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Contribution by primary health nurses and general practitioners to the Diabetes Annual Review (Get Checked) programme in Auckland, New Zealand

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Abstract

Aim To describe primary health care (practice and specialist) nurses involvement in the government-funded annual diabetes review 'Get Checked' programme and the division of care between nurses and general practitioners in Auckland, New Zealand.

Method Of the total 911 practice and specialist nurses identified and working in the greater Auckland region, 276 (30%) were randomly selected and invited to undertake a self-administered questionnaire and telephone interview in 2006–8.

Results An 86% response rate was achieved. Over 60% of practice nurses and over half of specialist nurses participate in 'Get Checked' reviews. Of those nurses, 40% of practice and 70% specialist nurses, reported completing over half of the total number of 'Get Checked' reviews at their practice. Of the nurses sampled who work in general practice (n=198), 38% reported that 'nurses mostly complete' the reviews, 45% stated that 'nurses and doctors equally complete' them and 17% reported that only 'doctors' did so. For the nurses who reported that 'nurses and doctors equally complete' the reviews (n=89), most nurses undertake blood pressure measurements (90%), weigh patients (88%), give lifestyle advice (87%), examine patient's feet (73%), and 44% carried out the complete review of the patients they consult.

Conclusion These findings show the 'Get Checked' programme was successful in engaging practice and community-based specialist nurses in the community management of diabetes and has revealed positive relationships between nurses and doctors, extended roles for nurses and the importance of engaging nurses in the design of health care programmes.

The increasing incidence of type 2 diabetes in New Zealand (NZ),[1] and the inability to continue to meet the health care needs of large numbers of people with diabetes-related complications within specialist secondary health care services, initiated a Government-funded diabetes annual review (DAR) 'Get Checked' programme in 2000.[2]

A parallel development, the Primary Health Care (PHC) Strategy (2001),[1,3] encouraged the development of not-for-profit Primary Health Organisations (PHOs),[1] and following European[4] and United Kingdom (UK)[5] trends, aimed to increase PHC diabetes services and provide systematic care for all diabetes patients.[1]

Funding was provided for general practices through District Health Boards (DHBs) and PHOs, on a fee-for-service basis.[2] Either general practitioners (GPs) or practice-based PHC nurses were able to carry out the 'Get Checked' review, or its components, and check lists were used to encourage a comprehensive review of patients and for

reimbursement purposes.[2] This created an opportunity and the expectation that practice-based nurses would expand their role and capacity in the community management of diabetes.[6]

In 2010, almost a quarter of all 42,334 registered nurses who are in NZ were working in a community or rural setting with 45% employed as practice nurses (PN), who are the largest group of PHC nurses.[7] PN predominantly work in general practice, although a small proportion work in Accident and Medical Clinics.[8]

The main two groups of specialist nurses (SN) who provide community-based diabetes care are diabetes nurse specialists (DNS), who predominantly work in hospital-based outpatient services, and chronic care management (CCM) nurses who mainly work for independent for-profit community-based PHC providers who are usually GPs.

In addition to the 'Get Checked' programme, funding was provided for 'Care Plus' through PHOs from 2004, designed for patients with high needs and chronic care conditions that offered patients 2 hours of free care every 6 months.[9,10] 'Care Plus' was generally also paid on a fee-for-service basis through PHOs, via a capitation funding for 5% of the practice population being enrolled at any one time.[10]

Large international intervention trials have reported improvements in the clinical management of blood glucose levels (BGLs) and major cardiovascular (CV) risk factors reduces microvascular complications[11] and all diabetes-related complications, respectively.[12–16] This representative cross-sectional survey reports on the participation of practice-based PHC nurses in the 'Get Checked' review programme, in the largest urban area in NZ.

The aim of this paper is to describe PN and SN participation in the DAR 'Get Checked' programme and the division of care between GPs and practice-based PHC nurses in Auckland, and quantify their contribution as originally outlined in the PHC Strategy.

Methods

A cross-sectional survey of community-based PHC nurses, working in the greater Auckland region, involved in the management of diabetes, including the 'Get Checked' annual review, was conducted between September, 2006 and February, 2008. The recruitment of the PHC nurses and methods have been described previously,[8] but briefly, we randomly sampled 26% of all PN, district nurses, DNS and CCM nurses who completed a postal self-administered questionnaire (n=284) and telephone interview (n=287).

