

EFFICIENCY AND EFFECTIVENESS OF ACT FIRE SERVICES, 2021

*A report for the United Firefighters Union,
ACT Branch*



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INTRODUCTION

Each year the Productivity Commission publishes a large amount of data on the efficiency and effectiveness of fire and rescue services as one component of its report on Government service provision.

The ACT Branch of the United Firefighters Union has commissioned me to provide a summary of these data as they relate to the ACT¹.

The data provided by the Productivity Commission are helpful. But they have limitations, arising from problems associated with the Commission's broader performance framework. These are explored in the Appendix to this report. The broad recommendation is that the data should be used with caution.

1. Financial trends

Table 1 shows revenues for the ACT fire services and Australia in 2019/20, and compares these to the situation in 2018/19 and five years earlier. The table shows total revenues for the ACT fire services per 100,000 population are substantially lower (\$207.8) than for Australia as a whole (\$223). Per person, the ACT's revenues grew over the last year at a slightly slower rate than Australia as a whole (22% cf 24%), and at barely a third the rate over the last 5 years (11% cf 38%). In total, they grew by 24% over the last year, a slightly slower rate of growth than Australia as a whole (25%), and over the last 5 years at less than half the rate for Australia as a whole (21% cf 49%).

¹ All the data in this report come from the Steering Committee for the Review of Government Service Provision 2021, Report on Government Services 2021, Productivity Commission, Canberra, <https://www.pc.gov.au/research/ongoing/report-on-government-services/2021> (accessed on January 27, 2021). The tables in this report draw on the data provided in the supporting spreadsheet (accessed at <https://www.pc.gov.au/research/ongoing/report-on-government-services/2021/emergency-management/emergency-services-on-january-28-2021>, 2021).

Table 1: Total revenues and revenues per 100,000 persons, fire services in the ACT compared to Australia as a whole (constant 2019/20 prices)

	<i>Unit</i>	<i>ACT</i>	<i>Aust</i>
2019-20			
<i>Total revenue</i>	\$m	88.8	5 691.3
% change last year		24%	25%
% change 5 years		21%	49%
<i>Revenue per person</i>	\$	207.68	223.00
% change last year		22%	24%
% change 5 years		11%	38%

Deflated using the General Government Final Consumption Expenditure (GGFCE) chain price deflator.

Source: Table 9A.1

The previous discussion focused on revenues. Now we turn to the major items of expense, shown in Table 2. It should be noted that the data are not comparable across jurisdictions.

For the ACT, total costs per person (\$272.26) are higher than revenues shown in Table 1. They increased at more than 3 times the rate for Australia as a whole over the last year, but this was insufficient to make up for the much slower rate of growth in the ACT over the previous 5 years. A similar trend is evident for costs in total. They increased by 30% over the last 12 months, and 32% over five years. For Australia as a whole, total costs increased at a much lower rate than the ACT over the last 12 months (13% cf 30%), but increased much faster over the previous five years (43% cf 32%). Labour costs (which include superannuation provisions) increased by over one quarter for the ACT, whereas for Australia as a whole they stayed the same (mainly due to actuarial superannuation adjustments in other states). Over the last five years, however, labour costs for Australia as a whole grew much faster than they did for the ACT (30% cf 22%). Last year's increases in costs for the ACT appear to be part of a catch-up phase, following the four earlier years of growth well below that for Australia as a whole.

Table 2: Expenses for fire services by major category, ACT and Australia as a whole, 2018/19, percentage change last year, 5 years and 9 years (constant 2019/20 prices)

	<i>Unit</i>	<i>ACT (m)</i>	<i>Aust</i>
2019-20			
Labour costs - Salaries and payments (n)	\$m	68.2	2 704.8
% change over last 12 months		28%	0%
% change over last 5 years		22%	30%
Capital costs		12.2	662.6
Other costs (p)	\$m	35.9	2 329.6
Total costs	\$m	116.4	5 697.1
% change over last 12 months		30%	13%
% change over last 5 years		32%	43%
Per person in the population (q), (r)	\$	272.26	223.22
% change over last 12 months		29%	12%
% change over last 5 years		21%	33%

Deflated using the General Government Final Consumption Expenditure (GGFCE) chain price deflator.

