

Health Workforce Information Programme (HWIP)

A Practical Guide to FTE Calculations

Purpose

This short paper aims to explain how different full-time equivalent numbers (FTEs) are calculated, the purpose, the intended audience and the 'pros and cons' of the various reporting methods. It is written with the intent to make the FTE reporting process as straight forward as possible by removing jargon and detailed arguments.

What is an FTE?

A full-time equivalent - a number, typically between zero and one and reported to one decimal place that represents how much full-time work an employee performs. For example, an employee who works 20 hours per week is said to be 0.5 FTE if we assume that 40 hours per week is a typical full-time employee. It is important to distinguish between headcount and FTEs; headcount counts actual numbers of people whereas FTEs are a measure of 'workforce input' or 'work done', regardless of the number of employees.

Although simple, there are variations that need to be considered.

- a) Is 40 hours per week 1.0 FTE?
- b) Short term leave (e.g. sick leave, annual leave)
- c) Long term leave (e.g. parental leave, sabbaticals)
- d) The number of contracted hours
- e) The hours physically worked
- f) The counting of leave as it accrues since it needs to be financed

These variations can lead to different FTE measures that are all valid but difficult to compare.

Overall the variations can be broken down into three simple questions.

1. How many hours is 1.0 FTE? In New Zealand most Multiple Employer Collective Agreements (MECAs) use 40 hours per week to represent 1.0 FTE. This differs in other countries and only causes a problem if comparisons are trying to be made.

Setting 1.0 FTE to 40 hours per week also means that annually 1.0 FTE represents 2086 hours (as there are 52 $\frac{1}{2}$ weeks in a year).

2. Shouldn't FTE just represent the actual amount of work done? When looking at productivity (the amount of output divided by the amount of input) then it is important to only include the 'input' i.e. the actual amount of work done and not include non-productive time such as annual leave hours or sick leave hours or months on parental leave.
3. What if you are looking at the number of hours you need to pay in order to staff an organisation? Then you need your FTE figure to represent the costs involved to run a service (leave payments included or leave hours accrued) rather than just the amount of work involved (worked hours).

There are subtle differences within each of these three broad variations that we'll explore later in the document.

So what are the different FTEs I might see reported?

1. Contracted FTE
2. Employed FTE
3. Paid FTE
4. Worked FTE
5. Accrued FTE
6. Establishment FTE

We'll look at each one to see how they are (or may) be reported and how the data is collected.

Contracted FTE

Contracted FTE uses the number of hours that an employee is contracted to work. It is a simple and convenient calculation that is not subject to significant variation over time (i.e. it does not vary with sick leave, annual leave, accrued leave, etc). It is often considered a proxy for 'permanent' employees although it is likely to include fixed term employees who are paid through payroll systems rather than invoicing their services.

Contracted FTE covers all staff regardless of occupation.

Currently, the TAS (Technical Advisory Services) quarterly DHB employed workforce information reports are based on Contracted FTE.

Employed FTE

This is almost the same calculation as Contracted FTE above (i.e. permanent and fixed term staff, regardless of any leave taken or accrued), however this method is only used by DHBs to report on medical and nursing staff to the Ministry of Health twice a year. More specifically, staff included in this reporting method are those whose Level 3 Common Chart of Accounts code (CCoA) starts with either a '20' or a '22'.

Note: The difference between employed FTE and Contracted FTE is that employed FTE has an FTE 'cap' of 1.0 FTE for each person. For example, a senior medical officer (SMO) may be under contract to work 48 hours per week (i.e. 1.2 FTE), however with the cap of 1.0 FTE they will only be reported as 1.0 FTE. The Employed FTE figure is a conservative representation of FTE.

This data is submitted by the DHBs to the Ministry of Health twice a year based on data collected at 30th September and 31st March each year.

Paid FTE

Paid FTE takes the previous period's number of hours paid and converts it to an FTE figure. The previous period may be the previous week but is reported by TAS and the Ministry of Health over longer periods (quarterly and yearly) since this 'irons out' short term variations.