Overall an 86% response rate was achieved. Biographical characteristics of the nurses have been reported previously.[8] Of the total sample 54% of SN and 92% of PN worked in general practices, 8% of PN in Accident and Medical Clinics and 22% of SNs worked in other community health care settings.[8]

This report has been restricted to 210 PN and 21 SN because district nurses (n=49) and DNS who work in hospital outpatients clinics (n=7) do not participate in the 'Get Checked' programme. Ethics approval was granted from the Northern Regional Ethics Committee (NTX/05/10/128).

The questionnaire contained questions about the nurse's practice or clinic, the numbers of patients, and diabetes patients enrolled, and general participation by nurses and GPs in the DAR 'Get Checked' programme. For example, participants were asked about their personal involvement in the programme, what percentage of the 'Get Checked' reviews they carry out at their practice, and the support from the practice they received for the programme.

Respondents who did not participate in the programme were asked why, with the following responses categories: 'doctors carry out the Get Checked assessments'; 'lack of time'; 'lack of knowledge' and 'other'. Nurses who indicated they personally participated were also asked 'who mostly carries out the annual Get Checked diabetes assessments at your practice or service', with the following possible responses: 'doctor'; 'nurse' or 'both doctor and nurse equally'. Additional questions were asked on specific aspects carried out by the nurses from respondents who indicated 'doctors and nurses' equally carried out the review at their practice.

All 231 nurses completed the telephone interview, including the two PN who did not return the questionnaire. At the end of the interview, one day within the past week that each nurse had worked was randomly selected, and additional questions were asked about the number of diabetes patients consulted on this day, including 'Get Checked' reviews. Further patient details and information were gathered on the assessments, care and health promotional advice diabetes patients received during the consultation.

For statistical analyses, nurses were categorised by PN or SN, the latter included the DNS (n=12) and CCM (n=9) nurses who were combined for analyses due to their small numbers. Standard univariate methods were used for analysing categorical outcome data, using PROC FREQ in SAS version 9.2 (SAS Institute, Cary, North Carolina, 2008) and PROC MULTILOG in SUDAAN (version 10 Research Triangle Institute, 2008) to correct for the clustering effects by nurses who had carried out more than one diabetes 'Get Checked' review. P-values from either Fisher or Pearson exact tests were selected when over 20% of expected cell numbers were <5.

Results

Table 1 outlines the biographical details of the 229 PN and SN who completed and returned the questionnaire. Most were female and 47% were aged over 50 years, and significantly more PN were European New Zealanders compared with SN (Table 1). Information regarding the number of patients, including those with diabetes, registered at each nurse's practice or service, was known by 80% of respondents, although only 43% were able to access the appropriate database for this information.

Of the nurses who reported the number of patients registered at their practice or service, 97% reported up to 22,000 patients. Three nurses worked in very large practices or services (30,000 to 78,000) and one SN worked for the large PHO, 'ProCare', with 800,000 patients registered (not included in analyses). More PN (40%) worked in practices with 100 to 300 diabetes patients registered; while 46% of SN worked in practices or services with over 300 diabetes patients.

Table 2 shows the proportion of SN and PN who reported participating in the 'Get Checked' reviews at their practice and the division of 'Get Checked' reviews between GPs and nurses. Of the nurses sampled, over 60% personally carry out 'Get Checked' reviews or aspects of them and in addition, 70% and 40% of SN and PN respectively carry out over 50% of all 'Get Checked' reviews at their associated general practice.

Of the 75 PN who do not participate in the 'Get Checked' reviews, 43% reported that designated nurses complete these reviews and 39% stated that only doctors carry out the reviews; while most SN stated the reviews were outside of their specialist roles.

Table 1. Biographical details of practice and specialist nurses (n=229) – sex, age, ethnicity and the number of patients registered at their practice or service

Variable and level	Total %	Type of Nurse		P value
		Practice nurses %	Specialist nurses %	
Sex	n=229	n=208	n=21	
Female	99	99	100	1.00
Male	1	1		
Age (years)	n=225	n=204	n=21	
25–40	19	20	10	
41–50	34	34	33	0.43
≥51	47	46	57	
Ethnicity	n=229	n=208	n=21	
NZ European	74	76	52	
Asian	8	8	5	0.0005
Pacific Island	6	6	10	
United Kingdom	3	3	5	
Māori	3	1	24	
*Other	5	5	5	
Number of diabetes patients registered at practice or clinic				
Number of patients registered	n=180	n=169	n=11	
9–3000	22	21	36	0.45
3001–7000	43	44	27	
7001–78,000[#]	35	35	36	
Number of diabetes patients	n=177	n=164	n=13	
2–100	26	26	23	0.76
101–300	39	40	31	
301–4200	35	34	46	
Source of information	n=184	n=170	n=14	
Database	57	56	64	0.78
Estimated	43	44	36	

Abbreviations: No, number.

