



One Deadly Step Evaluation Report: All Sites

Summary Report presenting the results of the One Deadly Step events held in
across NSW 2011-2012

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Introduction

One Deadly Step is an initiative of NSW Health in partnership with the Australian Rugby League. One Deadly Step is a community event aimed at encouraging the screening, early detection and follow up of chronic disease in Aboriginal communities in NSW. From late 2011 to July 2012, five One Deadly Step community events were held across communities in NSW, including Campbelltown, Kempsey, Dubbo, Griffith and Redfern. At each event participants underwent a series of screening steps, which included body mass and waist circumference, blood pressure and lung functioning tests. This report presents a summary of the attendance and screening results from these five events. The report concludes with some general conclusions and recommendations for future One Deadly Step events.

Number and Characteristics of participants attending a One Deadly Step event

The number and characteristics of participants who attended each of the One Deadly Step events are shown in Table 1. The total number of people who attended any event and the average number of attendants across each event are shown. Characteristics (such as gender, age and Indigenous status) were not reported for all participants attending each event due to missing data or participants not completing every step at the event. All percentages for demographic characteristics are reported as a proportion of the total number of participants at each stage with demographic details recorded (i.e. excluding those participants with missing data). The number of Aboriginal Medical Service (AMS) patients includes any participant who reported attending either an AMS or both an AMS and GP service.

Table 1: Demographics of One Deadly Step participants across all NSW sites

Demographics	CTown ^b	Griffith	Kempsey	Dubbo	Redfern	Total (Average)
Number of participants at Step 1	275	219	155	243	205	1097 (220)
Number of participants at Step 2	210	214	138	241	200	1003 (200)
Aboriginal/Torres Strait Islander participants	191 (91%)	179 (84%)	118 (85%)	206 (87%)	161 (80%)	855 (85%)
Gender						
Male	66 (33%)	84 (40%)	67 (51%)	103 (43%)	86 (44%)	42%
Female	136 (67%)	126 (60%)	65 (49%)	137 (57%)	109 (56%)	58%
Age groups						
<18 yrs	26 (13%)	70 (34%)	29 (22%)	37 (15%)	13 (7%)	18%
18-24yrs	25 (12%)	22 (11%)	18 (14%)	33 (14%)	25 (13%)	13%
25-34yrs	32 (16%)	28 (13%)	19 (14%)	52 (22%)	41 (21%)	17%
35-44yrs	40 (20%)	36 (17%)	26 (20%)	54 (23%)	56 (29%)	22%
45-54yrs	29 (14%)	29 (14%)	22 (17%)	38 (16%)	32 (16%)	15%
55-64yrs	30 (15%)	16 (8%)	16 (12%)	21 (9%)	21 (11%)	11%
65yrs +	19 (10%)	7 (3%)	3 (2%)	5 (2%)	7 (4%)	4%

No. of AMS patients	126 (67%)	118 (72%)	99 (73%)	89 (39%)	113 (58%)	62%
Last GP/AMS visit						
<6months	174 (88%)	157 (74%)	100 (76%)	177 (75%)	158 (83%)	79%
Consent to follow up	161 (81%)	221 (98%)	132 (99%)	234 (98%)	187 (96%)	94%

^aC'Town is used to abbreviate the event held in Campbelltown

As shown, between 155 and 275 participants attended the One Deadly Step events in each community. The majority of participants attending identified as Aboriginal or Torres Strait Islanders (85% across all sites). Slightly more females than males attended (an average of 58% of participants were females), although this differed across sites, for example 51% of participants at the Kempsey event were male. The most frequent age group across all events was those aged 35-44 years, although a number of events (notably Griffith and Kempsey) had a large proportion of young participants aged under 18 years. Most participants were AMS patients and an average of 79% of participants across all events had attended their AMS or GP within the last six months of the event. Finally, most participants (94% across all events) consented to be followed up from the event.

