

Supplementary Material for

Evaluation of HealthPathways: an appraisal of usage, experiences and opinions of healthcare professionals in Australia and New Zealand

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File S1. HealthPathways survey questionnaire

Confidential

HealthPathways Survey Curtin University

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The objective of this survey is to gather valuable feedback on the usage and user experience of HealthPathways by a variety of health professionals.

The survey should take approximately 10 minutes to complete and your answers will remain completely anonymous.

If you would like additional information or have any questions you can contact

Thank you for your time and feedback!

What is your age?

- 20 - 30 years
- 31 - 40 years
- 41 - 50 years
- 51 - 60 years
- 61+ years

What is your gender?

- Male
- Female
- Prefer not to say

If a colleague from another region asked you about HealthPathways, what general comments would you make?

Do you have any concerns about HealthPathways, including the way it is developed and maintained? If so, please elaborate on what these are.

What is your role?

- General Practitioner
- Practice Nurse
- Hospital Clinician
- Allied Health Professional
- Practice Manager
- Hospital Manager

What is the name of your practice?

What is the size of the practice you work in?

- Solo
- 3 - 5 practitioners
- 6+ practitioners

How many years have you been in clinical practice?

- 1 - 5 years
- 6 -10 years
- 11 - 20 years
- 21 - 30 years
- 31 -40 years
- 41+ years

What is your speciality as a hospital clinician?

- Cardiology
- Dermatology
- Endocrinology
- ENT
- Gastroenterology
- General Medicine
- General Surgery
- Genetics
- Hyperbaric Medicine
- Infectious Diseases
- Nephrology
- Neurology
- Neurosurgery
- Older Person's Health
- Oncology
- Ophthalmology
- Oral Maxillofacial Surgery
- Orthopaedics
- Paediatric Surgery
- Palliative Care
- Plastic Surgery
- Respiratory
- Rheumatology/Immunology
- Urology
- Vascular Surgery
- Other

What is your Allied Health discipline?

- Midwifery
- Nutrition
- Occupational Therapy
- Optometry
- Physiotherapy
- Podiatry
- Speech Language Therapy
- Pharmacy
- Other

Are you aware of HealthPathways?

- Yes
- No

How many years have you been in the Allied Health discipline?

- 1 - 5 years
- 6 - 10 years
- 11 - 20 years
- 21 - 30 years
- 31 - 40 years
- 41+ years

How many years have you been a Practice Manager for?

- 1 - 5 years
- 6 - 10 years
- 11 - 20 years
- 21 - 30 years
- 31 - 40 years
- 41+ years

How many years have you been a Hospital Manager for?

- 1 - 5 years
- 6 - 10 years
- 11 - 20 years
- 11 - 20 years
- 21 - 30 years
- 31 - 40 years
- 41+ years

How much time of your working week do you spend in clinical practice?

- More than 0.5 FTE
- Less than or equal to 0.5 FTE

How much time of your working week do you spend in your role as a Practice Manager?

- More than 0.5 FTE
- Less than or equal to 0.5 FTE

Amongst your professional peers, please rank your computer skills.

- I do not use a computer, except when forced to and I need help if anything unexpected happens. I find performing any task on a computer difficult or stressful
- I only perform basic tasks on a computer. I only find using a computer stressful when something goes wrong.
- I am a confident IT user who can do all the simple tasks I encounter day to day. I need help with anything more complex or if there is a technical issue
- I am a confident IT user who can perform most complex tasks without difficulty or assistance. I can solve most issues that arise by myself
- I am an expert user with technical skills. I feel confident advising other people

Prior to the availability of HealthPathways, I used these online resources to obtain information when treating my patients.

- UpToDate
- Dynamed
- MD Consult
- Medscape
- Patient.co.uk
- Wikipedia
- BMJ
- Pegasus Intranet
- BestPractice (bpac.org.nz)
- Therapeutic Guidelines
- NICE Guidelines
- RACGP
- Google
- None of the above

Has HealthPathways changed your use of the above resources?