P-value showing significance of variation in percentages in subgroups, from the Chi-squared value and either Fisher or Pearson exact tests were selected.

*Other–Australia (n=4), North America (n=4), Europe (n=2), South Africa (n=1) and Middle East (n=1).

[#]Three Primary Health Care Organisations with >30,000 patients registered – one with 800,000 patients was excluded from the analyses.

Most SN and half of the 175 PN who participated in the 'Get Checked' programme reported receiving a 'lot of support' from their practice while 20% received 'little or no support' (Table 2). Reasons for the lack of support mirrored the reasons given above as to why respondents did not participate in the programme, along with the additional reason that patients were enrolled in other 'special' assessment programmes (data not shown).

Of the 186 PN whose practices were involved in 'Get Checked' reviews, 44% reported that doctors and nurses equally carry out these reviews and 38% stated that nurses mostly carry out these reviews—twice the proportion than doctors. Further, of the 89 nurses who reported that doctors and nurses working at their practice equally carry out 'Get Checked' reviews, 44% reported nurses carry out complete reviews and a large proportion weighed patients, measured blood pressure, carry out foot examinations and gave lifestyle advice (Table 2).

Of those nurses, 26 reported other activities performed by nurses that included: testing of capillary blood glucose and visual acuity; antenatal and postnatal care; writing 'Green Scripts', organised appropriate referrals, educated patients on test results and medication (including insulin), and promoted smoking cessation – separate data not shown.

Table 2. PN and SN who participate in the 'Get Checked' programme and the proportion of general practitioners and nurses who equally carried out reviews and specific activity undertaken by each (n=223)

Variable and level	Total n=236 %	Type of Nurse		P value
		Practice Nurses n=208 %	Specialist Nurses n=28 %	
Nurses who participate in Get Checked	n=223 61	n=206 61	n=17 65	0.80
Percentage of Get Checked carried out by nurses <5% 5–25% 26–50% >50% 	n=134 18 19 20 43	n=124 19 20 21 40	n=10 10 10 10 70	0.36
Support for nurses for Get Checked A lot Some A little None	n=188 53 28 13 6	n=175 51 29 14 6	n=13 85 15 0 0	0.10
Reasons for not participating Doctors only do Get Checked Lack of time Lack of knowledge	n=79 37 11 6	n=75 39 12 7	n=4 0 0 0	 0.29 1.00 1.00
General practitioners & practice-based nurses involved in Get Checked programme				
Who mostly did Get Checked? Both Doctor & Nurses equally (89)* Nurses Doctors	n=198 45 38 17	n=186 44 38 18	n=12 67 33 0	 0. 16
Aspects that nurses performed when doctors & nurses equally reviewed patients Complete review Weight Blood pressure Feet checked Lifestyle advice	n=89* 44 88 90 73 87	n=81 41 89 90 72 86	n=8 75 75 88 88 88	 0.13 0.26 0.59 0.44 0.93

Abbreviations: Drs, doctors; Pts, patients.

P-value showing significance of variation in percentages in subgroups, from the Chi-squared value and either Fisher or Pearson exact tests were selected.

*Refers to the 89 nurses who reported doctors and nurses equally carried out Get Checked reviews.

P-value showing significance of variation in percentages in subgroups, from the Chi-squared value.

Table 3 reports on the type of consultation 79 (38%) PN and 12 (57%) SN carried out among the 196 diabetes patients consulted on the randomly selected day. The majority

of consultations were follow-up visits (61%), 26% were special programme consultations, and PN completed 80% of the total 'Get Checked' reviews (Table 3).

Table 3. Proportion of practice and specialist nurses undertaking 'Get Checked' reviews on a randomly selected day (n=230).

Variable and level	Total	Type of Nurse		P value
		Practice Nurses	Specialist Nurses	
Total sample of nurses	n=230	n=209	n=21	
Total nurses consulting sampled patients	n=91 (40%)	n=79* (38%)	n=12# (57%)	0.08
Total sample of patients	n=196	n=153 (78%)	n=43 (22%)	
Type of consultation	n %	%	%	
Follow-up	120 61	93 61	27 63	
Get Checked	22 11	16 10	6 14	0.84
Care Plus	30 15	24 16	6 14	
Other#	24 12	20 13	4 9	
Number of nurses undertaking Get Checked	n=18	n=16	n=2	
	%	n %	n %	
1	5	10 5	1 4	–
2	2	5 2	0	
4	0.5	1 0.5	0	
5	0.5	0	1 4	
Number of Get Checked consultations	n=30	n=24	n=6	
	%	%	%	
1	5	7	1.5	–
2	5	7	0	
4	2	3	0	
5	3	0	8	

*Data not collected on: 7 patients consulted by one PN; 2 of 3 and 1 of 2 patients consulted by two other PN; 28 patients consulted by one ophthalmology DSN and 5 patients consulted by one CCM nurse.

