz Pty Ltd)

Note: The submission was made by Mundipharma Pty Ltd, the sponsor of the OxyContin[®] brand. However, the requested listing would change the PBS listing of OxyContin[®], sponsored by Mundipharma Pty Ltd, Novacodone[®], sponsored by Sandoz Pty Ltd, and Oxycodone Sandoz[®], also sponsored by Sandoz Pty Ltd. For brevity, brand names are used to differentiate between products that have hydro-gelling and crush-deterrent physical properties (i.e. OxyContin and Novacodone) and those that do not (i.e. Oxycodone Sandoz).

1 Purpose of Application

- 1.1 The submission sought to limit PBS access to the modified release oxycodone formulation that does not have hydro-gelling and crush-deterrent properties (*referred to as 'Oxycodone Sandoz'*). The submission proposed this be achieved by having an authority required listing for Oxycodone Sandoz and limiting its use to patients with chronic severe disabling pain that is unresponsive to non-opioid analgesics and who cannot tolerate forms with hydro-gelling and crush-deterrent properties (*referred to as 'OxyContin/Novacodone'*).
- 1.2 The submission proposed the current Restricted Benefit listing would be maintained for OxyContin/Novacodone. OxyContin/Novacodone and Oxycodone Sandoz are bioequivalent.
- 1.3 The requested basis for the change to the Sandoz listing was the claim that Oxycodone Sandoz has inferior safety when not used as intended. The submission claimed an Authority Required listing would allow for greater prescribing and dispensing scrutiny, ensure only patients with a clinical need for Oxycodone Sandoz are provided PBS subsidy, and effectively prevent inappropriate substitution. Changes to PBS listing would not affect the availability of Oxycodone Sandoz in the private market. The submission presented a cost consequence analysis claiming reduced healthcare costs from opioid misuse.

Table 1: Key components of the clinical issue addressed by the submission

Component	Description
Population	People who misuse prescription opioids for non-clinical reasons
Intervention	Formulations of modified-release oxycodone with hydro-gelling and crush-deterrent properties
Comparator	Formulations of modified-release oxycodone without hydro-gelling and crush-deterrent properties

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Outcomes	Overdoses, deaths, VAS markers of drug liking, population level opioid use, extra-medical use of pharmaceutical opioids by opioid misusers, attractiveness for extra-medical use by opioid misusers, and, successful tampering.
Clinical claim	Oxycodone formulations with hydro-gelling and crush-deterrent properties have non-inferior clinical effectiveness to Oxycodone Sandoz and superior safety to Oxycodone Sandoz when not used as intended.

Source: Table 1-1, p14 of the submission

VAS = visual analogue scale

2 Requested listing

Name, restriction, manner of administration, form	Maximum quantity (packs)	Maximum quantity (units)	No. of repeats	Dispensed price for maximum quantity	Proprietary name and manufacturer
OXYCODONE					
10 mg modified release tablet, 28	1	28	0	\$25.40	Oxycodone Sandoz, Sandoz Pty Ltd
20 mg modified release tablet, 28	1	28	0	\$33.88	
40 mg modified release tablet, 28	1	28	0	\$48.61	
80 mg modified release tablet, 28	1	28	0	\$70.45	
PBS Indication:	Chronic severe disabling pain				
Treatment phase:	Initial and Continuing				
Restriction:	<input checked="" type="checkbox"/> Authority Required - In Writing <input checked="" type="checkbox"/> Authority Required – Telephone				
Clinical criteria:	<p>The condition must be unresponsive to non-opioid analgesics.</p> <p>Limited to patients who cannot tolerate abuse-deterrent oxycodone due to swallowing difficulties, patients with mechanical bowel obstruction, and patients prone to intestinal obstruction because of conditions such as bowel cancer or excessive bowel inflammation and swelling due to Crohn's disease.</p>				
Prescriber Instructions:	For prescribing by nurse practitioners where care of a patient is shared between a nurse practitioner and medical practitioner in a formalised arrangement with an agreed management plan. Further information can be found in the Explanatory Notes for Nurse Practitioners.				
Administrative Advice:	<p>Authorities for increased maximum quantities and/or repeats will be granted only for:</p> <p>(i) chronic severe disabling pain associated with proven malignant neoplasia; or</p> <p>(ii) chronic severe disabling pain not responding to non-opioid analgesics where the total duration of opioid analgesic treatment is less than 12 months; or</p> <p>(iii) first application for treatment beyond 12 months of chronic severe disabling pain not responding to non-opioid analgesics where the patient's pain management has been reviewed through consultation by the patient with another medical practitioner, and the clinical need for continuing opioid analgesic treatment has been confirmed. The date of the consultation must be no more than 3 months prior to the application for a PBS authority. The full name of the medical practitioner consulted and the date of consultation are to be provided at the time of application; or</p> <p>(iv) subsequent application for treatment of chronic severe disabling pain not responding to non-opioid analgesics where a PBS authority prescription for treatment beyond 12 months has previously been issued for this patient</p>				
Cautions:	<p>These formulations of modified release tablets are not crush-deterrent and can result in the rapid release of oxycodone upon accidental or intentional misuse.</p> <p>The risk of drug dependence is high.</p>				

Text in red refers to difference between current restriction and that in the submission. Strikethrough text was removed from current restriction.

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Name, restriction, manner of administration, form	Maximum quantity (packs)	Maximum quantity (units)	No. of repeats	Dispensed price for maximum quantity	Proprietary name and manufacturer
OXYCODONE					
10 mg modified release tablet, 28	1	28	0	\$25.40	Oxycontin, Mundipharma Pty Limited
15 mg modified release tablet, 28	1	28	0	\$33.64	
20 mg modified release tablet, 28	1	28	0	\$33.88	
30 mg modified release tablet, 28	1	28	0	\$47.22	Novacodone, Sandoz Pty Ltd
40 mg modified release tablet, 28	1	28	0	\$48.61	
80 mg modified release tablet, 28	1	28	0	\$70.45	
PBS Indication:	Chronic severe disabling pain				
Treatment phase:	Initial and Continuing				
Restriction:	<input checked="" type="checkbox"/> Restricted benefit				
Clinical criteria:	The condition must be unresponsive to non-opioid analgesics.				
Prescriber Instructions:	For prescribing by nurse practitioners where care of a patient is shared between a nurse practitioner and medical practitioner in a formalised arrangement with an agreed management plan. Further information can be found in the Explanatory Notes for Nurse Practitioners.				
Administrative Advice:	Authorities for increased maximum quantities and/or repeats will be granted only for: (i) chronic severe disabling pain associated with proven malignant neoplasia; or (ii) chronic severe disabling pain not responding to non-opioid analgesics where the total duration of opioid analgesic treatment is less than 12 months; or (iii) first application for treatment beyond 12 months of chronic severe disabling pain not responding to non-opioid analgesics where the patient's pain management has been reviewed through consultation by the patient with another medical practitioner, and the clinical need for continuing opioid analgesic treatment has been confirmed. The date of the consultation must be no more than 3 months prior to the application for a PBS authority. The full name of the medical practitioner consulted and the date of consultation are to be provided at the time of application; or (iv) subsequent application for treatment of chronic severe disabling pain not responding to non-opioid analgesics where a PBS authority prescription for treatment beyond 12 months has previously been issued for this patient.				
Cautions:	OxyContin and Novacodone modified release tablets are intended to be crush-deterrent and to reduce the rapid release of oxycodone upon accidental or intentional misuse. The risk of drug dependence is high.				

