

# Mental Health in NZ

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Menglong Shi.



# Background

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- Mental health has become an important topic in the last few years.
- Global Pandemic increased the attention for politicians to act.



العربية 中文 Français

Русский Español

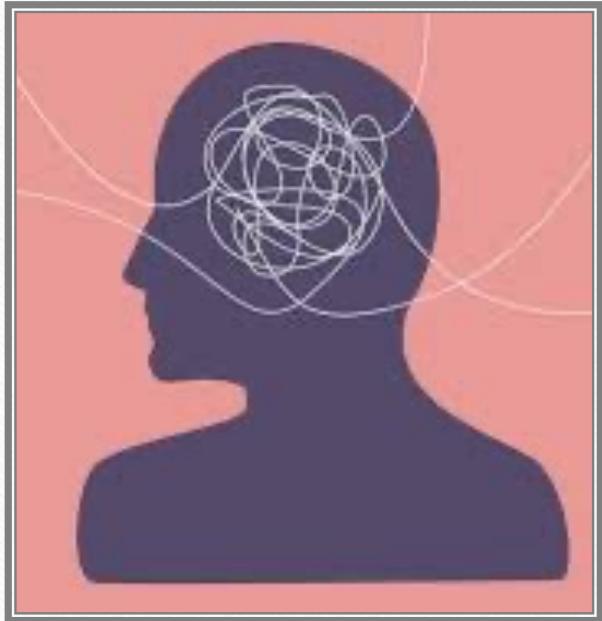
# COVID-19 disrupting mental health services in most countries, WHO survey

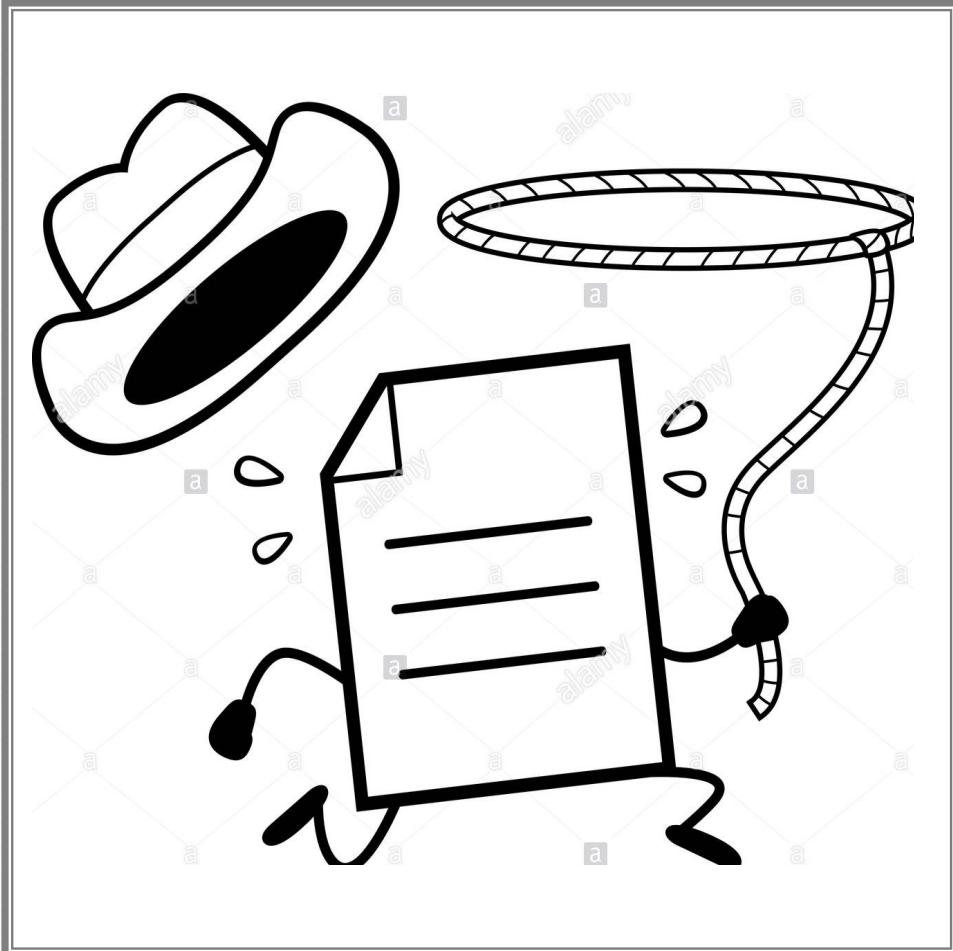
**World Mental Health Day on 10 October to highlight urgent need to increase investment in chronically underfunded sector**

# Source of Data.

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- New Zealand Ministry of Health
  - Annual Mental Health service Reports since 2002.
  - Information about service usage.
    - Age, Gender, Ethnic Group.
    - Service Usage per Region.
    - Type of service (Depression, Addiction, etc.)





## The Wrangle

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- Multi Sheet Excel Files
- Key information spread over multiple sheets.
- Changing format every few years.



## Our Approach.

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- Unify sources of information.
- Continuous access to incremental datasets.
- Provide a full dataset.

# Download all the files!

## Specialist Services use

Every year approximately 185,000 people are accessing specialist and NGO services. Understanding figures like these helps us understand trends about who (ethnicity) and which types of services people are accessing (eg DHB or NGO).

The Ministry publishes information on mental health and addiction specialist se

- [Mental Health and Addiction: Service Use 2019/20 tables](#)
- [Mental Health and Addiction: Service Use 2018/19 tables](#)
- [Mental Health and Addiction: Service Use 2017/18 tables](#)
- [Mental Health and Addiction: Service Use 2016/17 tables](#)
- [Mental Health and Addiction: Service Use 2015/16 tables](#)
- [Mental Health and Addiction: Service Use 2014/15 tables](#)
- [Mental Health and Addiction: Service Use 2013/14 tables](#)

## Mental health: Service use in New Zealand 2001/02 to 2006/07

This information presents all the mental health data normally published in the Appendix tables in the series Mental Health: Service use in New Zealand for the years ended 30 June 2002 to 2007. The data was drawn from the Mental Health Information National Collection (MHINC), and covers secondary mental health and alcohol and drug services funded by the Government.