Risk status of participants attending One Deadly Step event

Table 2 below shows the risk status of all participants who completed each of the screening steps. The cut offs used to determine risk status are shown in Appendix A. As shown, the most prevalent risk factors were related to high body mass and waist circumference. Across all sites, an average of 70% of participants were overweight or obese, and 76% had a waist circumference measurement which puts them at increased risk of cardiovascular disease and type 2 diabetes. Approximately one-third of participants across all events had an elevated albumin-creatinine ratio (ACR), indicating possible microalbuminuria. Rates of current smoking ranged from 38% to 54%, and high risk drinking from 10% to 37% (although these risk factors were not recorded at the Campbelltown or Dubbo events). Poor lung function as indicated by spirometry was evident for an average of 15% of participants. Between 23% and 34% of participants recorded high blood pressure results. High blood glucose level (BGL) results were recorded for between 34% and 42% of participants across sites, and high HbA1c test results ranged from 6% to 14% of participants. Averaged across all sites, more than half of participants showed high total cholesterol levels. Finally, an average of 18% of participants were referred by One Deadly Step staff on the basis of their Quality of Life scores (although raw scores from each event were not reported).

Table 2: Risk factor status of participants across all One Deadly Step sites

Risk factor	CTown	Griffith	Kempsey	Dubbo	Redfern	Average over all sites
	n (%)	n (%)	n (%)	n (%)	n (%)	
Chronic disease	77 (38%)	54 (26%)	48 (36%)	83 (35%)	53 (27%)	32%
Overweight	59 (22%)	46 (23%)	43 (29%)	-	78 (40%)	29%
Obese	137 (52%)	81 (40%)	56 (38%)	-	72 (37%)	42%
Overweight/Obese	196 (73%)	127 (63%)	99 (67%)	-	150 (76%)	70%
Risky waist	-			-		

circumference		137 (69%)	88 (78%)		144 (80%)	76%
Elevated ACR	59 (30%)	-	32 (29%)	58 (29%)	44 (26%)	29%
Current smoking	-	75 (38%)	76 (54%)	-	95 (52%)	48%
High risk drinking	-	20 (10%)	24 (20%)	-	66 (37%)	22%
Poor lung function	28 (15%)	45 (23%)	15 (11%)	18 (10%)	26 (14%)	15%
High blood pressure	66 (29%)	46 (24%)	50 (34%)	54 (27%)	44 (23%)	27%
High BGL	61 (37%)	71 (40%)	38 (42%)	65 (34%)	60 (36%)	38%
High HbA1c	25 (14%)	12 (7%)	18 (14%)	18 (9%)	9 (6%)	10%
High total cholesterol	105 (60%)	83 (47%)	77 (59%)	97 (52%)	73 (44%)	52%
Referral from WIN	-	46 (25%)	23 (19%)	36 (17%)	20 (11%)	18%

The following sections show more detail about the risk status of participants according to Indigenous status (Table 3) and time since last visit to a GP or AMS (Table 4).

Risk status of One Deadly Step participants according to Indigenous status

Table 3 shows the risk status of participants according to their reported Indigenous status. The total number and percentage of 'at risk' participants includes all of those participants who completed each screening step, while not all participants had their Indigenous status recorded. The the percentage of Indigenous and non-Indigenous participants at risk represent only those participants with Indigenous status recorded, and the number of at risk Indigenous and non-Indigenous participants may not add to give the total number of at risk participants at each screening step due to missing data on Indigenous status.

As shown in Table 3, the proportion of at risk participants was very similar for both Indigenous and non-Indigenous participants. For most risk factors assessed, the proportion of non-Indigenous participants who were at risk was slightly higher than the proportion of Indigenous participants. For example, an average of 72% of non-Indigenous compared to 70% of Indigenous participants were overweight or obese; 51% of non-Indigenous participants were current smokers compared to 47% of Indigenous participants; and 60% of non-Indigenous participants had high total cholesterol results compared to 53% of non-Indigenous participants. In contrast, slightly more Indigenous than non-Indigenous participants had elevated ACR and high blood pressure results. However, given the generally small number of non-Indigenous participants at many screening steps, these comparisons should be interpreted with caution.