Text in red refers to difference between current restriction and that in the submission. Strikethrough text was removed from current restriction.

- 2.1 The requested listing differed from the November 2014 minor submission because the earlier submission sought to only prevent brand substitution (i.e. 'a' flagging) and did not request separate listings with different restrictions and authority requirements.
- 2.2 The requested restrictions require nurse practitioners to prescribe under a shared care model. The current restrictions do not require this. The requested restrictions do not contain a 'Caution' stating that "The risk of drug dependence is high". Further, a 'Caution', rather than a note, about crush-deterrent properties (similar to current listings) was included.
- 2.3 The Secretariat notes that only the OxyContin brand is PBS listed with 15mg and 30mg strengths, which is not reflected in the restriction template above.

3 Background

Registration status

- 3.1 Reformulated Oxycontin® and Novacodone®, were TGA registered on 22 October 2013 and 7 September 2015, respectively. Oxycodone Sandoz was registered on 20 January 2010.

Previous PBAC consideration

- 3.2 The PBAC previously considered a minor submission requesting the PBAC advice that pharmacists should not be permitted to substitute OxyContin and modified release oxycodone formulations that do not have hydro-gelling and crush-deterrent properties at its November 2014 PBAC meeting.

4 Population and disease

- 4.1 The submission stated the target populations for all modified-release prescription opioids were the following overlapping groups: patients with cancer pain, patients with chronic non-cancer pain, and people who misuse prescription opioids in unsanctioned ways.
- 4.2 The target population with cancer pain or chronic non-cancer pain was generally consistent with the requested restrictions which were for chronic severe disabling pain that is unresponsive to non-opioid analgesics. However, the proposed population who misuse prescription opioids for non-clinical reasons differed from most of the PBS population. The evidence in the submission predominantly related to people who misuse opioids.
- 4.3 The submission stated that misuse of prescription opioids includes:
- use of another person’s prescribed opioids to treat pain;
 - use of opioids for non-therapeutic effects such as sedation or anxiolysis;
 - abuse of prescription opioids for euphoric effects;
 - sale of prescribed opioids to third parties; and,
 - obtaining opioids through unlawful means or false pretences (Drug and Alcohol Services South Australia 2008).

It was estimated that 119,405 people misused oxycodone in 2016-17 based on data from the 2016 National Drug Strategy Household Survey (NDSHS). The 2016 NDSHS, conducted after the introduction of reformulated OxyContin/Novacodone, reported a slightly larger proportion of the population reporting misusing oxycodone in 2016 compared with the 2013 NDSHS (prior to the introduction of reformulated OxyContin/Novacodone). The difference was not statistically significant. The submission and the 2016 NDSHS noted there may be comparability issues between

the 2013 and 2016 surveys; however, the questions relating to oxycodone misuse were very similar.

Table 2: Oxycodone misuse in the previous 12 months (NDSHS)

Population group	2013	2016
14 years or older	0.48%	0.60%

Source: Constructed during the evaluation from Table 6.3 and 6.7 of 2013 NDSHS; and Table 6.4 and Table 6.7 of 2016 NDSHS
NDSHS = National Drug Strategy Household Survey

- 4.4 Harms from opioid misuse include opioid dependence, accidental poisoning, suicide, and self-inflicted injury. Oxycodone-related deaths were typically due to multiple-drug toxicity (82%) with benzodiazepines and alcohol often implicated. Only 10% of deaths were due to oxycodone alone. (Roxburgh 2011)
- 4.5 The submission focussed on injection of pharmaceutical opioids. However, ingestion of oral oxycodone appears to be main cause of oxycodone-related deaths (Roxburgh 2011 and Drake 2011). No Australian data was found reporting the routes of administration used by people who misuse oxycodone. However, US data suggested that 64% of oxycodone misuse was oral ingestion (Green 2017). When tampered with (e.g. chewed, crushed, and/or dissolved in a liquid) to overcome the modified release mechanism and orally ingested, hydro-gelling / crush-resistant formulations produced peak oxycodone concentrations that were within the 80%-120% bioequivalence range compared with non- hydro-gelling / crush-resistant formulations.
- 4.6 The sponsor’s PSCR argued that few people have the required skills or endurance to tamper with hydro-gelling/crush resistant oxycodone when they could attempt to access alternative forms. The ESC considered a substantial proportion of oxycodone misuse was likely to be undertaken orally and processes such as chewing, freezing or heating tablets prior to consumption did not appear to require substantial endurance or skill. The ESC also noted evidence that social media was being used to disseminate strategies for tampering with hydro-gelling/crush-deterrent forms of oxycodone (Ahmad et al 2018)¹. The sponsor’s Pre-PBAC Response argued that even if oral misuse was not captured in the data, this does not negate a benefit from decreased injected oxycodone misuse.

5 Comparator

- 5.1 The submission nominated Oxycodone Sandoz that does not have hydro-gelling or crush-deterrent properties as the main comparator. This was appropriate.

6 Consideration of the evidence

¹ Ahmad, R., Alaei, S. and Omidian, H., 2018. Safety and performance of current abuse-deterrent formulations. Expert opinion on drug metabolism & toxicology, 14(12), pp.1255-1271.