### Data and Resources

 <a href="#">Mental Health: Service use in New Zealand, ...</a>	<a href="#">Explore</a>
 <a href="#">Mental Health: Service use in New Zealand, ...</a>	<a href="#">Explore</a>
 <a href="#">Mental Health: Service use in New Zealand, ...</a>	<a href="#">Explore</a>
 <a href="#">Mental Health: Service use in New Zealand, ...</a>	<a href="#">Explore</a>
 <a href="#">Mental Health: Service use in New Zealand, ...</a>	<a href="#">Explore</a>



# The DOM

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# Our First Problem.

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      Service Use 2013/14 tables</a>
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# Cleaning the Files.

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- Cell format changed over the years
- Multi cell values
- Titles not matching over the years
- Categories changing name
- Naming conventions almost non-existent.

# Analyzing the data 1.0

**Table A1: Clients seen by age, sex, and ethnic group, 2002/03**

	Total	0-5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
<b>Total</b>																			
Total	87,441	481	3578	6892	8805	7649	8181	10,075	9732	8447	6235	4447	3193	2235	1624	1482	1578	1488	1319
Male	44,891	316	2601	4472	4339	4082	4314	5067	4799	4225	3187	2166	1445	1016	704	646	622	505	385
Female	42,548	165	977	2420	4465	3567	3867	5008	4932	4222	3048	2281	1748	1219	920	836	956	983	934
<b>Asian</b>																			
Total	1934	6	38	97	208	249	192	208	244	210	151	114	61	42	48	42	12	8	4
Male	823	4	30	62	83	122	88	80	81	82	61	42	20	22	20	16	4	6	0
Female	1110	2	8	35	124	127	104	128	163	128	90	72	41	20	28	26	8	2	4
<b>Maori</b>																			
Total	16,286	87	657	1605	1968	1944	1983	2252	2001	1511	939	519	294	196	132	81	59	40	18
Male	8894	60	506	1038	1067	1115	1092	1191	1029	743	472	244	129	73	58	35	24	12	6
Female	7392	27	151	567	901	829	891	1061	972	768	467	275	165	123	74	46	35	28	12
<b>Other</b>																			
Total	66,374	382	2816	5033	6272	5061	5634	7227	7137	6475	4986	3713	2764	1945	1395	1334	1481	1430	1289
Male	33,607	246	2014	3278	2993	2594	2913	3590	3501	3274	2569	1835	1270	899	602	586	582	486	375
Female	32,766	136	802	1755	3279	2467	2721	3637	3635	3201	2417	1878	1494	1046	793	748	899	944	914
<b>Pacific</b>																			
Total	2847	6	67	157	357	395	372	388	350	251	159	101	74	52	49	25	26	10	8
Male	1567	6	51	94	196	251	221	206	188	126	85	45	26	22	24	9	12	1	4
Female	1280	0	16	63	161	144	151	182	162	125	74	56	48	30	25	16	14	9	4

# Analyzing the data 1.1

**Table 7: Numbers and age-specific rates for Māori and non-Māori clients, by five-year age group and sex, 2009/10**

Age	Māori						Non-Māori					
	Males		Females		Total		Males		Females		Total	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
0–4	145	315.5	65	150.4	210	235.5	419	367.4	220	202.5	639	287.0
5–9	880	2461.5	260	766.5	1140	1636.1	2639	2374.3	1114	1050.9	3753	1728.4
10–14	1604	4538.8	1053	3145.2	2657	3860.8	3991	3433.4	2910	2628.0	6901	3040.6
15–19	2348	6720.1	1624	4915.3	3972	5842.9	5371	4113.5	5122	4136.0	10,493	4124.4
20–24	2057	7380.7	1336	4658.3	3393	6000.0	4757	3563.0	3617	2889.9	8374	3237.3
25–29	1773	8764.2	1170	5246.6	2943	6918.2	3993	3247.7	3229	2626.7	7222	2937.3
30–34	1620	8307.7	1152	5198.6	2772	6653.9	4045	3683.0	3596	3051.9	7641	3356.2
35–39	1608	8052.1	1233	5344.6	2841	6600.8	4741	3853.5	4218	3119.4	8959	3469.1
40–44	1401	7436.3	1086	5079.5	2487	6183.5	4307	3300.6	3659	2594.7	7966	2934.0
45–49	1060	5773.4	851	4111.1	1911	4892.5	3920	2845.1	3507	2404.9	7427	2618.7
50–54	573	3764.8	538	3183.4	1111	3458.9	3074	2412.5	2655	2012.1	5729	2208.9
55–59	305	2666.1	318	2533.9	623	2596.9	2043	1824.3	1959	1698.2	4002	1760.3
60–64	140	1618.5	174	1839.3	314	1733.8	1453	1391.2	1598	1482.9	3051	1437.8
65–69	91	1566.3	117	1786.3	208	1684.2	1023	1275.9	1248	1491.4	2271	1385.9
70–74	75	1777.3	72	1487.6	147	1622.5	864	1410.2	1142	1714.2	2006	1568.5
75–79	53	2226.9	60	2061.9	113	2132.1	933	2006.5	1279	2395.6	2212	2214.7
80–84	30	2654.9	41	2515.3	71	2572.5	940	2791.8	1389	3136.9	2329	2987.8
85+	15	2777.8	21	2258.1	36	2432.4	724	3098.0	1644	3633.1	2369	3452.8
Total	15,778		11,171		26,949		49,237		44,106		93,344	