Table 3: Risk status of One Deadly Step participants by Indigenous status

Risk factor	CTown n (%)	Griffith n (%)	Kempsey n (%)	Dubbo n (%)	Redfern n (%)	Average over all sites
Chronic disease (total)	77 (38%)	54 (26%)	48 (36%)	83 (35%)	53 (27%)	32%
Indigenous participants	72 (39%)	41 (23%)	42 (37%)	72 (35%)	43 (27%)	32%
Non-Indigenous participants	5 (26%)	13 (38%)	6 (30%)	7 (23%)	10 (26%)	29%
Overweight/Obese (total)	196 (73%)	127 (63%)	99 (67%)	-	150 (76%)	70%
Indigenous participants	130 (73%)	103 (62%)	71 (68%)		116 (76%)	70%
Non-Indigenous participants	14 (74%)	19 (76%)	12 (63%)		26 (74%)	72%
Risky waist circumference (total)	-	137 (69%)	88 (78%)	-	144 (80%)	76%
Indigenous participants		111 (66%)	77 (78%)		116 (79%)	74%
Non-Indigenous participants		20 (80%)	7 (70%)		26 (74%)	75%
Elevated ACR (total)	59 (30%)	-	32 (29%)	58 (29%)	44 (26%)	29%
Indigenous participants	45 (34%)		27 (30%)	51 (30%)	34 (26%)	29%

Non-Indigenous participants	3 (21%)		2 (13%)	6 (25%)	10 (30%)	22%
Current smoking (total)	-	75 (38%)	76 (54%)	-	95 (52%)	48%
Indigenous participants		59 (35%)	53 (51%)		80 (54%)	47%
Non-Indigenous participants		14 (54%)	9 (60%)		13 (39%)	51%
High risk drinking (total)	-	20 (10%)	24 (20%)	-	66 (37%)	22%
Indigenous participants		15 (9%)	18 (20%)		57 (39%)	23%
Non-Indigenous participants		4 (17%)	2 (15%)		8 (25%)	19%
Poor lung function (total)	28 (15%)	45 (23%)	15 (11%)	18 (10%)	26 (14%)	15%
Indigenous participants	20 (15%)	39 (25%)	12 (12%)	14 (9%)	14 (9%)	14%
Non-Indigenous participants	0	3 (12%)	2 (14%)	3 (12%)	11 (30%)	14%
High blood pressure (total)	66 (29%)	46 (24%)	50 (34%)	54 (27%)	44 (23%)	27%
Indigenous participants	48 (31%)	38 (23%)	38 (38%)	50 (30%)	33 (22%)	29%
Non-Indigenous participants	3 (25%)	6 (26%)	3 (17%)	2 (8%)	9 (24%)	20%
High BGL (total)	61 (37%)	71 (40%)	38 (42%)	65 (34%)	60 (36%)	38%
Indigenous participants	40 (35%)	59 (41%)	28 (47%)	57 (36%)	41 (31%)	38%
Non-Indigenous participants	7 (88%)	9 (32%)	2 (28%)	4 (21%)	16 (50%)	44%
High HbA1c (total)	25 (14%)	12 (7%)	18 (14%)	18 (9%)	9 (6%)	10%
Indigenous participants	18 (15%)	11 (8%)	15 (16%)	16 (10%)	8 (6%)	11%
Non-Indigenous participants	2 (25%)	0	2 (28%)	0	1 (3%)	11%
High total cholesterol (total)	105 (60%)	83 (47%)	77 (59%)	97 (52%)	73 (44%)	52%
Indigenous participants	75 (62%)	66 (46%)	57 (61%)	83 (53%)	56 (43%)	53%
Non-Indigenous participants	5 (62%)	14 (50%)	11 (73%)	12 (63%)	17 (53%)	60%

Risk status of One Deadly Step participants according to time since last GP or AMS visit

Table 4 shows the number and proportion of at risk participants who had been to see their GP or AMS either within the last six months, or more than six months ago. As for Table 3, the total number and percentage of at risk participants includes all of those participants who completed each screening step, while not all participants had the time since their last GP or AMS visit recorded. Therefore the percentage of at risk participants who visited their GP/AMS in the last six months, or more than six months ago represent only those participants with time since last visit recorded, and the number of at risk participants by time since last visit may not add to give the total number of at risk participants at each screening step due to missing data about time since last GP or AMS visit.