Note: data are not comparable across jurisdictions

Source: Table 9A.13

2. Human Resources

Table 3 shows data on the people who work in the fire services in the ACT and Australia as a whole. Per 100,000 population, the ACT has a bigger paid firefighting workforce than Australia, but has far fewer volunteer firefighters. When added together, the paid and volunteer frontline workforce in the ACT per 100,000 is much smaller than for Australia as a whole. In 2019/20 there were 370.6 paid and volunteer firefighters in the ACT per 100,000 population compared to 576.8 for Australia as a whole. While the total number of volunteer firefighters in the ACT increased slightly last year (2%),

there were still 20% fewer of them than there were in 2014/15. When the paid and volunteer firefighting workforces are added together, the ACT had a 4% increase in total numbers compared to a 3% fall for Australia as a whole. But the situation is reversed for the 5 years to 2019/20, with the ACT experiencing a 16% fall, twice the rate of decline for Australia as a whole (-8%).

The Table shows that for Australia as a whole the paid firefighting workforce in total has grown by 11% over the last 12 months, and by 22% over the last five years. This is much faster than the growth for the ACT, which in 2019/20 had the same number of EFT firefighters as it did five years earlier, despite a 7% increase over the last year.

For the support workforce, however, the situation is reversed, with the ACT having the fastest growth in employment over last year and the last five years. When the paid firefighter and support workforces are added together, the ACT has experienced a slower rate of employment growth compared to Australia as a whole over the last year (7% cf 9%) and the last five years (3% cf 9%).

Interestingly, even though the ACT experienced much faster fire service wages growth than Australia over the last 12 months, this was not reflected in the figures on employment growth, with Australia as a whole experiencing a larger rate of growth over both last year and the previous five (see Table 2). This implies that the relatively large increase in wages and salaries in the ACT over the last year was due to overtime and wages increases.

The only area where the ACT has outstripped Australia as a whole in employment growth is professional support staff, both for the last year as well as the previous five.

**Table 3: Fire service labour force: professional and volunteers,
2014/15-2019/20**

	<i>Unit</i>	<i>ACT (c)</i>	<i>Aust</i>
2019-20			
Paid Firefighting workforce (FTE)	no.	350	17,493
<i>% change last year</i>		7%	11%
<i>% change last 5 years</i>		0%	22%
Paid Support workforce	no.	118	4,999
<i>% change last year</i>		4%	3%
<i>% change last 5 years</i>		12%	9%
Total	no.	468	22,492
<i>% change last year</i>		7%	9%
<i>% change last 5 years</i>		3%	19%
Firefighting workforce (proportion of total)	%	74.8	77.8
Firefighting workforce per 100 000 people (k)	rate	81.9	68.5
<i>% change last year</i>		7%	9%
<i>% change last 5 years</i>		-8%	13%
Volunteers			
Firefighters	no.	1 234	146 582
<i>% change last year</i>		3%	-4%
<i>% change last 5 years</i>		-20%	-11%
Support staff	no.	0	55 080
Total volunteer staff	no.	1 234	201 662
<i>% change last year</i>		3%	-3%
<i>% change last 5 years</i>		-20%	-9%
Volunteers per 100 000 people (k)	rate	288.7	790.1
<i>% change last year</i>		2%	-4%
<i>% change last 5 years</i>		-26%	-16%
Total professional and volunteer			
Firefighting workforce (FTE)	no.	1584	164075

% change last year		4%	-3%
% change last 5 years		-16%	-8%
Support workforce	no.	118	60079
Total	no.	1702	224154
% change last year		4%	-2%
% change last 5 years		-15%	-7%

Note: paid employees are EFT; volunteers are headcount

Source: Table 9A.3

The ACT's position is in reality more perilous than is suggested by these data on the volunteer firefighter workforce. The Productivity Commission's numbers combine the Rural Fire Service Volunteers (RFS) and Community Fire Unit (CFU) Volunteers. The latter are described on the Emergency Services Agency's Website as:

a team of local residents who live close to bush land areas across the ACT. These local volunteers are trained and equipped by ACT Fire & Rescue to safeguard their homes during a bushfire until the fire services arrive. CFU members are a part of ACT Fire & Rescue and take direction from ACTF&R Officers but they are not fire-fighters. (<https://esa.act.gov.au/join-us/volunteering/community-fire-units>)

According to the Emergency Services Agency in 2020 there were approximately 850 CFU and 450 RFS volunteers respectively. It is debatable as to whether the CFU members should be considered to be part of an effective volunteer service. Excluding them would reduce the reported number of volunteers per 100,000 people from 288.7 to less than 100. This underscores the heavy reliance of the ACT on paid firefighters.