# Analyzing the data 1.2

Table 1: Clients seen by age, sex and ethnic group, 2018/19

Ethnic Group	Sex	Total	Age group																	
			0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85+
Total	Total	186,968	1,915	9,069	17,758	23,270	19,824	19,429	16,643	14,139	12,421	12,564	10,638	8,831	5,949	4,125	3,255	2,690	2,151	2,297
	Male	96,856	1,207	6,287	8,889	10,461	10,315	10,450	8,598	7,514	6,955	6,780	5,544	4,576	2,980	1,955	1,445	1,148	899	853
	Female	90,112	708	2,782	8,869	12,809	9,509	8,979	8,045	6,625	5,466	5,784	5,094	4,255	2,969	2,170	1,810	1,542	1,252	1,444
Māori	Total	53,649	569	2,711	6,046	7,378	6,576	6,531	5,339	4,393	3,743	3,470	2,657	1,904	994	528	342	236	140	92
	Male	29,290	365	1,957	3,088	3,600	3,564	3,686	2,923	2,487	2,205	1,932	1,417	1,005	479	253	146	101	58	24
	Female	24,359	204	754	2,958	3,778	3,012	2,845	2,416	1,906	1,538	1,538	1,240	899	515	275	196	135	82	68
Pacific	Total	11,163	144	467	1,199	1,629	1,366	1,341	1,141	923	753	666	525	366	211	138	109	79	66	40
	Male	6,742	93	334	603	820	852	871	755	606	514	425	320	216	115	73	53	42	33	17
	Female	4,421	51	133	596	809	514	470	386	317	239	241	205	150	96	65	56	37	33	23
Asian	Total	8,930	202	415	685	1,131	1,042	1,079	1,055	850	540	418	369	315	263	167	133	108	92	66
	Male	4,167	129	277	289	461	531	533	460	378	272	172	169	154	113	72	57	39	39	22
	Female	4,763	73	138	396	670	511	546	595	472	268	246	200	161	150	95	76	69	53	44
Other	Total	113,226	1,000	5,476	9,828	13,132	10,840	10,478	9,108	7,973	7,385	8,010	7,087	6,246	4,481	3,292	2,671	2,267	1,853	2,099
	Male	56,657	620	3,719	4,909	5,580	5,368	5,360	4,460	4,043	3,964	4,251	3,638	3,201	2,273	1,557	1,189	966	769	790
	Female	56,569	380	1,757	4,919	7,552	5,472	5,118	4,648	3,930	3,421	3,759	3,449	3,045	2,208	1,735	1,482	1,301	1,084	1,309

# Our first Long Dataset

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A data.frame: 288 x 5				
year	gender	ethnic_group	age_group	amount
<dbl>	<chr>	<chr>	<chr>	<dbl>
2007	Male	Asian	0-	7
2007	Female	Asian	0-	9
2007	Male	Māori	0-	56
2007	Female	Māori	0-	29
2007	Male	Other	0-	146
2007	Female	Other	0-	80
2007	Male	Pacific	0-	17
2007	Female	Pacific	0-	16
2007	Male	Asian	5-	57
2007	Female	Asian	5-	21
2007	Male	Māori	5-	512
2007	Female	Māori	5-	173
2007	Male	Other	5-	1693
2007	Female	Other	5-	693
2007	Male	Pacific	5-	100
2007	Female	Pacific	5-	19
2007	Male	Asian	10-	77

# Important Note: NOT THE SAME.

**Input**

Type here

Input was: U+2010  
...interpreting as U+00 style format (hex codepoint, two to eight digits)

Character:

Character image (experiment)

(U+2010)