Total patients consulted (n=239) and data collected on 196 (82%) patients.

#Other consultations: new diabetes diagnosis (n=13), acute care (n=9) and other (n=2).

P-value showing significance of variation in percentages in subgroups, from the Chi-squared value and Chi-squared test not performed with small cell numbers.

Table 4 compares assessments and care received by the 30 patients undergoing a 'Get Checked' review with 120 patients undergoing the usual follow-up consultation by PN and SN. Significantly more patients undergoing the 'Get Checked' review were weighed, had their blood pressure measured and received foot examinations and advice on foot protection, compared with patients attending follow-up consultations.

Of the five patients who used tobacco, only one wished to stop but was not advised on nicotine replacement therapy, and two patients were to be followed up by their GPs.

Table 4. Assessments and care received by patients undergoing the Get Checked annual reviews compared with patients undergoing 'usual care' follow-up consultations (n=150)

Variable and level	Get Checked n=30		Follow-up n=120		P-value
	Total N	%	n	%	
Nursing care & activities					
Blood pressure measured	30	100	120	70	0.0006
Patient weighed	30	97	120	58	<0.0001
Feet examined	30	87	120	33	<0.0001
Microfilament test	26	96	39	56	0.0005
Foot advice received	30	43	119	19	0.006
Exercise advice received	30	83	120	69	0.12
Green Scripts received		7		3	0.26*
Diet advice received	30	77	120	73	0.64
Capillary blood glucose test	30	47	118	46	0.93
Patients to be telephoned	30	23	119	33	0.32
Patient documented information					
Smoking status recorded	30	100	119	97	0.60*
Tobacco users	5	17	16	13	0.60*
Asked about stopping	1	20	3	19	0.15*
Referral for NRT		0		67	–
Quitline/Community service		40[#]		67	–
Medications known		100	118	99	1.00*
Patients prescribed:					
Statin		67	117	68	0.86
ACE inhibitor	30	63	117	59	0.66
Metformin		60	117	67	0.49
Insulin		23	118	24	0.96
Sulphonylurea		23	117	32	0.38
HbA1c recorded	30	97	120	80	0.03*
Total Cholesterol recorded	30	83	120	58	0.01*
BMI or height & weight recorded	30	40	120	8	<0.0001
Patient management by practice					
Regular appointments	30	97	120	97	0.26*
≤3 months since last		70	117	82	0.13*
Blood test ≤3 months	30	87	116	84	0.90
Retinal Screen ≤ 2 years		82		72	
Over 2 years	27	7	113	6	0.45*
Not known / no data		11		22	
Microalbuminuria < 3 months	30	80	119	65	0.48*

P value showing significance of variation in percentages in subgroups, from the Chi-squared value using either Fisher or Pearson* exact tests and Chi-squared test not performed with small cell numbers.

[#]Planned phone call to one patient by GP and discussion planned with another patient during next consultation.

Discussion

This is a quantitative report of participation by PHC nurses in the DAR 'Get Checked' programme for a representative sample of practice-based PN and SN from the wider Auckland region and evaluates aspects of the PHC Strategy (2001). Most PN and SN reported having at least 100 diabetes patients registered at their practice or clinic with a higher median number compared with 123 general practices surveyed in UK.[17]

Most consultations by PN and SN were follow-up appointments; 38% of PN on average consult at least one diabetes patient a day, and 26% of all PN diabetes consultations were special programme consultations. Over 60% of the PN and SNs were involved in the 'Get Checked' programme.

Of the PN sampled, 40% carried out over 50% of all 'Get Checked' reviews at their practice, far greater than the 8% of PN who reported completing diabetes reviews at South Link-based practices in the South Island,[18] but comparable to PN in Nottingham who participated in DAR in 46% of practices for patients with type 2 diabetes.[17]

Of the 30 patients who had 'Get Checked' consultations on the randomly sampled day, major nursing roles included measuring blood pressures, weighing patients, undertaking comprehensive foot examinations and giving health promotional advice.