Sponsor hearing

6.1 There was no hearing for this item.

Consumer comments

6.2 The PBAC noted that no consumer comments were received for this item.

Clinical trials

6.3 The submission was based on two Australian ‘before-and-after’ studies that examined changes in oxycodone use before and after the introduction of reformulated OxyContin/Novacodone and five randomised international studies that compared the diversion potential of the two formulations in question. The diversion potential studies did not report on final outcomes such as harm reduction or oxycodone misuse, but rather on participants’ perception or experience of a drug or placebo. Of the five international studies, OTR1019 and OTR1022 were not considered informative because they did not involve participants interacting with marketed forms of oxycodone. Two other included international studies, OTR1016 and OTR1021, reported predominantly on pharmacokinetic outcomes and were not considered relevant.

6.4 Details of the key studies presented in the submission are provided in the table below.

Table 3: Key studies associated reports presented in the submission

Trial ID	Protocol title/ Publication title	Publication citation
Key Australian epidemiological studies		
NOMAD population-level and prospective cohort study	<p>National Opioid Medications Abuse Deterrence (NOMAD) study Larance B, Dobbins T et al. The effect of a potentially tamper-resistant oxycodone formulation on opioid use and harm: main findings of the National Opioid Medications Abuse Deterrence (NOMAD) study.</p> <p>Larance B, Lintzeri N, et al. The characteristics of a cohort who tamper with prescribed and diverted opioid medications.</p> <p>Degenhardt L, Larance B et al. Evaluating the potential impact of a reformulated version of oxycodone upon tampering, non-adherence and diversion of opioids: the National Opioid Medications Abuse Deterrence (NOMAD) study protocol.</p> <p>Degenhardt L, Bruno R et al. The introduction of a potentially abuse deterrent oxycodone formulation: Early findings from the Australian National Opioid Medications Abuse Deterrence (NOMAD) study.</p> <p>Jauncey M, Livingston M et al. The impact of OxyContin reformulation at the Sydney Medically Supervised Injecting Centre: Pros and cons.</p> <p>Peacock A, Degenhardt L et al. Methods and predictors of tampering with a tamper-resistant controlled-release oxycodone formulation.</p> <p>Peacock A, Degenhardt L et al. A typology of people who tamper with pharmaceutical opioids: responses to introduction of a tamper-resistant formulation of controlled-release oxycodone.</p>	<p>February 2018 The Lancet Psychiatry 2018; 5(2): 155-166.</p> <p>Journal of Substance Abuse Treatment 2015; 58: 51-61.</p> <p>Addiction 2015; 110(2): 226-237.</p> <p>Drug and Alcohol Dependence 2015; 151: 56-67.</p> <p>International Journal of Drug Policy 2018; 53: 17-22.</p> <p>International Journal of Drug Policy 2015; 26(12): 1265-1272.</p> <p>Pharmacoepidemiology and Drug Safety 2015; 24(12): 1321-1333.</p>
Schaffer (2018)	<p>Schaffer AL, Buckley NA et al. Person-level changes in oxycodone use after the introduction of a tamper-resistant formulation in Australia.</p> <p>Schaffer AL, Buckley NA et al. Opioid switching after introduction of a tamper-resistant oxycodone formulation in Australia: A population-based study.</p>	<p>CMAJ 2018; 190(12): E355-E362.</p> <p>Pharmacoepidemiology and Drug Safety 2017; 26(Supplement 2): 212.</p>
Key clinical abuse-deterrence potential study		
OTR1018	<p>Double-Blind Study in Recreational Opioid Users to Evaluate the Abuse Potential, Pharmacokinetics, and Safety of Crushed and Intranasally Administered Oxycodone HCl Tamper Resistant Tablets.</p> <p>Harris SC, Perrino PJ et al. Abuse potential, pharmacokinetics, pharmacodynamics, and safety of intranasally administered crushed oxycodone HCl abuse-deterrent controlled-release tablets in recreational opioid users.</p> <p>Perrino PJ, Colucci S et al. Changes Evaluation of Abuse Potential of Crushed and Intranasally Administered Oxycodone Tablets.</p>	<p>2010</p> <p>Journal of Clinical Pharmacology 2014; 54(4): 468-477.</p> <p>74th Annual Scientific Meeting of the College on Problems of Drug Dependence, Palm Springs, CA; 2012.</p>

Source: Table 2-4, pp55-64 of the submission

CA = California; CMAJ = Canadian Medical Association Journal; HCl = hydrochloride

6.5 The NOMAD study was the key Australian ‘before-and-after’ study. It assessed impact of OxyContin/Novacodone using:

- a prospective cohort (N = 606) of people who misused pharmaceutical opioids (referred to as the “NOMAD cohort”) whose drug use patterns were assessed at three time points (“waves”) before and after the introduction of reformulated OxyContin/Novacodone;
- population-level opioid-related morbidity outcomes using routinely collected data (ambulance, emergency department, and hospital data); and,
- data from other sentinel populations who were mostly people who inject drugs (PWIDs) and attended the Sydney medically supervised injecting centre (MSIC) or were clients of the Sydney or Queensland Needle Syringe Exchange programs (NSPs).

6.6 The submission also presented 24 supplementary ‘before-and-after’ studies from the United States of America (USA) and Canada. These studies were considered less informative because the key Australian study (NOMAD study) examined the impact of OxyContin/Novacodone in Australia.

6.7 The features of the key evidence presented in the submission are summarised in the table below.

Table 4: Key features of the included evidence

Study	N	Design/ duration	Risk of bias	Patient population	Outcomes	Use in economic model
Australian epidemiological studies						
NOMAD study population outcomes	NA	Post-marketing surveillance study 2013-2016 ^a	Low	Australian national or state populations ^b	ED presentations, hospitalisations, ambulance call-outs ^b , opioid sales	Yes
NOMAD prospective cohort	606	Before-after study Dec 14 to Aug 15	High	Opioid misusers (mostly PWID)	Opioid and oxycodone misuse, oxycodone tampering, heroin use	Yes
Schaffer 2018	12,897	Interrupted time series of PBS dispensing (Jul 2012 to Nov 2016) Historical control study (Jul 2012 to Dec 2016)	Low	PBS MR oxycodone population	MR oxycodone dispensing, opioid discontinuation, switching, and calls to poisons centre (NSW)	No
Key abuse-deterrence potential studies						
OTR1018	30	R, DB, PC (5 × 30 mg oxycodone treatments)	High	Intranasal opioid misuse (non-dependent)	Intranasal abuse potential Drug liking VAS	No

Source: Compiled during the evaluation from Section 2 of the submission, Larence (2018); Schaffer (2018)

Aug = August; DB = double blind; Dec = December; CSR = clinical study report; ED = emergency department; Jul = July; MR = modified-release; NA = not applicable; NSW = New South Wales; PBS = Pharmaceutical Benefits Scheme; PC = placebo-controlled; PWID = people who inject drugs; R = randomised; Nov = November; VAS = visual analogue scale

^a Data from 2001 onwards were analysed. The starting date depended on the specific data source.