**HYPHEN**

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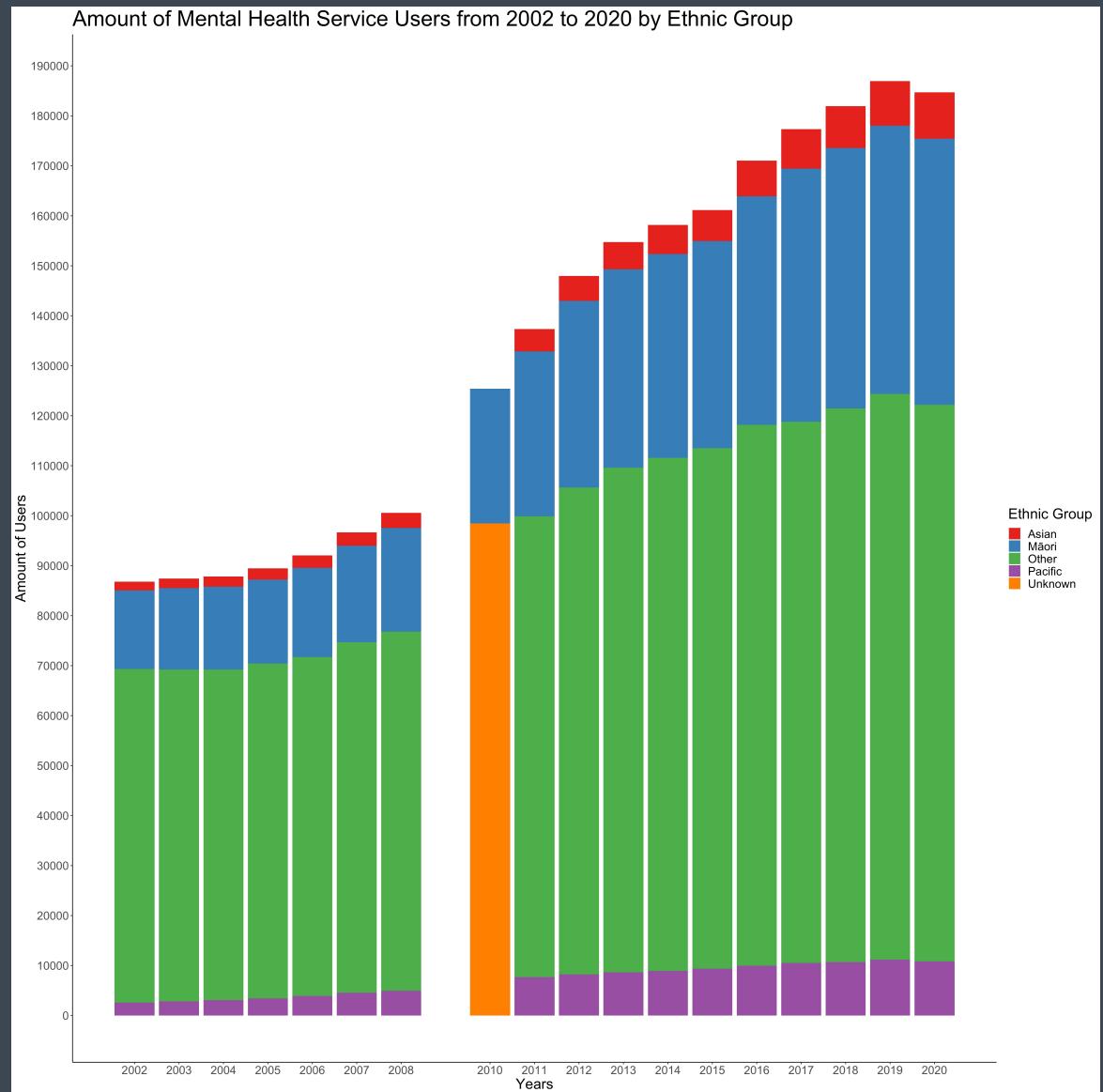
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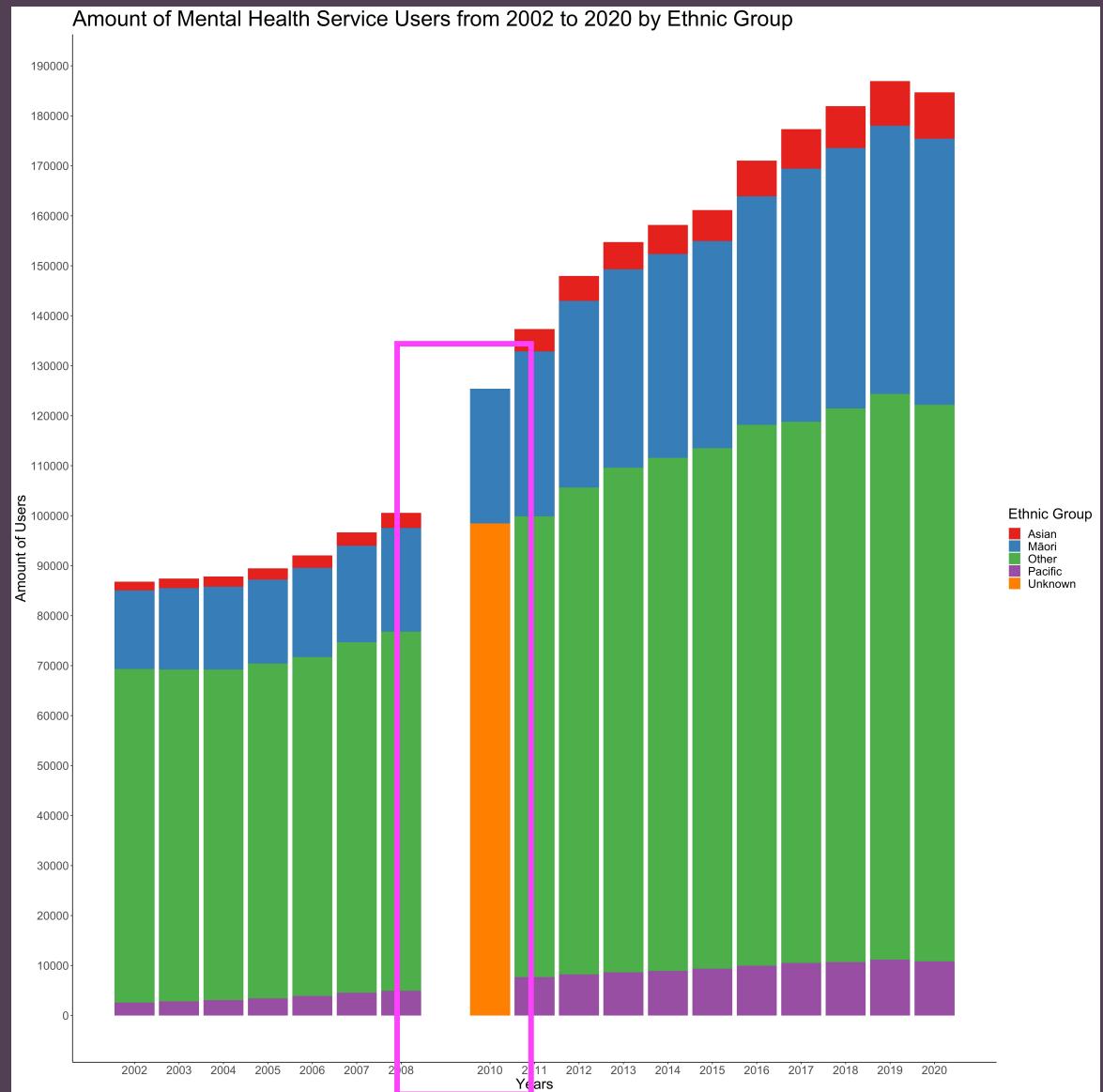