To summarise the story so far:

- The ACT fire services receive less revenue per person in the population than fire services in Australia as a whole

- Although the ACT spends more per person in the population on its firefighting service than Australia as a whole, it has far fewer volunteers per 100,000 population, leaving it with a much thinner total frontline firefighting establishment than the country as a whole.
- While the ACT's spending on its fire services increased faster than Australia as a whole over the last year, this has not compensated for its much lower level of increase in spending over the preceding 5 years.
- While the ACT's total firefighting numbers increased faster than Australia as a whole over the last year, the opposite is true for the last 5 years, and last year's result was solely due to increases in volunteers.
- The substantial increase in spending in the ACT on fire services over the last year compared to Australia as a whole, did not find its expression in a faster rate of growth in the paid firefighting workforce, which grew at a slower rate in the ACT than Australia.
- By way of contrast, paid support staff numbers in the ACT have increased faster than they have for Australia as a whole both for last year and the previous five. This together with overtime may account for the ACT's much faster rate of growth in wages and salaries over the last year compared to Australia as a whole.

Having considered data on funding and staffing, we now turn our attention to various measures of effectiveness.

3. Effectiveness: fire deaths and injuries

The number of fire-related deaths each year in the ACT is low, at between zero and 6, with zero the most likely number. This was in fact how many people died from fires in the ACT for the most recent year reported by the Productivity Commission (2019).

The number of fire-related injuries in the ACT is also low, most typically being around the high-30s. Expressed per million people, this translates into a fire injury rate that is much lower than for Australia as a whole (9.2 cf 13.8 in 2018/19). The ACT's firefighter effectiveness on both these measures – deaths and injuries -- is high.

Table 4: Fire deaths by state and territory, 2015-2019

	<i>Unit</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Aust</i>
Deaths per million people (b)										
Fire deaths (c), (d), (e), (f)										
2019	rate	3.8	4.9	3.9	1.1	1.7	3.7	–	12.2	4.0
2018	rate	4.0	3.4	6.4	3.9	2.9	3.8	14.3	–	3.6
2017	rate	4.7	3.0	2.4	5.0	4.6	21.1	–	32.5	3.7
2016	rate	3.4	4.0	5.6	5.1	3.5	3.9	9.9	–	4.1
2015	rate	3.3	4.3	4.2	4.3	4.7	9.7	5.1	12.3	4.1
Number of deaths										
Fire deaths (e), (f)										
2019	no.	31	32	20	3	3	2	–	3	101
2018	no.	32	22	32	10	5	2	6	–	89
2017	no.	37	19	12	13	8	11	–	8	91
2016	no.	26	25	27	13	6	2	4	–	99
2015	no.	25	26	20	11	8	5	2	3	98

Source: Table 9A.4

Table 5: Fire related injuries by state and territory, 2015/16-2018/19

	<i>Unit</i>	<i>ACT</i>	<i>Aust</i> (b)
Hospital admissions due to fire injury			
Per 100 000 people (c)			
2018-19	rate	9.2	13.8
2017-18	rate	9.1	13.9
2016-17	rate	10.1	14.7
2015-16	rate	9.3	14.2
Total fire injury admissions			
2018-19	no.	39	3 466
2017-18	no.	38	3 436
2016-17	no.	41	3 574
2015-16	no.	37	3 416

Source: Table 9A.5

4. Effectiveness: buildings

Confinement of fire to room of origin is one of the most well recognised measures of firefighting effectiveness. The ACT is a mid-performer relative to all the states and territories on this measure. Over the last year, the ACT did relatively well with incendiary and suspicious structure fires, increasing the percentage of fires restricted to the room of origin from 61.5% in 2019/19 to 68.6% in 2019/20, a rate much higher than Australia as a whole. However, its performance in the areas of accidental structure fires and other ignition types declined both year on year and compared to Australia as a whole.