^b Hospitalisation, ambulance, and drug information data for opioid-related outcomes were state-based. Opioid sales data were national.

- 6.8 The NOMAD cohort was considered to have a high risk of bias overall because participants were mainly recruited from NSPs (38%), opioid substitution treatment (15%), and snowballing and word-of-mouth (36%).
- 6.9 The participants in study OTR1018 were younger and more likely to be male than the NOMAD cohort and Australians who use opioids for chronic pain in Pain and Opioids IN Treatment cohort (POINT cohort).

Comparative effectiveness

- 6.10 At the November 2014 consideration of oxycodone, the PBAC “noted that based on the TGA’s finding of bioequivalence, it is reasonable to conclude that the hydrogelling/crush-deterrent and standard modified release oxycodone products would be therapeutically equivalent when taken as intended” (paragraph 6.3, November 2014 PBAC public summary document (PSD)).

Comparative harms

- 6.11 The key population-level outcomes from the NOMAD study are presented in Table 5. The significance level was set at $p < 0.01$ to adjust for the large number of data series examined and multiple comparisons used in the study.

Table 5: Key population outcomes from the NOMAD study

Population-level outcome	Utilisation to March 2014 units	April 2014 Δ units per month (95% CI)	Change
Adverse outcomes from opioids and other drugs			
Total drug overdoses	NR	NR	No change
Opioid overdose or poisoning (NSW)	NR	NR	No change
Opioid-related ED separations (NSW)	35	7.3 (-18.6, 33.2)	No change
Opioid-related hospital separations (NSW)	1,003	19.0 (-37.9, 75.8)	No change
Ambulance call-outs (NSW)	204	9.3 (-29.5, 48.1)	No change
Ambulance call-outs (Tasmania)	5	2.1 (-0.7, 0.5)	No change
Other drug overdose or poisoning (NSW)	245	8.7 (-27.3, 44.6)	No change
Help-seeking for opioids	247	-6.9 (-42.2, 28.5)	No change
Pharmaceutical opioid utilisation (oral morphine equivalents) ^a			
Pharmaceutical opioids utilisation	865,048	-3,577 (-28,758, 21,604)	No change
Strong opioids	592,623	-3,453 (-15,367, 8,461)	No change
Oxycodone	252,621	-7,444 (-16,177, 1,290)	No change
Morphine	64,719	2,536 (412, 4,660)	No change
Tapentadol ^b	1,505	9,070 (6,260, 11,880)	Increased
Oxycodone utilisation (packs)	494,014	-770 (-24,689, 23,150)	No change
Oxycodone modified-release (including hydro-gelling/crush-deterrent)	134,208	-23,715 (-29,420, -18,010)	Decreased
20 mg strength	29,782	-2,036 (-3,253, -819)	Decreased
40 mg strength	23,523	-1,799 (-2,791, -807)	Decreased
80 mg strength	13,308	-1,382 (-2,352, -411)	Decreased
Oxycodone-naloxone ^c	90,244	13,381 (8,392, 18,370)	Increased

Source: Table 2-57 to 2-59, pp190-193 of the submission; Table A19 to A24, pp64-71 of Larance (2018) appendix. **Bold = statistically significant at p<0.01.** Figures in italics compiled during evaluation

CI = confidence interval; ED = emergency department; NR = not reported; NSW = New South Wales; PBS = Pharmaceutical Benefits Scheme; Δ = change

^a 1 mg oral morphine equivalent to: 1.5 mg oxycodone and 0.4 mg tapentadol

^b PBS-listed on 1 June 2014

^c PBS listed from 1 December 2011

- 6.12 There were no changes in population-level outcomes with respect to hospital admissions, emergency department presentations, ambulance overdose attendance. The submission suggested that that it was not possible to observe population level changes after the introduction of reformulated OxyContin/Novacodone. This could suggest that any potential effect of reformulated oxycodone on the harm could be considered so small as to be not detectable by these national data sources. Additionally, the 2016 NDSHS suggested that, despite the substantial market share of OxyContin/Novacodone, oxycodone misuse did not decrease in the Australian population (refer to Table 2).
- 6.13 The sponsor's PSCR argued the NDSHS does not differentiate between forms of oxycodone and that without such granularity, a change in oxycodone formulation is unlikely to impact population-level markers of misuse.

- 6.14 The ESC considered outcomes at the population level were the most clinically relevant and noted there were no population level changes to opioid-related hospital service utilisation, ambulance attendances or help-seeking. Furthermore, the ESC also noted the NDSHS data indicated no apparent change in the rate of oxycodone misuse. Noting the comments in the PSCR, the ESC considered that if OxyContin/Novacodone was having a true effect on opioid misuse, the sample size of the population level data was large enough that even a small difference in outcomes such as hospitalisations would likely be statistically significant.
- 6.15 The ESC also noted the data in the population-level NOMAD study indicated a decrease in the use of modified release oxycodone, however there was no change in overall oxycodone use and significantly higher use of combination oxycodone/naloxone. Similar trends were observed in PBS subsidised use of oxycodone and oxycodone/naloxone from 2014 to 2018.
- 6.16 Overall in the population-level NOMAD study, no effect was observed on total pharmaceutical opioid use (measured in oral morphine equivalent milligrams sold) following PBS listing of hydro-gelling / crush-resistant oxycodone. Sales of modified-release oxycodone (single-ingredient) appeared to have peaked in 2011 and decreased thereafter. This was consistent with the 2014 Drug Utilisation Sub-Committee (DUSC) analysis of opioids utilisation which found PBS supply of oxycodone peaked in 2011 based on defined daily doses per 1,000 population (Opioids, October 2014 DUSC public release document).
- 6.17 Table 7 presents the key outcomes from the NOMAD cohort whose drug use patterns were followed-up before (Wave 1) and after (Waves 2 and 3) the introduction of reformulated OxyContin/Novacodone.