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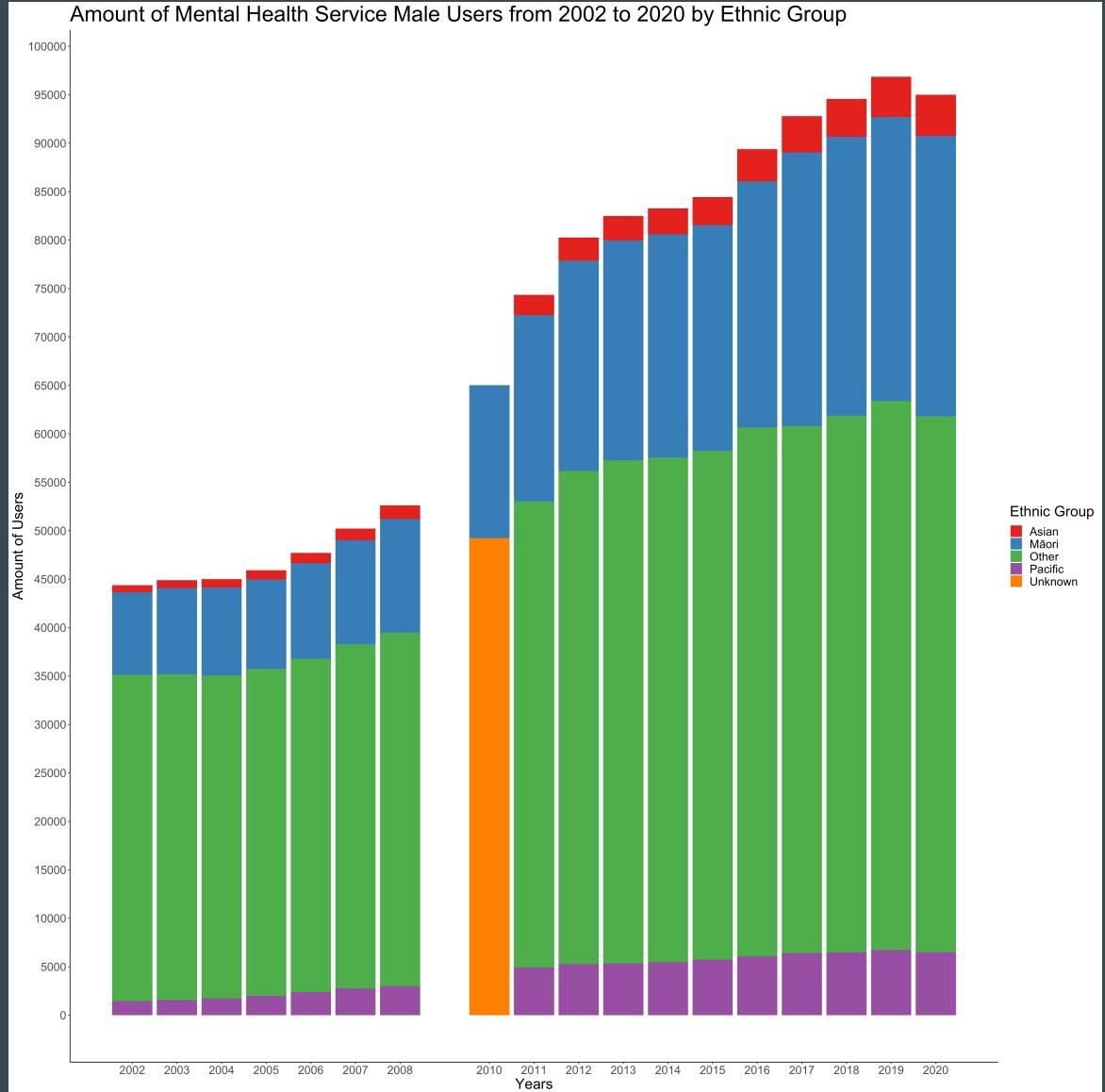
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(U+2011)