- Yes - it has increased my use of the resources listed previously
- Yes - it has decreased my use of the resources listed previously
- No

The following section will ask questions dealing with your usage of HealthPathways.

In the last month, how many times have you used HealthPathways?

- Never
- Rarely (1 - 3 times)
- Sometimes (3 - 10 times)
- Often (> 10 times)

When you do use HealthPathways, how often is it for the purpose of accessing information on the assessment of a clinical condition?

- Never
- Rarely
- Sometimes
- Often

When you do use HealthPathways, how often is it for the purpose of accessing information on the management of a clinical condition?

- Never
- Rarely
- Sometimes
- Often

When you do use HealthPathways, how often is it for the purpose of accessing information on a community service, including making a report or a referral?

- Never
- Rarely
- Sometimes
- Often

When you do use HealthPathways, how often is it for the purpose of accessing information on a hospital service, including making a report or a referral?

- Never
- Rarely
- Sometimes
- Often

When you do use HealthPathways, how often is it for the purpose of accessing a resource or link?

- Never
- Rarely
- Sometimes
- Often

When you do use HealthPathways, how often is it for the purpose of accessing patient information, including HealthInfo?

- Never
- Rarely
- Sometimes
- Often

If you have NEVER or RARELY used HealthPathways, why is this? Tick all options that apply.

- I do not know what HealthPathways is
- I cannot access HealthPathways
- I had not considered utilising HealthPathways in clinical practice
- I forget to use HealthPathways
- The HealthPathways information is not useful
- HealthPathways is difficult to navigate
- Using HealthPathways is too time consuming
- Other
- Not applicable

The following questions refer to your experience in using HealthPathways

The HealthPathways website is easy to use.

- Disagree
- Neither agree or disagree
- Agree

The HealthPathways website is easy to navigate

- Disagree
- Neither agree or disagree
- Agree

Information on the HealthPathways website is clear and easy to understand.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways is the first resource I consult for clinical information.

- Disagree
- Neither agree or disagree
- Agree

The guidance provided by HealthPathways is of practical use.

- Disagree
- Neither agree or disagree
- Agree

The information provided on the HealthPathways website is of high quality.

- Disagree
- Neither agree or disagree
- Agree

I find the search function on the HealthPathways website to be effective.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has increased my confidence in managing clinical problems.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has increased my ability to provide quality nursing care to my patients.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has enabled me to be more time efficient in my patient management.

- Disagree
- Neither agree or disagree
- Agree

The following questions refer to your experience in using HealthPathways

The HealthPathways website is easy to use.

- Disagree
- Neither agree or disagree
- Agree

The HealthPathways website is easy to navigate

- Disagree
- Neither agree or disagree
- Agree

Information on the HealthPathways website is clear and easy to understand.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways is the first resource I consult for clinical information.

- Disagree
- Neither agree or disagree
- Agree

The guidance provided by HealthPathways is of practical use.

- Disagree
- Neither agree or disagree
- Agree

The information provided on the HealthPathways website is of high quality.

- Disagree
- Neither agree or disagree
- Agree

I find the search function on the HealthPathways website to be effective.

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HealthPathways has increased my confidence in managing clinical problems.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has increased my ability to provide quality nursing care to my patients.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has enabled me to be more time efficient in my patient management.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways is useful in supporting my diagnostic process.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has improved the care I can provide to my patients.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has increased the volume of patient information leaflets or website links I can provide to my patients.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has assisted in the provision of more primary healthcare in the community.

- Disagree
- Neither agree or disagree
- Agree
- Don't know

HealthPathways has resulted in improved care of patients in the community?

- Disagree
- Neither agree or disagree
- Agree
- Don't know

HealthPathways has provided explicit information to help the referral triage process?

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has enabled me to better communicate my advice and recommendations to general practice?