PN respondents reported that twice the proportion of nurses compared with GPs mostly carried out complete 'Get Checked' reviews, and that a further 45% did so equally with GPs, despite the historic tendency for the scope of PN to be moulded around that of GPs.[19]

Although a quarter of all PN consultations were special programme ('Get Checked' or 'Care Plus' consultations, another NZ survey reported significantly fewer ethnic minority patients participated in 'Get Checked',[20] particularly Māori patients,[21] and another reported a high attendance rate, although disparities existed for those who attended related services such as retinal screening[22] especially for Pacific Island patients.[23]

In contrast, another survey reporting on 13,281 diabetes patients found no ethnic differences in foot screening in those who participated in 'Get Checked'.[23] The nursing profession recognises the importance of building Maori and Pacific nursing workforce capacity as it is commonly believed that ethnic concordance will contribute to addressing ethnic minority inequity in access and treatment to PHC services.[24]

The 'Get Checked' programme has been one of the central activities enabling PN to take a more active and semi-autonomous role in general practice over the last 10 years. The large proportion of PN involved in the 'Get Checked' programme demonstrates the success of funding reimbursements, increasing the capacity of PN providing community-based diabetes care and fulfils one of the principal aims of the PHC Strategy in attempting to provide PHC for all, as described by Finlayson et al.[25]

Following the lead of the UK[5] and Europe,[4] the introduction of the Government-funded 'Get Checked' review programme provided a systematic review process, allowing for evaluation, comparison, increased patient documentation and ultimately improving patient outcomes. Improvements have been reported in mean blood pressure, cholesterol levels, and albumin:creatinine ratio,[26,27] smoking rates and an increase in prescriptions for hypoglycaemic medication, ACE inhibitors and statins.[27]

Results from this survey document the division of labour between GPs and practice-based nurses and comparisons are made with 'follow-up' consultations in general practice. Patients however, may receive care from GPs they do not receive from nurses, such as adjusting medication to improve BGLs, blood pressure and lipid profiles.

A strength of this survey was the very high response rate and representative comprehensive cross-sectional sample of practice-based PN and SN in the largest urban area in NZ. Potential bias by PN and SN over reporting on their own, and reporting GP participation and the respective division of care in the 'Get Checked' programme is a limitation of this survey.

Despite this, information gathered on actual 'Get Checked' reviews carried out by the participants on a randomly selected day that each nurse had worked, correlated with self-reported participation by PN and SN. A further limitation is the self-identification of SN as there is no national standard or criteria for this specialist nursing role, although most SN have undertaken formal tertiary post-registration education.[8]

Most PN participate in the 'Get Checked' review programme and completed a large proportion of the 'Get Checked' reviews at their associated practice and felt supported.

The findings from this survey show the Government-funded DAR 'Get Checked' programme has been successful in growing the capacity of PN in the community management of diabetes and they have developed collegial working relationships with GP in most practices in Auckland. Despite this, the 'Get Checked' programme has been criticised for rewarding completed consultations rather than improving patient outcomes and ended in 2012.[28]

Not all aspects of the review have been comprehensively evaluated and findings from this survey show indirect benefits for patients regarding nursing-focused care (foot examinations, blood pressure measurements and health promotion advice). Despite this, tobacco use—associated with the poorest outcomes—has not been systematically targeted by nurses during 'Get Checked' consultations and this is not reported on in a recent 'Get Checked' audit review.[28]

PHC based-diabetes care in NZ has followed similar international trends[4,5] with targeted funding for primary-care based DAR and now aims to tie reimbursement with improvements in patient outcomes.[29]

Although the 'Get Checked' programme has ended, funding has been retained for diabetes services, through the new Diabetes Care Improvement Package,[29] and regions have been given the opportunity to re-design existing services to maximise benefits for patients such as basing reimbursement on improved clinical indicators and risk factors for diabetes-related complications.[29]

DHBs need to continue to acknowledge the valuable contribution made by the largest professional PHC workforce and ensure PHC nurses are involved in developing an effective replacement DAR programme and that their workforce capacity and capability are fully realised.

In the future it is expected PHC nurses will consolidate and continue to expand their role in the community management of diabetes. Following changes in the Medicines Act of 1981[30] and the 2003 Health Practitioners Competence Assurance Act,[31] it is expected a greater proportion of PHC nurses will attain advanced roles as DNS and nurse practitioners with prescribing rights, as recently successfully piloted in four sites by DNS in NZ.[32]

Further legislative changes are expected to allow fully qualified and nationally recognised DNS to prescribe the full array of medication required for managing

patients with diabetes[33] and parallels changes occurring in the UK, US, Canada and Australia.[34]

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