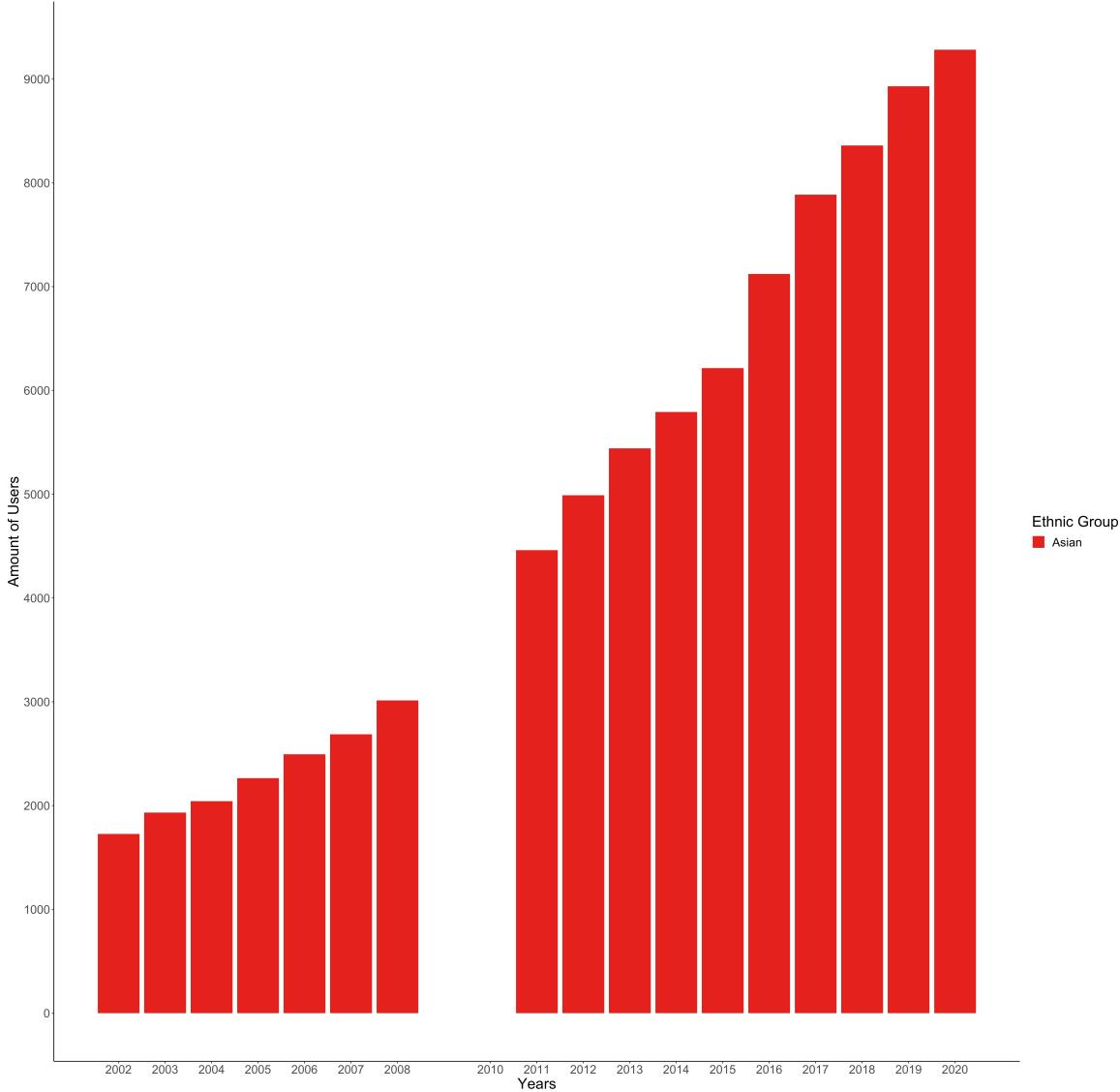
**NON-BREAKING-HYPHEN**



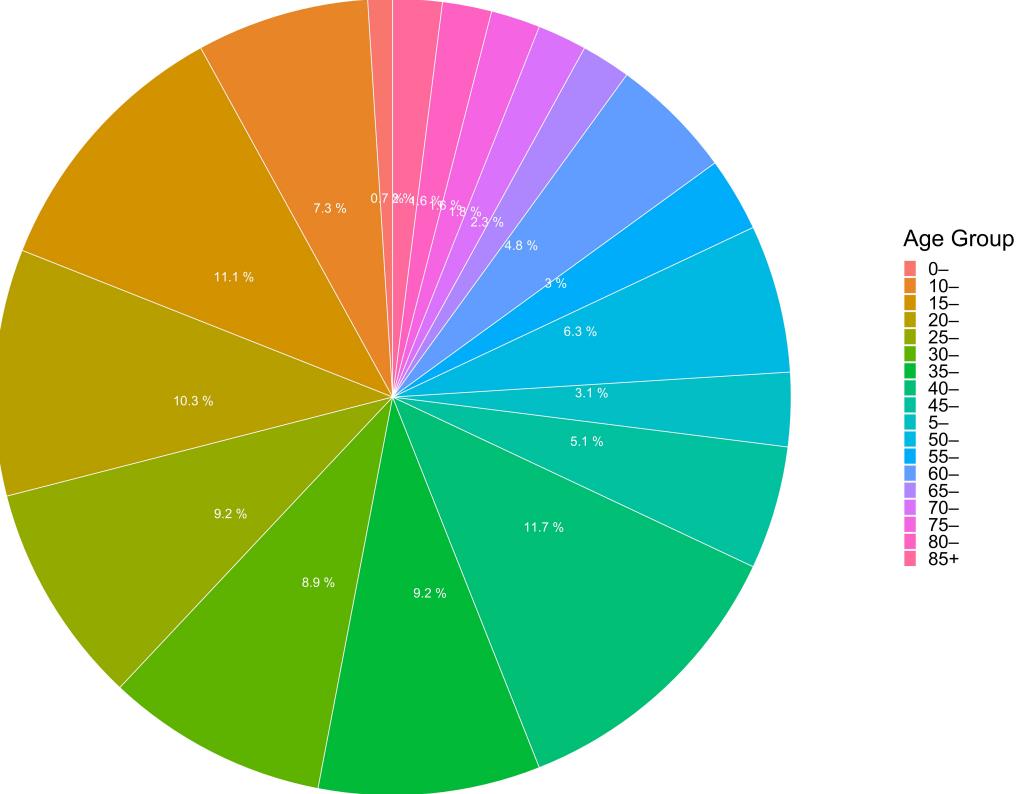




Amount of Mental Health Service Male Users from 2002 to 2020 by Ethnic Group



Mental Health Service user by Age group



Age Group

- 0–10
- 10–20
- 20–30
- 30–40
- 40–50
- 5–10
- 5–20
- 25–35
- 35–45
- 45–55
- 55–65
- 65–75
- 75–85
- 80–85
- 85+



# DHB Usage Information

Table 12: Clients seen by DHB of service vs DHB of domicile, 2017/18

DHB of service	DHB of client domicile																				Unique Total	
	Northland	Waitematā	Auckland	Counties Manukau	Waikato	Lakes	Bay of Plenty	Tairāwhiti	Hawkes Bay	Taranaki	MidCentral	Whanganui	Capital and Coast	Hutt Valley	Wairarapa	Nelson Marlborough	West Coast	South Canterbury	Southern	Unknown		
Northland	6,565	198	120	154	69	18	20	3	12	6	12	6	21	7	5	9	4	18	0	13	22	6,847
Waitematā	738	18,838	5,755	5,690	454	92	162	31	88	36	69	30	90	73	14	39	8	77	7	62	54	29,295
Auckland	204	1,593	11,170	1,159	257	56	134	14	63	44	49	18	98	35	7	27	5	70	5	70	43	13,927
Counties Manukau	121	426	1,303	13,143	202	55	71	19	24	30	25	11	57	82	5	16	1	42	6	24	66	14,276
Waikato	65	137	153	239	12,342	294	389	38	41	109	54	33	49	42	6	14	2	40	3	45	27	13,232
Lakes	8	16	19	29	107	3,484	92	5	10	7	16	7	20	7	1	3	0	4	0	6	15	3,651
Bay of Plenty	24	72	63	59	242	94	8,823	18	25	20	29	11	27	10	2	10	2	22	0	15	69	9,111
Tairāwhiti	2	5	5	13	13	7	9	1,862	32	1	9	3	14	3	2	3	2	4	0	5	4	1,929
Hawke's Bay	13	29	46	33	47	23	44	31	5,504	16	92	22	63	20	22	15	2	27	0	12	94	5,765
Taranaki	10	11	19	22	32	9	10	0	6	4,624	15	18	15	4	5	9	0	11	0	7	26	4,692
MidCentral	8	17	19	20	26	18	18	6	33	27	5,391	85	103	40	27	9	3	15	0	11	57	5,594
Whanganui	2	6	10	13	23	10	10	0	12	45	70	3,106	40	11	7	5	1	9	1	3	15	3,221
Capital and Coast	29	70	99	108	120	57	68	126	397	141	513	218	8,354	2,510	318	58	4	71	3	57	110	12,495
Hutt Valley	6	10	11	7	13	8	7	2	16	7	40	10	488	4,196	89	9	2	10	1	7	40	4,704
Wairarapa	1	3	1	5	1	3	4	1	7	3	21	2	29	19	1,080	2	0	2	1	2	14	1,124
Nelson Marlborough	10	17	19	24	19	7	12	6	12	8	21	3	39	11	8	5,410	43	142	8	47	19	5,629
West Coast	5	2	1	2	5	1	2	0	1	1	1	1	4	4	0	49	1,415	55	4	19	3	1,492
Canterbury	13	43	42	62	45	15	18	5	22	10	37	22	45	21	9	203	106	11,763	126	320	70	12,556
South Canterbury	2	8	1	4	6	4	1	1	1	1	4	2	5	2	1	17	4	119	2,070	70	10	2,208
Southern	8	32	33	44	24	10	21	4	13	8	12	5	37	17	5	35	13	199	44	10,046	67	10,330
Unique Total	7,195	20,094	16,647	18,501	13,187	3,945	9,345	2,032	5,908	4,887	5,989	3,341	8,873	5,532	1,305	5,646	1,500	12,276	2,158	10,391	744	147,972