Table 6: Key outcomes from the NOMAD prospective cohort

NOMAD cohort key outcomes	Wave 1 Dec 13 – Mar 14 N = 606 % (95% CI)	Wave 2 May – Aug 14 N = 547 % (95% CI)	Wave 3 Apr – Aug 15 N = 499 % (95% CI)	Odds ratio	Change
PO injection	NR	NR	NR	NR	Decreased
Oxycodone injection	NR	NR	NR	NR	Decreased
Other PO injection	NR	NR	NR	NR	Decreased
Past month drug use					
Oxycodone 80 mg use	56 (52.1, 60.0)	18 (15.3, 21.8)	5 (3.1, 6.8)	0.15 (0.12, 0.19)^a	Decreased
Oxycodone 5 mg IR use	24 (20.7, 27.5)	10 (7.5, 12.5)	8 (5.6, 10.3)	0.33 (0.24, 0.46)^a	Decreased
Morphine use	66 (61.8, 69.4)	44 (40.3, 48.6)	31 (27.3, 35.5)	0.43 (0.35, 0.53)^a	Decreased
Heroin use	64 ^b (60.0, 67.7)	49 (44.5, 52.8)	44 (39.2, 47.9)	0.82 (0.70, 0.97) ^c	No change
Methadone syrup use	51 (46.6, 54.6)	45 (40.5, 48.8)	43 (38.8, 47.6)	0.79 (0.69, 0.91)^a	Decreased
Buprenorphine use	30 (26.3, 33.6)	21 (17.5, 24.2)	23 (19.2, 26.7)	0.64 (0.54, 0.76)^a	Decreased
Benzodiazepine use	73 (69.3, 76.4)	67 (62.8, 70.8)	57 (52.9, 61.6)	0.70 (0.58, 0.85)^a	Decreased
Oxycodone tampering					
Will tamper in the future (RF-oxy) ^c	NA	20 n = 139	30 n = 186	1.78 (1.05, 3.01) ^c	No change
Ever successfully tampered (RF-oxy)	NA	12 (9,15) n = 61	22 (19,26) n = 112	2.05 (1.50, 2.79)^c	Increased
Ever attempted injection (RF-oxy)	NA	15 (12, 18) n = 76	25 (22, 29) n = 127	2.27 (1.68, 3.06)^c	Increased

Source: Table 234, pp138-140 of the submission; Table A8, p8; Table A12, p50; Table A14, p52 of Larance (2018) supplement; **bold = statistically significant at p < 0.01**

RF-oxy = reformulated hydro-gelling/crush-deterrent oxycodone; Apr = April; Aug = August; CI = confidence interval; ED = emergency department; IR = immediate release; NA = not applicable; NR = not reported; PO = pharmaceutical opioid; Dec = December

^a Wave 1 vs. Wave 2

^b Use in the past six months at Wave 1. Use in past month for at Waves 2 and 3.

^c Wave 2 vs. Wave 3

- 6.18 The submission noted that there was a reduction in misuse of 80 mg modified-release oxycodone. However, there were also significant reductions in the use of morphine, methadone syrup, buprenorphine and benzodiazepines, which did not have changes in formulation. The evaluation considered the degree of misuse reduction which may be attributable to the OxyContin/Novacodone was uncertain. The NOMAD participants also reported lower levels of interest in tampering with OxyContin/Novacodone compared with Oxycodone Sandoz. However the evaluation noted, increases in successful tampering of the OxyContin/Novacodone and attempted injection over time were reported.

6.19 The ESC considered the decreases in use of pharmaceutical opioids overall in the NOMAD cohort study suggested that reformulated OxyContin/Novacodone may not be having a specific effect on opioid use and other trends are more likely to be driving the observed decreases. Furthermore, with the apparent increase in successful tampering and attempts to inject OxyContin/Novacodone, the ESC was concerned a trend towards more attempts to inject these forms may increase the risk of thrombotic and other adverse events. However, the ESC noted the cohort study was likely be affected by selection bias due the proportion of recruitment from word-of-mouth and snowballing effects.

6.20 Table 7 presents the change in modified-release oxycodone dispensing on the PBS (10% sample) after the introduction of OxyContin/Novacodone from Schaffer (2018).

Table 7: Change in dispensing of modified-release oxycodone

Age cohort	Highest oxycodone strength	ARIMA model specification	Impact (type – duration)	% Immediate level shift (95% CI)	% Total level shift (95% CI)
< 65 years	10-30 mg	(0,1,1) (0,1,0)	Gradual level shift - 6 months	-2.8 (-4.5, -1.1)^a	-11.1 (-17.2, -4.6)
< 65 years	40-80 mg	(0,1,1) (0,1,0)	Gradual level shift - 7 months	-10.6 (-13.0, -8.2)	-31.5 (-37.5, -24.9)
≥ 65 years	10-30 mg	(0,1,1) (0,1,0)	Gradual level shift - 3 months	-2.9 (-5.1, 0.0) ^a	-5.0 (-6.1, 0.0)
≥ 65 years	40-80 mg	(2,1,0) (0,1,0)	Gradual level shift - 7 months	-2.3 (-6.3, 2.0)	-8.2 (-21.7, 7.5)

Source: Table 2-60, p197 of the submission

ARIMA = autoregressive integrated moving average; CI = confidence interval

^a Impact lagged by one month

6.21 There was a downward trend in the rate of prescriptions (all oxycodone) after reformulation with the greatest reduction seen in the use of the higher strengths by Australians aged less than 65 years. The reduction in oxycodone dispensing was not significant for the cohort aged 65 years and older.

6.22 Table 8 presents the change in opioid discontinuation and switching in the PBS population from the Schaffer (2018) study.

Table 8: Discontinuation and switching in the PBS 10% sample

Outcome	Adjusted HR ^a (95% CI)				
	All ages	< 45 years	45 – 64 years	65 – 79 years	≥ 80 years
Strong opioid discontinuation	0.95 (0.91, 1.00)	NA	NA	NA	NA
Switching to any strong opioid	NR	1.79 (1.40, 2.28)	1.44 (1.22, 1.69)	1.20 (1.01, 1.42)	1.10 (0.88, 1.37)
Switching to morphine	NR	4.33 (2.13, 8.80)	1.73 (1.13, 2.67)	1.26 (0.80, 1.97)	0.70 (0.41, 1.19)
Switch to oxycodone/naloxone	1.54 (1.32, 1.79)	NR	NR	NR	NR

Source: Section 2.7.2, pp196-197; Table 4, pE359 of Schaffer (2018); **bold = statistically significant**

CI = confidence interval; HR = hazard ratio; MR = modified-release; NA = not applicable; NR = not reported; PBS = Pharmaceutical Benefits Scheme

^a Adjusted for covariates (measured in the 90 days before April 1): sex, number of non-opioid medications, number of dispensings of oxycodone MR, dispensing of antipsychotics, serotonin–norepinephrine reuptake inhibitors, benzodiazepines or tricyclic antidepressants, and maximum tablet strength dispensed. "All ages" model was adjusted for age group.