As shown in Table 4, the vast majority of at risk participants had visited their GP or AMS in the last six months. On average across all sites, almost 80% of participants who were 'at risk' based on overweight or obesity, high waist circumference, elevated ACR results, current smokers, and high blood pressure test results had been to their GP or AMS at least once within the last six months.

Table 4: Risk status of One Deadly Step participants by time since last visit to GP or AMS

Risk Factor	C'Town n (%)	Griffith n (%)	Kempsey n (%)	Dubbo n (%)	Redfern n (%)	Average over all sites
Chronic disease (total)	77 (38%)	54 (26%)	48 (36%)	83 (35%)	53 (27%)	32%
Last visit <6 months	70 (97%)	46 (85%)	40 (85%)	79 (99%)	43 (88%)	91%
Last visit >6 months	2 (3%)	8 (15%)	7 (15%)	1 (<1%)	6 (12%)	9%
Overweight/Obese (total)	196 (73%)	127 (63%)	99 (67%)	-	150 (76%)	70%
Last visit <6 months	124 (90%)	96 (79%)	61 (77%)		115 (85%)	83%
Last visit >6 months	14 (10%)	25 (21%)	18 (23%)		20 (15%)	17%
Risky waist circumference (total)	-	137 (69%)	88 (78%)	-	144 (80%)	76%
Last visit <6 months		103 (79%)	64 (80%)		111 (82%)	80%
Last visit >6 months		27 (21%)	16 (20%)		25 (18%)	20%
Elevated ACR (total)	59 (30%)	-	32 (29%)	58 (29%)	44 (26%)	29%
Last visit <6 months	38 (86%)		25 (86%)	46 (79%)	33 (80%)	83%
Last visit >6 months	6 (14%)		4 (14%)	12 (21%)	8 (20%)	17%
Current smoking (total)	-	75 (38%)	76 (54%)	-	95 (52%)	48%
Last visit <6 months		53 (73%)	40 (77%)		74 (83%)	78%
Last visit >6 months		20 (27%)	12 (23%)		15 (17%)	22%

High risk drinking (total)	-	20 (10%)	24 (20%)	-	66 (37%)	22%
Last visit <6 months		12 (63%)	15 (79%)		53 (84%)	75%
Last visit >6 months		7 (37%)	4 (21%)		10 (16%)	25%
Poor lung function (total)	28 (15%)	45 (23%)	15 (11%)	18 (10%)	26 (14%)	15%
Last visit <6 months	17 (89%)	31 (72%)	10 (71%)	13 (72%)	20 (83%)	77%
Last visit >6 months	2 (11%)	12 (28%)	4 (29%)	5 (28%)	4 (17%)	23%
High blood pressure (total)	66 (29%)	46 (24%)	50 (34%)	54 (27%)	44 (23%)	27%
Last visit <6 months	44 (91%)	36 (82%)	32 (84%)	45 (83%)	33 (87%)	85%
Last visit >6 months	4 (9%)	8 (18%)	6 (16%)	9 (17%)	5 (13%)	15%
High BGL (total)	61 (37%)	71 (40%)	38 (42%)	65 (34%)	60 (36%)	38%
Last visit <6 months	39 (87%)	48 (71%)	22 (79%)	50 (82%)	47 (87%)	81%
Last visit >6 months	6 (13%)	20 (29%)	6 (21%)	11 (18%)	7 (13%)	19%
High HbA1c (total)	25 (14%)	12 (7%)	18 (14%)	18 (9%)	9 (6%)	10%
Last visit <6 months	19 (100%)	10 (91%)	14 (100%)	17 (100%)	6 (67%)	92%
Last visit >6 months	0	1 (9%)	0	0	3 (33%)	8%
High total cholesterol (total)	105 (60%)	83 (47%)	77 (59%)	97 (52%)	73 (44%)	52%
Last visit <6 months	67 (89%)	61 (77%)	46 (71%)	72 (77%)	59 (84%)	80%
Last visit >6 months	8 (11%)	18 (23%)	19 (29%)	21 (23%)	11 (16%)	20%