Table 6: confinement of fire to room of origin, ACT and Australia, 2014/15-2019/20

	<i>Unit</i>	<i>ACT</i>	<i>Aust</i>
Other ignition types (h)			
2019-20	%	38.1	52.2
2018-19	%	52.2	50.8
2017-18	%	53.3	51.0
2016-17	%	45.0	50.3
2015-16	%	73.3	49.5
2014-15	%	50.0	52.7
Incendiary and suspicious structure fires (i)			
2019-20	%	68.6	57.7
2018-19	%	61.5	58.1
2017-18	%	64.6	57.5
2016-17	%	70.0	55.6
2015-16	%	66.7	56.6
2014-15	%	80.8	55.4
Accidental structure fires (j)			
2019-20	%	72.5	81.5
2018-19	%	76.4	81.1
2017-18	%	76.7	82.4
2016-17	%	76.6	81.3
2015-16	%	83.8	80.5
2014-15	%	73.9	79.3

Source: Table 9A.6

As measured by the value of building and content insurance claims, the ACT is a strong performer. As the value of claims jumps around rather a lot from year to year, probably the best measure of performance is that the ACT consistently has claims per person below the value for that of Australia as a whole and that's even in years like 2019/20 when the number of claims jumped from 80 to 127.

Table 3: Building and contents insurance fire claims, number, average value and value per 100,000 population, ACT and Australia, 2014/15-2019/20

	<i>Unit</i>	<i>ACT</i>	<i>Aust</i>
Number of claims incurred			
2019-20	no.	127	13 460
2018-19	no.	80	7 829
2017-18	no.	83	8 910
2016-17	no.	124	9 237
2015-16	no.	111	10 555
2014-15	no.	96	9 626
Average value of claims			
2019-20	\$	67 633	67 889
2018-19	\$	89 368	74 006
2017-18	\$	69 082	65 926
2016-17	\$	42 211	59 371
2015-16	\$	56 348	51 326
2014-15	\$	28 590	53 825
Total value of claims per person in the population (j)			
2019-20	\$	20.10	35.80
2018-19	\$	16.87	23.01
2017-18	\$	13.79	23.71
2016-17	\$	12.88	22.49
2015-16	\$	15.68	22.59
2014-15	\$	7.00	21.92

Source: Table 9A.7

In summary, the Productivity Commission's data on effectiveness show the ACT fire service to be performing relatively well as measured by the low number of annual deaths and injuries, confinement of fires to room of origin

and also the value of building and content fire related claims per 100,000 population.

5. Efficiency

The single most widely used measure of fire service efficiency is the time taken to get to a fire.

Care must be taken in interpreting this measure, because travel times are clearly a product of congestion, the time of call out, the reliability of vehicles, the ease of getting a fire truck to the building that is on fire, and so on. It is partly for these reasons that the Productivity Commission recommends not comparing performance across jurisdictions.

The response times by jurisdiction are shown in Tables 4. The NT and Tasmania have been excluded because they do not collect this data. The top half of the Table shows response times for the 50th or middle percentile (one hundredth) of call-outs. The ACT's performance slipped slightly in 2019/20, falling to 7.5 minutes from 7 minutes the previous year. At the 90th percentile, however, the performance remained unchanged (10.5 minutes), after improving in 2017/18. While comparisons across jurisdictions are not recommended by the Productivity Commission, it is noticeable that the ACT's performance is amongst the better performers.

Table 4: Response times by jurisdiction including call taking time, 50th and 90th percentiles, 2014/15-2019/20, major cities (mins)

		<i>50th percentile</i>							
	<i>Unit</i>	<i>NSW</i>	<i>Vic (d)</i>	<i>Qld (e)</i>	<i>WA (f)</i>	<i>SA (g)</i>	<i>Tas</i>	<i>ACT</i>	<i>NT (h)</i>
Major cities									
Structure fires									
2019-20	no.	4 132	3 971	1 474	864	935	..	213	..
Response times									
2019-20	min.	7.0	6.5	7.9	8.8	7.5	..	7.5	..
2018-19	min.	6.9	6.3	8.0	9.0	7.5	..	7.1	..
2017-18	min.	6.3	6.5	7.9	8.0	7.5	..	7.1	..
2016-17	min.	6.3	6.5	7.9	8.0	7.8	..	6.8	..
2015-16	min.	6.8	6.4	7.9	8.0	7.7	..	6.7	..
2014-15	min.	6.5	6.4	7.4	8.1	7.2	..	7.0	..