- 6.23 There was no change in strong opioid discontinuation. Higher rates of switching to other opioids, including switching to morphine or any strong opioids in the younger age cohort after oxycodone reformulation was observed. The study authors stated that the result could suggest that, instead of discontinuing use, ‘people may be seeking out opioids without tamper-resistant properties’. However, they noted that a causal relationship could not be established.
- 6.24 The ESC considered it was questionable as to whether the observed reductions in the use of modified release oxycodone in patients aged under 65 were meaningful as there was evidence of substantial switching to alternative opioids, including morphine. This suggested moving to alternatives may be easier for patients but also may mean the introduction of reformulated OxyContin/Novacodone had a limited impact at the population level, which was further supported by the outcomes of the NOMAD population-level study.
- 6.25 Table 10 presents the key outcomes from the Sydney medically supervised injecting centre (MSIC) and needle and syringe programs (NSPs) in Sydney and Queensland.

Table 9: Outcomes from Sydney MSIC and NSPs

Drug and Site	Attendances per month (March 2014) ^a	April 2014 to December 2015 Δ attendances/month (95% CI) ^a
Oxycodone		
Sydney MSIC ^b	3,633	-1,672 (-2291.2, -1052.4)
Other pharmaceutical opioids (includes oxycodone and morphine)		
Sydney NSPs ^c	208	-133 (-181.8, -83.2)
Queensland NSPs ^d	4,229	-424 (-955.7, 107.5)
Heroin		
Sydney MSIC ^b	1,034	280 (-135.4, 694.9)
Sydney NSPs ^c	769	-1 (-114.0, 111.8)
Queensland NSPs ^d	2,929	-759 (-1134.4, -382.6)
Morphine		
Sydney MSIC ^b	173	309 (84.7, 533.8)
Fentanyl		
Sydney MSIC ^b	18	66 (42.8, 88.9)
Queensland NSPs ^d	40	7 (-2.7, 16.2)

Source: Compiled during the evaluation from Tables A16 to A18, pp57-61 of Larance (2018); **bold = statistically significant at p<0.01**. CI = confidence interval; MSIC = medically supervised injecting centre; NSP = Needle Syringe Program; QLD = Queensland; Δ = change
^a Change in number of attendances per month after intervention (1 April 2014). Data period before the intervention was July 2009 to March 2014 for Sydney MSIC and NSPs and January 2007 to March 2014 for QLD NSPs.

- ^b Drug injected at MSIC
^c Last drug injected
^d Drug intending to inject

- 6.26 The submission stated that the NSPs showed “no adverse impact on heroin or other pharmaceutical opioid injection”. There was no consistent pattern observed across different injection clinics. There was an increase in morphine and fentanyl use at the Sydney MSIC, however there was a decrease in reported pharmaceutical opioid injection at the Sydney NSP. No change in pharmaceutical opioid injection was reported at Queensland NSPs.

- 6.27 The most relevant international study presented in the submission, OTR1018, reported that hydro-gelling / crush-deterrent oxycodone had lower “drug liking” and “overall drug liking” compared with Oxycodone Sandoz. The submission considered a five-point reduction in 100 points drug-liking visual analogue scale (VAS) to be meaningful because it was associated with reduced lifetime non-medical use in the USA. This has not been validated in the Australian setting. The ESC considered the OTR1018 study may have limited applicability to the Australian context as it was unclear if a 5-point ‘drug liking’ threshold would result in lower non-medical use in Australia. The ESC also noted the study focussed on intranasal use of oxycodone and it is unclear what proportion of oxycodone misuse in Australia is through an intranasal method.
- 6.28 The Periodic Safety Update Report (PSUR) reported there was active monitoring of the relationship between the intravenous misuse of hydro-gelling / crush-deterrent oxycodone and the development of Thrombotic Microangiopathy – Thrombotic Thrombocytopenic Purpura-like illness. Two of the three unique cases were reported in Australia. The USA Product Label contains a specific warning on the risks of parenteral misuse that is not in the Australian Product Information.

Benefits/harms

- 6.29 The comparison presented in the submission did not allow for a quantitative comparison of the benefits and harms of OxyContin/Novacodone and Oxycodone Sandoz. Accordingly, a benefits/harms table has not been presented.

Clinical claim

- 6.30 The submission claimed that OxyContin/Novacodone was superior in terms of safety compared with Oxycodone Sandoz based on:
- Reductions in oxycodone utilisation following reformulation. However, the evaluation noted there was no decrease in population-level oxycodone utilisation, rather, a reduction in the use of 20 mg, 40 mg, and 80 mg strengths of modified-release oxycodone;
 - Reduction in oxycodone injection in high-risk groups in Australia. This was not consistently reported across the different high-risk groups. However, the evaluation noted there was no reduction in pharmaceutical opioid injection reported by the Sydney or Queensland NSPs. In addition to oxycodone, reduction in the use of several other drugs were also reported in the NOMAD cohort;
 - No evidence of switching to other opioids in the NOMAD cohort. However, the evaluation noted this was not consistent with the Schaffer (2018) study which reported a significant increase in switching from oxycodone to morphine and any strong opioids in the PBS population aged under 64 years following reformulation;
 - No change in unintended consequences with respect to help-seeking and overdose. However, the evaluation noted the PSUR suggested injection of

OxyContin/Novacodone may have greater risks than injection of Oxycodone Sandoz; and

- No change in utilisation of lower strength modified-release oxycodone. However, the evaluation noted the utilisation of 20 mg modified-release oxycodone also decreased significantly.

6.31 The PBAC agreed the therapeutic conclusion presented in the submission was not adequately supported by the evidence presented the submission because:

- There was no change in harms due to opioid misuse or dependence in terms of hospitalisations, ED attendance, or ambulance attendance;
- there was no change in the proportion of Australians reporting recent oxycodone misuse in the NDSHS since the introduction of OxyContin/Novacodone in 2014;
- OxyContin/Novacodone may not deter misuse of the reformulations through oral administration, which accounted for 79% of oxycodone related fatalities in Australia;
- injection of OxyContin/Novacodone may be more dangerous than injection of Oxycodone Sandoz; and
- other factors, such as more judicious use of strong opioids and the introduction of newer opioid formulations (such as oxycodone with naloxone), likely contributed to changes in opioid utilisation.