Follow up of 'at risk' One Deadly Step participants

A key component of the One Deadly Step events is the follow up of those participants identified as at risk during screening. As indicated in Table 1, most participants across all sites (94%) consented to be followed up from the event.

Follow up of at risk participants is currently being conducted by the AMSs, Local Health Districts, Medicare Locals and other staff involved in each event, in collaboration with NSW Health. Each site will document details about their follow up procedures and results, and a future report will explore and report on the effectiveness of follow up from One Deadly Step events in encouraging participants to visit their GP/AMS or to undertake an alternative follow up activity (as determined by staff at each site). It is anticipated that this follow up data and analysis of results will be completed within six months of the staging of the One Deadly Step event in each community.

Conclusions

- One Deadly Step events represent a highly successful community screening approach, able to provide preventive health screening and promote follow up for a large number of people in a single day (an average of 220 participants across each event)
- The wide range of age groups, and the high proportion of males (an average of 42% of participants) and Aboriginal and Torres Strait Islander participants (an average of 85% of participants) attending the events further attests to the success of the program in engaging a broad spectrum of the community in health and chronic disease awareness
- A high proportion of participants were identified as at risk from a range of factors including overweight or obesity (70% across all sites), large waist circumference (76% across all sites), current smoking (48% across all sites), high blood pressure (27% across all sites) and high total cholesterol levels (52% across all sites)
- The proportion of those at risk did not appear to differ between participants identifying as Aboriginal or Torres Strait Islander compared to those identifying as non-Indigenous
- The majority of participants identified as at risk from the various risk factors assessed reported having been to their GP or AMS in the last 6 months. At least 75% of participants identified as at risk from any of the screening steps had been to their GP/AMS within the last 6 months. These results suggest that primary care services are not currently achieving a reduction in the risk status of their patients for risk factors such as overweight and obesity, high blood pressure, smoking and high cholesterol
- Primary care services such as GPs and AMSs may require additional resources and funding in order to focus on preventive care and to effectively manage and treat their patients for the common risk factors assessed in One Deadly Step events
- The effectiveness of follow up from One Deadly Step events will be critical in assessing the impact of the event for improving the health of individuals and communities
- Follow up from One Deadly Step is likely to be particularly effective for promoting preventive care, as follow up appointments will focus on the specific risk factors identified

during screening at the event. Although a high proportion of at risk participants reported having been to their GP or AMS in the last 6 months, it is likely that many attended for more acute conditions, during which it may be difficult for health care providers to prioritise or provide more general preventive care. One Deadly Step follow up will focus specifically on addressing the risk factors of participants identified during screening at the event.