**Table 10: Numbers and age-standardised rates of face-to-face clients, by DHB of residence, 2009/10**

	<b>Number</b>	<b>Rate</b>
Northland	4328	3097.4
Waitemata	12,989	2413.9
Auckland	10,838	2234.2
Counties Manukau	12,959	2691.8
Waikato	7557	2063.9
Lakes	2341	2306.1
Bay of Plenty	5940	3004.3
Tairawhiti	1887	4361.6
Hawkes Bay	4231	3094.8
Taranaki	3496	3340.5
MidCentral	3828	2486.9
Whanganui	2298	4099.8
Capital and Coast	4900	1713.4
Hutt Valley	3562	2577.3
Wairarapa	1016	2996.7
Nelson Marlborough	4090	3385.2
West Coast	1223	4063.8
Canterbury	11,227	2146.3
South Canterbury	1201	2606.3
Otago	5560	3111.7
Southland	2939	2823.4
Unknown	238	...
Total	108,648	2528.8



# DHB Usage Information

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# Our Data Frame.

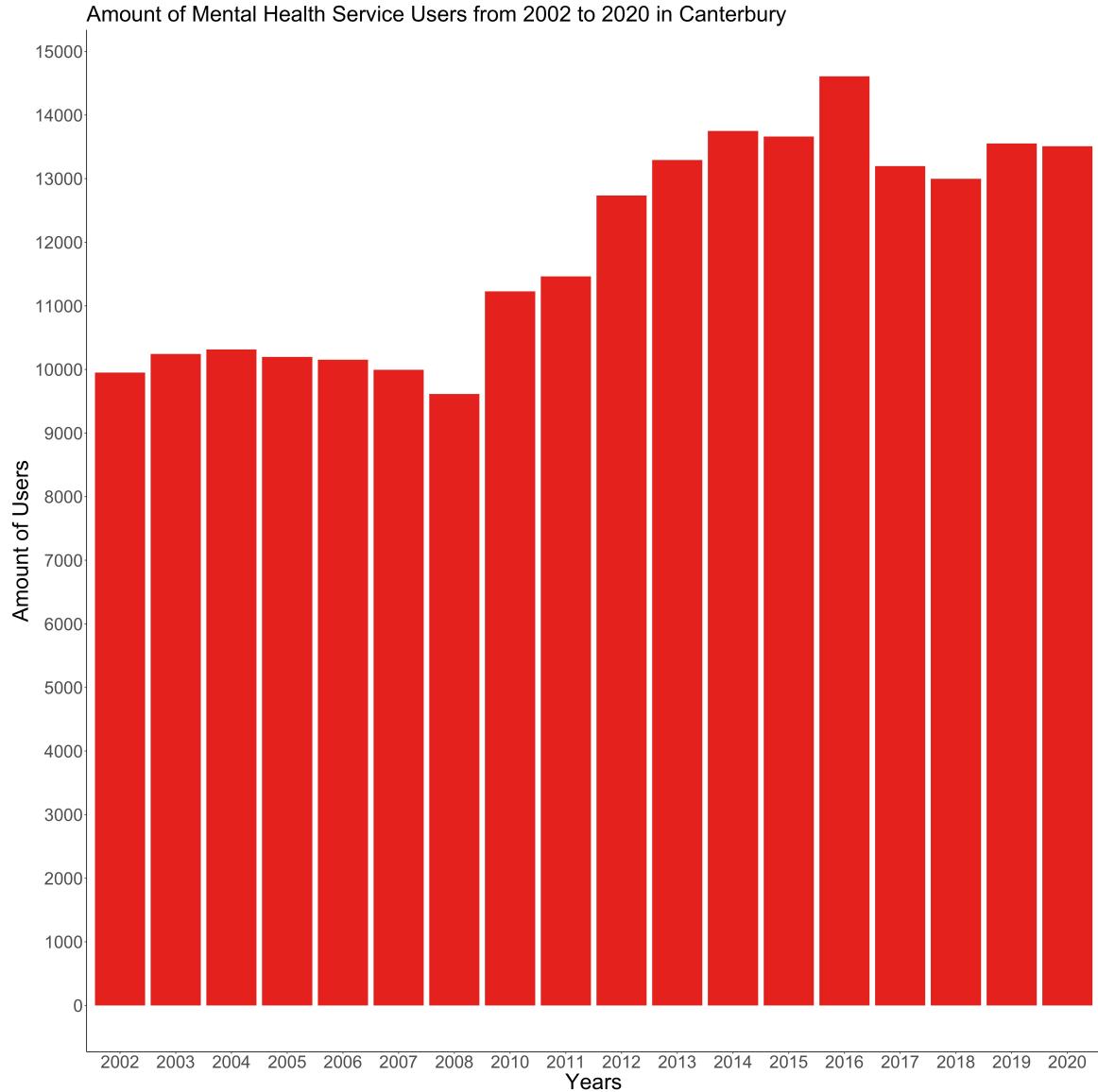
A tibble: 10 × 24																							
dhb	Northland	Waitemata	Auckland	Counties Manukau	Waikato	Lakes	Bay of Plenty	Tairawhiti	Taranaki	...	Hutt	Wairarapa	Nelson Marlborough	West Coast	Canterbury	South Canterbury	Otago	Southland	Unknown	year			
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Hawke's Bay	13	29	46	33	47	23	44	31	16	...	20	22	15	2	27	0	0	12	94	2018			
Hutt Valley	2	10	15	14	13	10	11	5	6	...	4164	69	9	0	20	0	0	12	35	2014			
Wairarapa	2	2	2	4	1	1	5	4	3	...	16	861	2	1	4	0	0	7	5	2013			
Southland	1	5	7	7	7	4	7	0	1	...	3	2	14	4	44	9	112	2953	18	2008			
Capital and Coast	15	44	64	24	42	23	39	45	41	...	583	106	23	6	27	16	19	3	17	2006			
Waitemata	731	15380	6660	5232	463	114	168	30	64	...	84	9	46	1	116	4	0	67	106	2014			
Wairarapa	1	0	6	1	5	1	2	0	6	...	13	781	6	0	1	0	2	1	1	2008			
Counties Manukau	129	417	1296	12266	227	62	73	16	29	...	75	5	11	1	39	5	0	27	53	2016			
Nelson Marlborough	7	24	16	5	12	7	10	1	8	...	15	5	3624	47	107	8	31	16	6	2005			
Nelson Marlborough	6	16	13	6	16	6	11	0	6	...	18	3	3992	30	82	3	18	20	3	2003			