6.32 The PBAC reaffirmed its previous position that the claim of therapeutic equivalence in terms of comparative efficacy was reasonable.

6.33 The PBAC considered that the claim of superior comparative safety was not adequately supported by the data.

Economic analysis

6.34 The submission presented a cost consequence analysis that examined changes in health system costs due to decreased oxycodone misuse over one year.

Table 10: Summary of the cost consequence analysis

Component	Summary
Type of analysis	Cost consequence analysis
Perspective	Healthcare system
Outcomes	Reduced oxycodone utilisation
	Reduced doctor-shopping (fewer GP consultations)
	Fewer ambulance attendances
	Fewer hospitalisations
Time horizon	1 year

Source: Table 3-1 to 3-2, pp226-227 of the submission; GP = general practitioner

6.35 The key driver of the submission's cost consequence analysis was the estimated reduction in oxycodone-related hospitalisations. The submission estimated there

would be [REDACTED] fewer hospitalisations; however, this was not supported by the local evidence that did not find a reduction in drug-related hospitalisations following the introduction of reformulated OxyContin/Novacodone. The ESC considered that even small changes due to OxyContin/Novacodone would reach statistical significance in population level data due to the large sample size (paragraphs 6.15 and 6.16 refer), and agreed it was unlikely there was a true reduction in key outcomes, even in a subset of injecting drug users.

Table 11: Results of the cost consequence analysis

Resource item	Unit cost	Δ Utilisation	Δ Cost	% of total incremental savings
Oxycodone utilisation	\$63.82	- [REDACTED]	-\$ [REDACTED]	[REDACTED] %
GP consultations	\$37.60	- [REDACTED]	-\$ [REDACTED]	[REDACTED] %
Ambulance attendances	\$1,391	- [REDACTED]	-\$ [REDACTED]	[REDACTED] %
Hospitalisations	\$6,212	- [REDACTED]	-\$ [REDACTED]	[REDACTED] %
Total	-	[REDACTED]	\$ [REDACTED]	[REDACTED] %

Source: Table 3-2, p22; Tables 3-5 to 3-6, p255-259; Section 3 spreadsheet
 GP = general practitioner; Δ = change; % = percentage

- 6.36 The ESC considered the submission’s economic model was of questionable validity as the population-level outcomes in the NOMAD population study did not support an argument that reformulated OxyContin/Novacodone had led to a decrease in emergency service use or hospitalisations, which represented over [REDACTED] % of the claimed cost savings in the cost consequence model. The ESC also agreed the reductions in injection of oxycodone observed at one supervised injection centre was not likely to be representative of oxycodone misuse at the population level and that a claim of a 94.5% reduction in events requiring ambulance attendance/hospitalisation was not a reasonable base assumption for the model.
- 6.37 The evaluation noted the cost consequence analysis was highly sensitive to the proportion of oxycodone misuse that was by injection and the inclusion of cost savings for reduced ambulance attendances and hospitalisations.
- 6.38 Whilst not used in the submission’s cost consequence analysis, the ESC noted the submission and PSCR claimed there would be 141 fewer deaths due to the proposed changes to oxycodone listings. The ESC considered this claim was implausible as there was no discernible reduction in emergency service use or hospitalisations and no change in overall strong opioid discontinuation at the population level following the listing of hydro-gelling / crush-deterrent oxycodone. Furthermore, the ESC was of the opinion it was possible that additional deaths may occur in the context of fatal adverse events if misusers successfully inject OxyContin/Novacodone.

Drug cost: \$883/patient/year

- 6.39 The submission did not seek a change in price. Therefore, no change in drug cost per patient was expected. Based on an average dose of 20 mg twice daily, modified release

oxycodone treatment would be expected to cost \$883 per patient per year (based on a DPMQ of \$33.88 per pack providing 14 days of treatment).

Estimated PBS usage & financial implications

- 6.40 This submission was not considered by DUSC.
- 6.41 The submission used a mixed epidemiological and market share approach to estimate the utilisation and financial implications associated with the proposed listing.

Table 12: Estimated use and financial implications

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Estimated extent of use						
Oxycodone Sandoz scripts (no change in listing)	██████	██████	██████	██████	██████	██████
Δ scripts – reduced misuse	██████	██████	██████	██████	██████	██████
Scripts required for dysphagia ^a	██████	██████	██████	██████	██████	██████
Δ scripts RF-oxycodone ^b	██████	██████	██████	██████	██████	██████
Estimated financial implications for Oxycodone Sandoz						
Oxycodone Sandoz scripts (net change) ^c	██████	██████	██████	██████	██████	██████
Cost to PBS/RPBS	██████	██████	██████	██████	██████	██████
Co-payments	██████	██████	██████	██████	██████	██████
Cost to PBS/RPBS less co-payments	██████	██████	██████	██████	██████	██████
Estimated financial implications for OxyContin/Novacodone						
Cost to PBS/RPBS	██████	██████	██████	██████	██████	██████
Co-payments	██████	██████	██████	██████	██████	██████
Cost to PBS/RPBS less co-payments	██████	██████	██████	██████	██████	██████
Net financial implications						
Net cost to PBS/RPBS	██████	██████	██████	██████	██████	██████
Additional authority approvals	██████	██████	██████	██████	██████	██████

Source: Tables 4-2 to 4-5, pp272-277, Section 4 spreadsheet, and calculated during the evaluation
 RF = reformulated hydro-gelling/crush-deterrent; PBS = Pharmaceutical Benefits Scheme; RPBS = Repatriation Schedule of Pharmaceutical Benefits; Scripts = prescriptions; Δ = change
^a Estimated to be 5% of total modified-release oxycodone volume
^b Forecast – reduction in misuse – use for dysphagia
^c Prescriptions for dysphagia – forecast

The redacted table shows that at Year 6, the estimated number of scrips was in the range of 10,000-50,000, and the net cost to the PBS would be less than \$10 million.

- 6.42 The submission estimated there would be a less than \$10 million saving to the PBS and RPBS over the first six years of listing, based on an assumption overall oxycodone use will decline due to decreased misuse of Oxycodone Sandoz. This evaluation considered was likely overestimated because the estimated reduction in oxycodone misuse may not occur in practice. Despite substantial market share of OxyContin/Novacodone, there was no reduction in the prevalence of oxycodone misuse reported in the 2016 NDSHS.