Implications and future recommendations

- A system in which data from each screening step is automatically/electronically linked or held in one database would reduce missing data and ensure more consistent recording of participant screening results and details for the follow up process
- A broader consent process from participants for the availability of their contact details and screening results would also enable a more effective follow up process from the events. This would allow AMs, Local Health Districts, Medicare Locals and other participating organisations to have access to participant results in order to coordinate follow up more effectively and to target their follow up services according to the needs of participants and the services which they are best placed to provide
- Future events could also consider the use of postcards or another form of real-time feedback which summarises the participants' risk status across all screening steps and provides a recommendation or organises a follow up appointment for the participant as part of the event
- The accuracy of smoking and high risk drinking assessment may be limited by the direct nature of assessment involving questioning by One Deadly Step staff. Future events could incorporate a more anonymous method of data collection for these risk factors, such as a touch screen computer survey (with results linked to the main data set) to improve accuracy
- A more rigorous assessment of Quality of Life or emotional wellbeing, such as a validated tool for assessing depression or anxiety, rather than referral by staff, would allow more consistent assessment and follow up for this screening step
- The spirometry screening step could potentially not be excluded in future events, given reported difficulties in administering this test (particularly to younger participants), and the relatively low numbers of participants (an average of 15%) identified as at risk based on this screening test
- HbA1c testing could also possibly be excluded in future events. This test is generally not used for the diagnosis of diabetes, while blood glucose levels (which are currently included in the screening) are more likely to be indicative of possible type 2 diabetes. Alternatively, HbA1c testing could be offered to those participants who identify as having diabetes, in order to assess the level of glycaemic control among diabetic participants

- Staff involved in One Deadly Step recommended the inclusion of sight and hearing tests, and an assessment of sexually transmitted diseases, as important screening steps for future events

Appendix A: Classification of risk status and need for referral

The risk status of participants was determined by comparing screening test results to national guidelines or recommendations. Table 1 shows the specific guidelines or cut points used to classify participants as 'at risk' from each of factors assessed during screening.

Table 1: Guidelines and cut points used to classify participants as 'at risk'

Risk factor	Guideline or cut points used to determine risk	Reference
Body Mass Index (BMI)	BMI < 18.5 kg/m ² : Underweight BMI 18.5-24.9 kg/m ² : Healthy weight BMI 25-29.9 kg/m ² : Overweight BMI 30-39.9 kg/m ² : Obese BMI ≥ 40 kg/m ² : Very obese	RACGP 2009
Waist circumference (WC)	Aboriginal or Torres Strait Islanders: ≥ 90–100 cm in males and ≥ 80 cm in females conveys increased risk of type 2 diabetes and cardiovascular disease (CVD); For non-Indigenous individuals: ≥ 94 cm in males and ≥ 80 cm in females conveys increased risk of type 2 diabetes and cardiovascular disease	RACGP 2009
Albumin-creatinine ratio (ACR)	ACR levels indicating microalbuminuria: 2.5–25 mg/mmol for males 3.5–25 mg/mmol for females Note that due to variability in urinary albumin excretion, an abnormal result should be confirmed in two of three specimens collected within a 3–6 month period	NACCHO 2005; RACGP 2009
Smoking	Smoking status was self-reported. For analysis, any current smoker was classified as 'at risk'.	
Alcohol consumption	ODS staff categorised participants as either low or high risk drinkers. For analysis, high risk drinkers were classified as 'at risk'.	
Spirometry	Airway obstruction or mild chronic obstructive pulmonary disease (COPD) is indicated by: FEV1/FVC < 70% (FEV1= forced expiratory volume in 1 second FCV=forced vital capacity)	NACCHO 2005a Swanney 2008
Blood pressure (mmHg; BP)	Systolic blood pressure/diastolic blood pressure: Normal: < 120/80 mmHg Normal to high: 120/80 - 140/90 mmHg. High blood pressure: ≥ 140/90 mmHg If systolic and diastolic categories are different for a participant, the lower risk category is used. E.g. A participant with BP= 120/92 should be classified as having high BP.	Heart Foundation 2008
Blood glucose levels (BGL)	Plasma glucose levels in a random (non- fasting) sample: < 5.5 mmol/L – diabetes unlikely	RACGP 2009

	5.5–6.9 mmol/L – diabetes uncertain; retest using an oral glucose test >11.1 mmol/L – diabetes likely, repeat fasting blood sugar to confirm on a separate day.	
Cholesterol	Target lipid levels: LDL-cholesterol < 2.5 mmol/L Total cholesterol < 4.0 mmol/L HDL-cholesterol > 1.0 mmol/L Triglycerides < 2.0 mmol/L	Heart Foundation 2001
WIN (Quality of Life)	ODS staff recommended referral for participants based on a quality of life assessment	

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