A little trick to solve the last slide.

```
dhb_df <- dhb_df %>% mutate(origin=dhb) %>%
  pivot_wider(names_from=origin, values_from=amount, values_fill=0) %>%
  mutate(year=2010)
```

# Long Format.

origin	destination	amount	year
<chr>	<chr>	<int>	<chr>
Hutt	Tairawhiti	14	2004
Wairarapa	Tairawhiti	3	2002
South Canterbury	Counties Manukau	4	2017
Unknown	Nelson Marlborough	19	2018
Lakes	MidCentral	20	2020
Mid Central	Southern	10	2020
Southland	Auckland	70	2018
Bay of Plenty	West Coast	4	2012
Nelson Marlborough	Auckland	6	2003
Northland	Northland	3298	2006
Unknown	Capital and Coast	17	2006
Unknown	Waitemata	64	2015
Capital and Coast	Waitemata	91	2002
Northland	Counties Manukau	87	2006
Canterbury	Nelson Marlborough	178	2013



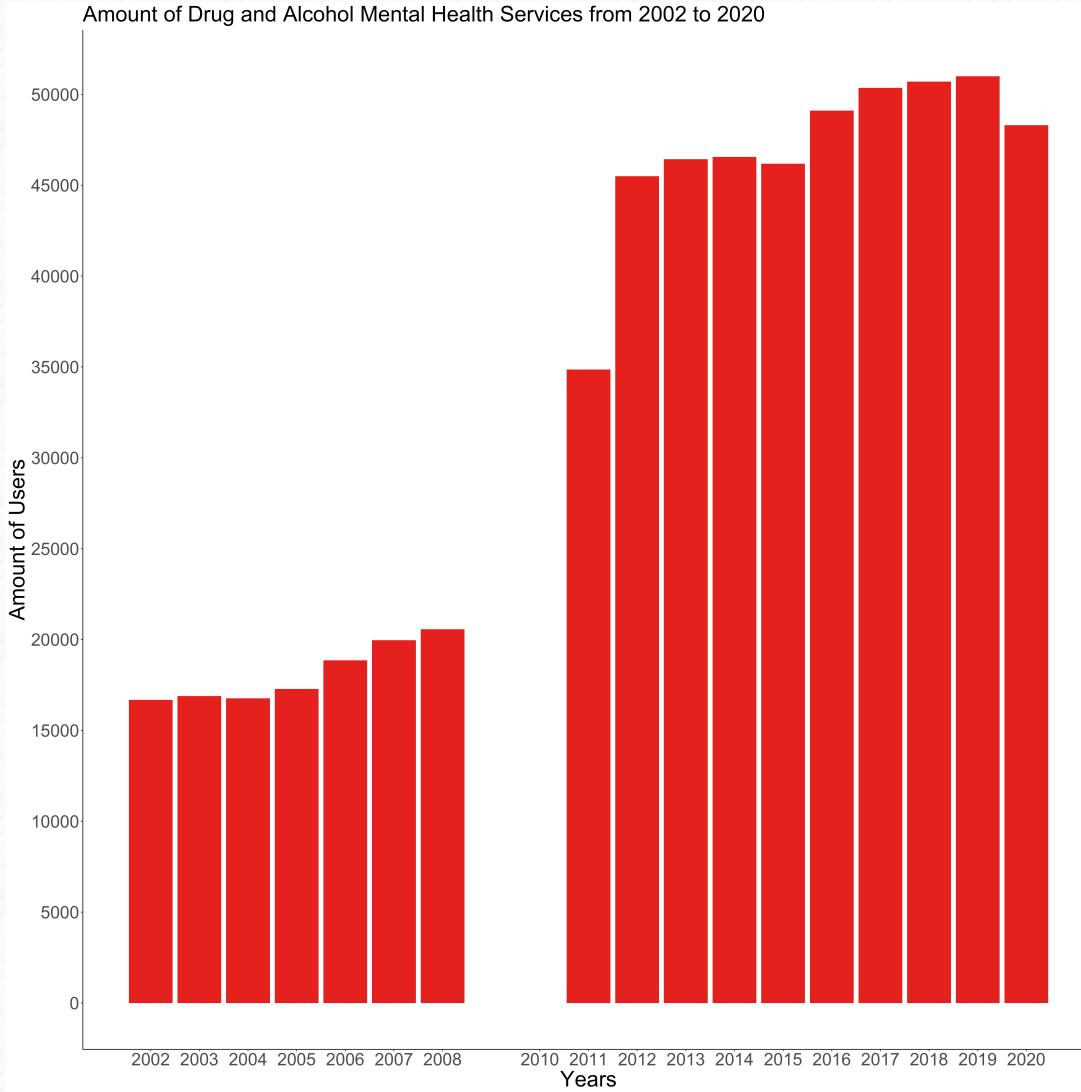




# Long version.

---

activity	gender	year	age_group	amount
<chr>	<chr>	<dbl>	<chr>	<int>
specialty team	Female	2019	70-74	135
maternal mental health team	Male	2016	50-54	1
residential/accommodation team	Female	2013	15-19	197
eating disorder team	Male	2019	65-69	0
specialist psychotherapy team	Male	2013	10-14	0
forensic team	Male	2008	85+	1
inpatient team	Female	2016	30-34	374
needs assessment and service coordination team	Male	2008	45-49	89
maternal mental health team	Female	2018	15-19	285
community skills enhancement team	Male	2008	30-34	47





Thank you!

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Questions?