- 6.43 The submission estimated that █% of patients treated with modified-release oxycodone have dysphagia and would require Oxycodone Sandoz. The evaluation noted the submission did not consider the prevalence of conditions that increase the risk of intestinal obstruction. OxyContin/Novacodone had a market share of 86% in 2018; therefore, the current market for Oxycodone Sandoz may mostly consist of patients unable to use OxyContin/Novacodone.
- 6.44 The ESC did not consider the submission’s utilisation and financial estimates to be reliable, as reformulated OxyContin/Novacodone has not had a significant impact on oxycodone misuse and other relevant outcomes at the population level, despite its substantial market share within the modified release oxycodone market.

Quality Use of Medicines

- 6.45 At its consideration of the minor submission at its November 2014 meeting, the PBAC noted “...that abuse deterrent formulations may have some impact on QUM, the PBAC considered that removing ‘a’ flagging between OxyContin and other brands was not an appropriate mechanism to deal with abuse, which it is part of a much broader problem of opioid overuse” (paragraph 6.6, November 2014 PSD).
- 6.46 The sponsor’s Pre-PBAC Response argued changes in oxycodone use were relevant because switching from oxycodone to an alternative ‘remains an important clinical and economic outcome because the user was dissuaded by the tamper-resistant technology’.

7 PBAC Outcome

- 7.1 The PBAC is extremely concerned about prescription opioid misuse in Australia, and notes that oxycodone misuse contributes significantly to this issue.
- 7.2 The PBAC welcomes proposals for strategies to combat opioid misuse in Australia in the context of the Pharmaceutical Benefits Scheme subsidy arrangements. However, for the reasons set out below, the PBAC considered the proposal put forward in the current submission would be highly unlikely to have this effect, particularly as it relies exclusively on restricting PBS subsidised access to some, but not all, alternative opioid medicines.
- 7.3 The PBAC noted that OxyContin and Novacodone are modified release formulations of oxycodone, also formulated with the intention of being crush-deterrent and to reduce the rapid release of oxycodone upon accidental or intentional misuse. The Committee noted the Product Information documents for OxyContin and Novacodone describe the tablets as having “a matrix formulation with a hydrogelling property” and also state that the “tablets have been heat-treated to increase the mechanical strength of the tablet”. This distinguishes them from other modified release oxycodone formulations listed on the PBS (Oxycodone Sandoz).
- 7.4 The PBAC noted the submission claimed that recent evidence demonstrates

OxyContin and Novacodone have non-inferior clinical effectiveness to Oxycodone Sandoz, but superior safety, when not used as intended.

- 7.5 The PBAC agreed with the ESC and considered the Australian data in the NOMAD studies and Schaffer *et al* (2018) were the most appropriate primary evidence sources against which to assess this claim. The PBAC considered the National Drug Strategy Household Survey (NDSHS) and OTR1018 study provided informative supportive evidence.
- 7.6 The PBAC was not satisfied the evidence presented in the submission supported the claim that OxyContin and Novacodone has superior safety to Oxycodone Sandoz for reasons including:
- The applicability of the outcomes of the NOMAD cohort to the broader Australian population was uncertain due to possible selection bias resulting from the recruitment methods;
 - The data presented in the NOMAD population-level study did not show statistically or clinically significant changes in overall population-level harms such as hospitalisation or ambulance attendances following the introduction of OxyContin and Novacodone;
 - Australian evidence from the NOMAD prospective cohort study also found decreases in the misuse of other opioids, which may indicate other trends and efforts to target opioid use are driving decreases in populations similar to the NOMAD cohort.
 - The data in Schaffer *et al* (2018) indicated patients may be switching to other opioids rather than discontinuing opioid treatment. Furthermore, the use of alternative oxycodone forms such as combination oxycodone/naloxone has increased substantially;
 - The NDSHS found no significant change in the number of people reporting misusing oxycodone between 2013 and 2016;
 - The evidence on route of misuse focused on injected and nasal misuse and limited data on oral misuse were available. However oral consumption is likely to be the most common means of oxycodone misuse;
 - The NOMAD data is now approaching five years old and there are reports that new methods of successfully tampering with hydrogelling / crush-deterrent forms of oxycodone continue to be discovered and rapidly shared via the internet and social media; and
 - The submission did not attempt to quantify potential harms associated with attempting to inject OxyContin or Novacodone, such as increased risk of thrombotic microangiopathy, or potential harms associated with oral misuse such as suffocation due to the formulation forming a mass in the airways, and in rare cases, intestinal obstruction.

- 7.7 The PBAC noted arguments in the submission's Pre-PBAC response that potential switching to alternative prescribed or illicit opioids was an important clinical and economic outcome. However, the Committee considered such arguments ignored the fact that switching and continuing to misuse did not result in quantifiable reductions in harms based on the evidence presented.
- 7.8 The PBAC considered the base case in the economic model to be unreliable, as the population-level data did not support the model inputs of substantial decreases in hospitalisations and ambulance attendances. The Committee noted the cost-consequence model projected reductions in hospitalisations due to oxycodone alone, however considered this was an unreasonable base case, as the evidence presented indicated hospitalisations and ambulance attendances due to opioid misuse had not decreased. The PBAC agreed it was not appropriate to limit modelling of health system savings to a single opioid product as this masks real opioid misuse-related health system costs. The PBAC noted removing hospitalisations and ambulance attendances from the model reduced the projected health system savings by almost 85%.
- 7.9 The PBAC noted OxyContin and Novacodone represented almost 90% of the market and considered it uncertain whether the utilisation of Oxycodone Sandoz would diminish if its authority level changed. The PBAC noted there are patient groups who cannot use hydrogelling / crush-deterrent oxycodone, such as those with gastrointestinal obstructions or obstructive airway diseases; a potentially sizeable portion of the patient population, which could account for the current market utilisation of Oxycodone Sandoz.
- 7.10 Overall, the PBAC reaffirmed its previous conclusions that OxyContin, Novacodone and Oxycodone Sandoz are therapeutically equivalent, in terms of effectiveness and safety, when used as intended.
- 7.11 The PBAC noted this submission is not eligible for an Independent Review as the submission was not for a new disease, objectively different subtype of the same disease for which oxycodone is listed nor targeting a different population.

Outcome:

Rejected

8 Context for Decision

The PBAC helps decide whether and, if so, how medicines should be subsidised in Australia. It considers submissions in this context. A PBAC decision not to recommend listing or not to recommend changing a listing does not represent a final PBAC view about the merits of the medicine. A company can resubmit to the PBAC or seek independent review of the PBAC decision.

9 Sponsor's Comment

The Sponsor will continue to work towards maximising the potential societal benefits of abuse deterrent technologies.