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has enabled me to reduce the number of patients that require follow-up?

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has increased my knowledge of local health services.

- Disagree
- Neither agree or disagree
- Agree

Knowing the criteria for the availability of publically-funded patient care is helpful.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has improved my relationship with my patients - in particular their confidence in my clinical ability to manage their health.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has improved my relationship with my patients - in particular their confidence in my ability to manage their health.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has improved my relationship with hospital clinicians.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has improved the relationship between my department and general practice?

- Disagree
- Neither agree or disagree
- Agree

HealthPathways enables me to manage patients I would have previously referred.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has improved the overall quality of referrals?

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has increased the proportion of appropriate referrals?

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has improved general practice management prior to referral?

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has increased the acuity of referred patients?

- Disagree
- Neither agree or disagree
- Agree

HealthPathways encourages me to refer patients I would have previously managed myself.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways increases my confidence in managing patients I may have otherwise referred to a GP.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways provides useful information on what information to include in a referral.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has required a lot of effort from myself and/or department to develop and maintain?

- Disagree
- Neither agree or disagree
- Agree

The development and maintenance of HealthPathways has been a positive experience for myself and/or department?

- Disagree
- Neither agree or disagree
- Agree

I believe that HealthPathways is primarily for GPs.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways can help manage the work load on the department.

- Disagree
- Neither agree or disagree
- Agree

HealthPathways has allowed patients to be managed outside our department who used to come in.

- Disagree
- Neither agree or disagree
- Agree

Other decision-support software provides tailored management advice (structured decision support) by linking patient information from patient management software.

HealthPathways provides clinical advice without individual patient information.

HealthPathways should be altered to provide structured decision support.

- Disagree
- Neither agree or disagree
- Agree

I would find it useful if the Electronic Records Management System (ERMS) could be launched from within HealthPathways.

- Disagree
- Neither agree or disagree
- Agree

I prefer to make decisions based on my knowledge of the patient, rather than advice from structured decision support.

- Disagree
- Neither agree or disagree
- Agree

Have you encouraged your staff to use HealthPathways?

- Yes
- No

Table S1. How did you come across HealthPathways?

Reasons	Overall		Australia		New Zealand	
	N	%	N	%	N	%
Primary Health Network recommendation	458	66.8	293	71.1	165	60.2
Colleague recommendation	158	23.0	82	19.9	76	27.7
Web-search	12	1.7	8	1.9	4	1.5
This is the first time I have heard about HealthPathways	123	17.9	68	16.5	55	20.1
Other	3	0.4	3	0.7		
Observations	686		412		274	

Note: Proportions are only calculated for health professionals who are aware or have used HealthPathways in the pasts.

Table S2. Unadjusted ordered logistic regression estimates of the frequency of usage of HealthPathways among general practitioners in New Zealand and Australia

Specification	Overall sample		New Zealand		Australia	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
<i>Years in clinical practice</i>						
1-5 years in practice	0.70	[0.42,1.16]	0.91	[0.29,2.82]	0.64	[0.36,1.15]
6-10 years in practice	0.69	[0.42,1.12]	0.75	[0.29,1.93]	0.62	[0.34,1.13]
11-20 years in practice	0.57*	[0.35,0.92]	0.84	[0.33,2.16]	0.42**	[0.23,0.75]
21-30 years in practice	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
31-40 years in practice	1.03	[0.60,1.78]	1.59	[0.51,4.93]	0.82	[0.44,1.52]
41+ years in practice	1.03	[0.52,2.04]	1.98	[0.76,5.19]	0.39	[0.14,1.06]
General practitioner (GP)	4.98***	[3.01,8.24]	9.92***	[3.89,25.29]	2.88**	[1.51,5.50]
<i>Years in clinical practice × HCP</i>						
1-5 years in practice × GP	2.47*	[1.15,5.33]	1.71	[0.30,9.64]	5.49***	[2.14,14.10]
6-10 years in practice × GP	1.58	[0.71,3.51]	2.82	[0.42,18.93]	2.83*	[1.06,7.55]
11-20 years in practice × GP	1.70	[0.84,3.43]	1.53	[0.38,6.16]	3.22**	[1.33,7.79]
21-30 years in practice × GP	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
31-40 years in practice × GP	0.73	[0.34,1.54]	0.36	[0.09,1.49]	1.23	[0.48,3.14]
41+ years in practice × GP	0.57	[0.16,1.99]	0.46	[0.07,2.83]	1.48	[0.30,7.34]
Observations	965		313		652	