Paid FTE can be reported for all staff.

Paid FTE includes all paid leave such as annual leave, sick leave, bereavement leave, etc. It does not include leave without pay (LWOP) such as long term leave and sabbaticals.

Paid FTE is an easily accessible metric from HR systems. The biggest difference between Paid FTE and Contracted / Employed FTE is its application in determining the amount of work needed to run an organisation / service. For example, a junior medical officer may be contracted to work 40 hours per week (1.0 FTE), but because of rostering, staffing shortages and service delivery changes they may well have worked an average of 60 hours per week (1.5 FTE). The paid FTE figure will reflect this extra work whereas the Contracted FTE figure would not.

When possible TAS will look at reporting Paid FTE in preference to Contracted FTE in the near future as a fairer representation of occupational staffing levels both locally and nationally.

Worked FTE

Worked FTE is subtly different to Paid FTE in that it measures the actual number of hours 'worked' rather than the number of hours paid. Paid FTE will include leave payments whereas Worked FTE will only include those hours actually worked. Worked FTE is probably better at measuring productivity since it reflects the actual amount of work done to produce an outcome, (e.g. the total number of hours actually worked in a mental health ward in order to accommodate 'x' number of inpatient days).

Worked FTE covers all staff regardless of occupation.

The biggest difficulty with using Worked FTE is the ability to get accurate data; since this requires regular timesheets for all staff which is impractical for many, (e.g. allowances paid to medical staff for extra hours worked are excluded in this calculation when those allowances are not linked to the actual hours worked).

Accrued FTE

The word 'accrued' is used as this measure includes the accrual of paid leave when entitlement has been earned, i.e. annual leave, time off in lieu and statutory holidays. It cannot include accrual of leave such as bereavement leave or sick leave as these are 'situational' leaves that don't accrue; they are taken as and when necessary.

Accrued FTE is actually very similar to Paid FTE except that it excludes paid leave that has already been accrued (i.e. annual leave, time in lieu), but includes the proportional accrual of these leave types. See the table at the end of this document.

Accrued FTE is primarily a financial reporting value and can be applied to all staff regardless of occupation. It has been the main FTE reported value for DHBs since July 2006, reporting to the Ministry of Health on a monthly basis and included in the Annual Plans.

There have been concerns raised that including some paid leave but excluding other paid leave can give a distorted view of the workforce when looking at short term measurements (monthly). However, when the reporting period is much greater (say a year) then these differences would be 'ironed out' i.e. over a year the number of annual leave hours taken would likely equal the number of annual leave hours accrued. The Ministry of Health reports accrued figures as year-to-date to ensure short term fluctuations are eliminated.

Establishment FTE

Establishment FTE is very much different from those listed above and was only in existence from 2010 – 2017.

- It was only used to report on Management/Admin staff (first two CCoA characters = '28')

- It used the Employed FTE as a basis for its measurements
- All FTE values were capped at 1.0
- Overtime was excluded
- Vacancies were included (the only FTE measure to include unfilled positions)
- Contractors and subsidiaries were included

The Establishment FTE was set up to monitor the level of staffing in Management / Administration against the Minister's caps set on 31st December 2008 and came into operation in January 2010. On 9th March 2012 the Minister wrote to DHBs to reduce their Establishment FTE cap by 3%; this new cap came into effect from 1 July 2012. Because the Establishment FTE was limited to one occupational grouping and included vacancies it could not be used with or compared to any other FTE measurement.

The Establishment FTE was reported by DHBs to the Ministry of Health on a monthly basis between 2010 and 2017.

Comparing the different FTEs

Often it is much easier to understand the different ways of reporting when they are compared in a table format. The following table looks at how the different FTE calculations could be created using a fictitious staff member. It is based on a table created by the Ministry of Health in its December 2005 document "Measuring staff resources – counting FTEs".

Assume an employee regularly works a contracted 47.5 hours per week. During this week they take sick leave, annual leave, bereavement leave and leave without pay, but also find time to get some overtime in. Certainly a week to remember!