Notes: ***Significant at 1% level; **significant at 5% level; *significant at 10% level. The dependent variable in each instance is an ordered variable measuring the frequency of usage of HealthPathways (i.e. 1=never, 2=rarely(1-3 times), 3=sometimes(3-10 times), and 4=often(> 10 times)). Standard errors, robust to heteroscedasticity are assumed. Reference category: GPs with 21-30 years of experience in professional practice.

Table S3. Ordered logistic regression estimates of the frequency of usage of HealthPathways among general practitioners in New Zealand and Australia

Specification	Overall sample		New Zealand		Australia	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
<i>Years in clinical practice</i>						
1-5 years in practice	0.73	[0.42,1.26]	0.89	[0.29,2.75]	0.66	[0.36,1.18]
6-10 years in practice	0.64	[0.38,1.08]	0.77	[0.30,1.97]	0.62	[0.34,1.13]
11-20 years in practice	0.52*	[0.31,0.87]	0.90	[0.35,2.31]	0.42**	[0.23,0.76]
21-30 years in practice	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
31-40 years in practice	1.01	[0.57,1.78]	1.57	[0.51,4.82]	0.84	[0.45,1.56]
41+ years in practice	0.79	[0.41,1.51]	2.02	[0.78,5.25]	0.40	[0.14,1.12]
General practitioner (GP)	4.69***	[2.75,7.99]	12.06***	[4.48,32.46]	3.10***	[1.61,5.99]
<i>Years in clinical practice × HCP</i>						
1-5 years in practice × GP	3.75**	[1.63,8.63]	1.87	[0.34,10.14]	5.35***	[2.06,13.91]
6-10 years in practice × GP	2.36*	[1.03,5.40]	2.65	[0.40,17.63]	2.80*	[1.05,7.45]
11-20 years in practice × GP	2.26*	[1.09,4.69]	1.31	[0.32,5.41]	3.13*	[1.30,7.56]
21-30 years in practice × GP	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
31-40 years in practice × GP	0.82	[0.38,1.77]	0.37	[0.09,1.52]	1.22	[0.47,3.12]
41+ years in practice × GP	0.92	[0.30,2.81]	0.56	[0.10,3.15]	1.60	[0.32,7.91]
Observations	965		313		652	

Notes: ***Significant at 1% level; **significant at 5% level; *significant at 10% level. The dependent variable in each instance is an ordered response variable measuring the frequency of usage of HealthPathways (i.e. 1=never, 2=rarely (1-3 times), 3=sometimes (4-10 times), and 4=often (> 10 times)). Standard errors, robust to heteroskedasticity are assumed. All models include controls for gender (=1 if female), time of working week spent in professional practice (=1 if more than 0.5 Full Time Equivalent (FTE)), and location fixed effects (i.e. binary indicators for location), where applicable. Reference category: GPs with 21-30 years of experience in professional practice.

Table S4. Ordered logistic regression estimates: Frequency of usage of HealthPathways among health professionals in Australia and New Zealand

Specification	Overall sample		New Zealand		Australia	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
<i>Years in clinical practice</i>						
1-5 years in practice	0.67	[0.39,1.15]	0.75	[0.18,3.01]	0.62	[0.35,1.11]
6-10 years in practice	0.76	[0.45,1.27]	0.65	[0.27,1.57]	0.83	[0.44,1.55]
11-20 years in practice	0.56*	[0.34,0.93]	0.76	[0.28,2.01]	0.48*	[0.26,0.88]
21+ years in practice	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
<i>Health care professional (HCP)</i>						
General Practitioner (GP)	3.57***	[2.40,5.32]	5.27***	[2.51,11.08]	3.00***	[1.82,4.93]
Allied Health Professional (AHP)	0.36*	[0.15,0.83]	0.15	[0.02,1.08]	0.46	[0.21,1.01]
Other health care professional (Other HCP)	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
<i>Years in clinical practice × HCP</i>						
1-5 years in practice × GP	3.96***	[1.78,8.80]	1.80	[0.33,9.83]	5.25***	[2.08,13.26]
1-5 years in practice × AHP	0.53	[0.09,3.14]	0.49	[0.03,7.65]	1.74	[0.25,12.17]
1-5 years in practice × Other HCP	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
6-10 years in practice × GP	1.83	[0.83,4.04]	2.81	[0.43,18.14]	1.81	[0.70,4.65]
6-10 years in practice × AHP	0.34	[0.08,1.49]	0.50	[0.03,9.24]	0.38	[0.09,1.63]
6-10 years in practice × Other HCP	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
11-20 years in practice × GP	2.28*	[1.18,4.43]	1.87	[0.52,6.75]	2.75*	[1.21,6.23]
11-20 years in practice × AHP	0.51	[0.14,1.78]	0.67	[0.06,7.24]	0.69	[0.17,2.74]
11-20 years in practice × Other HCP	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
21+ years in practice × GP	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
21+ years in practice × AHP	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
21+ years in practice × Other HCP	1.00	[1.00,1.00]	1.00	[1.00,1.00]	1.00	[1.00,1.00]
Female	1.29	[0.93,1.79]	1.24	[0.65,2.35]	1.31	[0.89,1.91]
<i>Country/location</i>						
Australia	1.00	[1.00,1.00]			1.00	[1.00,1.00]
New Zealand	4.87***	[3.69,6.44]	1.00	[1.00,1.00]		
Observations	965		313		652	

Notes: ***Significant at 1% level; **significant at 5% level; *significant at 10% level. The dependent variable in each instance is an ordered response variable measuring the frequency of usage of HealthPathways (i.e. 1=never, 2=rarely(1-3 times), 3=sometimes(3-10 times), and 4=often(> 10 times)). Standard errors, robust to heteroskedasticity are computed or allowed in all models. All models include controls for gender (=1 if female), time of working week spent in professional practice (=1 if more than 0.5 Full Time Equivalent (FTE)), location fixed effects (where applicable), and age category). Reference category: GPs with 21+ years of experience in professional practice, age=51-60 years; and other health professionals.

Table S5. Perceptions around HPW in relation to other decision-support software of health professionals in Australia and New Zealand

Variables	Australia						New Zealand						Chi-square [p-value]
	Overall		GP		Other health professional		Overall		GP		Other health professional		
	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N	Mean	
HPW should be altered to provide structured decision support	73	0.15	42	0.16	31	0.15	58	0.25	34	0.24	24	0.25	9.31 [< 0.00]
I would find it useful if an electronic patient record health system could be launched from within HPW	132	0.28	73	0.27	59	0.29	92	0.39	46	0.33	46	0.48	9.75 [< 0.00]
I prefer to make decisions based on my knowledge of the patient, rather than advice from structured decision support	134	0.28	95	0.35	39	0.19	47	0.20	41	0.29	6	0.06	5.37 [0.02]
Observations	476		269		207		234		139		95		

Notes: Other health professionals include practice nurses, specialist nurses, nurse practitioners, hospital nurses, community nurses and other health professionals. HPW – HealthPathways. Pearson’s Chi-squared test (Fisher’s exact test where applicable) are testing for potential overall differences in the distribution of categorical variables between the two countries.