Using the definitions detailed in this document, this is how the different FTE calculations could be employed.

Different FTE calculations over a 47.5 hour week

	Actual hours	Contracted FTE	Paid FTE	Employed FTE	Accrued FTE	Worked FTE
Paid ordinary hours	9.5	9.5	9.5	8	9.5	9.5
Sick leave hours	9.5	9.5	9.5	8	9.5	0
Paid bereavement leave hours	9.5	9.5	9.5	8	9.5	0
Annual leave hours taken	9.5	9.5	9.5	8	0	0
Leave without pay	9.5	9.5	0	8	0	0
Paid overtime hours	4	0	4	0	4	4
Accrued annual leave hours	3.5	0	0	0	3.5	0
Total hours		47.5	42	40	36	13.5
FTE (Total/ 40)		1.2	1.1	1.0	0.9	0.3

Using the same table again but this time for a more typical 40 hour per week employee.

Different FTE calculations over a 40.0 hour week

	Actual hours	Contracted FTE	Paid FTE	Employed FTE	Accrued FTE	Worked FTE
Paid ordinary hours	8	8	8	8	8	8
Sick leave hours	8	8	8	8	8	0

Paid bereavement leave hours	8	8	8	8	8	0
Annual leave hours taken	8	8	8	8	0	0
Leave without pay	8	8	0	8	0	0
Paid overtime hours	4	0	4	0	4	4
Accrued annual leave hours	3.5	0	0	0	3.5	0
Total hours		40.0	36	40	31.5	12
FTE (Total/ 40)		1.0	0.9	1.0	0.8	0.3

These tables are put together to show how the differences can be viewed between the different FTE types (except Establishment FTE). The week shown above is a wholly fictitious and uncommon scenario designed to highlight the differences. When looking at 'typical' weeks for a 40 hour per week employee over a longer period (say a year) then a more uniform set of values would be expected – as suggested in the following table:

Different FTE calculations over a typical year for a 40.0 hrs per week employee

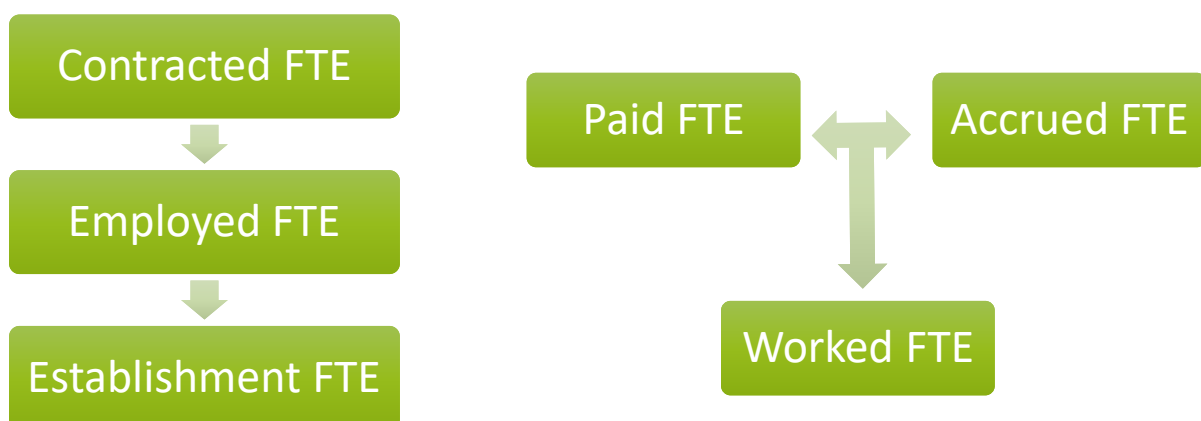
	Actual hours	Contracted FTE	Paid FTE	Employed FTE	Accrued FTE	Worked FTE
Paid ordinary hours	1,822	1,822	1,822	1,822	1,822 [†]	1,734 [*]
Sick leave hours (8 days)	64	64	64	64	64	0
Paid bereavement leave hours (1 day)	8	8	8	8	8	0
Annual leave hours taken (22 days)	176	176	176	176	0	0
Leave without pay (2 day)	16	16	0	16	0	0
Paid overtime hours (13 days)	104	0	104	0	104	104
Accrued annual leave hours	176	0	0	0	176	0
Total hours		2,086	2,174	2,086	2,174	1,838
FTE (Total/ 2086)**		1.00	1.04	1.00	1.04	0.88

† Statutory holidays have been accrued within this figure

* 11 days statutory holiday removed (some years are less depending on when ANZAC and Waitangi day fall)

** Reported to two decimal places for clarity

Reporting similarities:



The following table aims to show the differences between the FTE definitions through a variety of factors.

		Contracted FTE	Paid FTE	Employed FTE	Accrued FTE	Worked FTE	Establishment FTE (2010 – 2017)
MoH Occupational groups	Medical	✗	✗	✓	✓	✗	✗
	Nursing	✗	✗	✓	✓	✗	✗
	Allied health	✗	✗	✗	✓	✗	✗
	Management & Admin	✗	✗	✗	✓	✗	✓
	Support	✗	✗	✗	✓	✗	✗
TAS Occupational groups	Medical	✓	✓	✓	✗	✗	✗
	Nursing	✓	✓	✓	✗	✗	✗
	Allied & scientific	✓	✓	✓	✗	✗	✗
	Midwifery	✓	✓	✓	✗	✗	✗
	Care & Support	✓	✓	✓	✗	✗	✗
	Corporate & Other	✓	✓	✓	✗	✗	✗
Variables	Paid ordinary hours	✓	✓	✓	✓	✓	✓
	Sick leave hours	✓	✓	✓	✓	✗	✓
	Paid bereavement leave hours	✓	✓	✓	✓	✗	✓
	Annual leave hours taken	✓	✓	✓	✗	✗	✓
	Long service leave	✓	✓	✓	✗	✗	✓
	Leave without pay	✓	✗	✓	✗	✗	✓
	Paid overtime hours	✗	✓	✗	✓	✓	✗
	Accrued annual leave hours	✗	✗	✗	✓	✗	✗
	Vacancies	✗	✗	✗	✗	✗	✓
Data received from DHBs	Monthly	✗	✗	✗	✓ - MoH	✗	✓ - MoH
	Quarterly	✓ - TAS	✓ - TAS	✗	✗	✗	✗
	Bi-annually (March & September)	✗	✗	✓ - MoH	✗	✗	✗
Can or are reported by	MoH	✗	✗	✓ - Bi-annually	✓ - Monthly	✗	✓ - Monthly
	TAS	✓ - Quarterly	✓ - Quarterly	✓ - Quarterly	✗	✗	✗
General discussion	Pros	<ul style="list-style-type: none"> Applies to all staff Unaffected by leave patterns Can be used to recreate 'Employed FTE' Can be applied to any day of the year 	<ul style="list-style-type: none"> Applies to all staff including casuals A good measure of short term employment costs Equates to 'Accrued FTE' in the long term 	<ul style="list-style-type: none"> Similar to 'Contracted FTE', except: (see below) 	<ul style="list-style-type: none"> Applies to all staff A good measure of long term employment costs 	<ul style="list-style-type: none"> Applies to all staff including casuals An excellent measure of workforce 'input' 	<ul style="list-style-type: none"> Includes contractors and vacancy data Payroll and non-payroll staff
	Cons	<ul style="list-style-type: none"> Unable to measure workforce 'input' Cannot include casual labour 		<ul style="list-style-type: none"> All FTEs are capped to 1.0 Only reported for Medical and Nursing Reported biannually 	<ul style="list-style-type: none"> Subject to variations between monthly reporting cycles 	<ul style="list-style-type: none"> Poor measure to use for financial modelling 	<ul style="list-style-type: none"> Only applies to one occupational group FTEs capped to 1.0