		<i>90th percentile</i>							
		<i>NSW</i>	<i>Vic (d)</i>	<i>Qld (e)</i>	<i>WA (f)</i>	<i>SA (g)</i>	<i>Tas</i>	<i>ACT</i>	<i>NT (h)</i>
Major cities									
Structure fires									
Response times									
2019-20	Min	11.5	9.3	12.0	12.6	11.3	..	10.5	..
2018-19	Min	11.1	9.0	11.9	12.8	11.0	..	10.5	..
2017-18	Min	9.5	9.2	11.7	11.2	11.1	..	11.3	..
2016-17	Min	9.5	9.2	11.7	11.4	11.1	..	10.5	..
2015-16	Min	10.4	9.1	11.5	11.6	10.8	..	10.2	..
2014-15	Min	10.6	9.1	11.5	11.5	9.9	..	11.0	..

Source: Table 9A.11

In summary, the available data show the ACT fire service to be relatively efficient, with small declines in some areas of performance being compensated for by increases elsewhere. This is despite the ACT having far fewer frontline paid and volunteer firefighting resources than Australia as a whole.

6. Conclusion

This report has summarised the latest fire services data published by the Productivity Commission. The data show that the ACT funds its fire service at a lower level than Australia as a whole, and that while it spends more on fire services this probably reflects a need to have a larger paid firefighting force because of very low numbers of volunteers. Over the last 12 months, the ACT has increased its spending on the fire services at a faster rate than Australia as a whole, but this has not been sufficient to compensate for relatively low rates of growth over the previous five years.

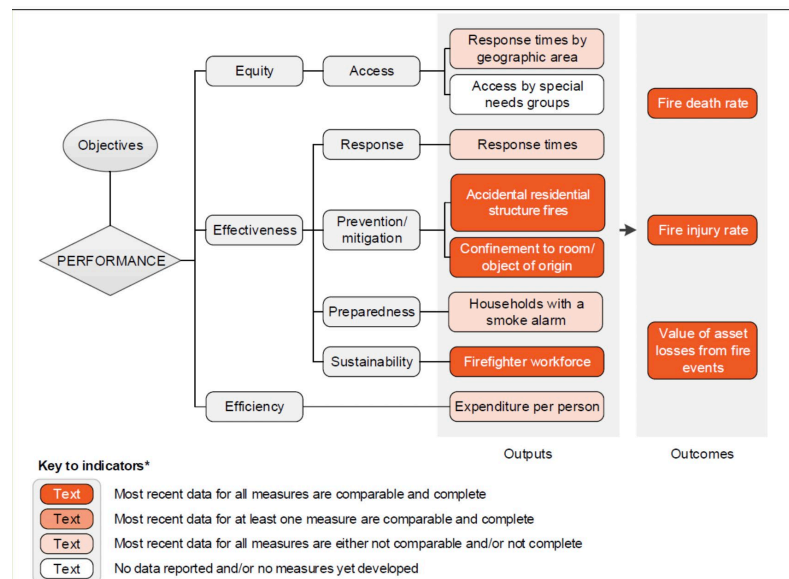
The increase in spending has enabled the fire services in the ACT to hire more paid firefighters, but the rate of growth in the paid workforce in the ACT over the last year has remained below that for Australia as a whole. While wages and salaries expenditure growth in the ACT exceeded that for Australia, it would appear this mainly funded overtime and wages growth.

Despite continuing to have fewer paid and volunteer frontline firefighters, the ACT continues to punch above its weight according to the main effectiveness and efficiency measures such as deaths, injuries, insurance claims, response times and containment of fires to rooms of origin.

Appendix: The Productivity Model and its limitations

The Productivity Commission uses a framework of performance indicators to assess the fire services. This is shown in Figure 1.

Figure 1: Efficiency and effectiveness of fire services according to the Productivity Commission



* A description of the comparability and completeness of each measure is provided in indicator interpretation boxes within this section

The framework has 3 core elements – equity, effectiveness and efficiency – which are broken down into sub-elements (eg access, response, etc). These are then converted to measures of outputs (eg response times) and then outcomes (eg deaths). This framework has the benefit of being relatively simple and its implications seem clear cut. Intellectually, it derives from a particular logic associated with industrial production, such as car manufacturing, where each input can be isolated and measured discretely before and during the production process, and also when combined as a finished article. It encourages the gathering and use of data to see if outputs are increasing, efficiency is improving, and costs are falling.

One limitation of this approach is that it depends on the quality of the data that are available, and this depends heavily on the respective agencies across

the states and territories gathering data in a similar way over time. This is not always the case, as the Productivity Commission readily admits. Care should be taken to ensure the data are comparable before reaching conclusions about what the numbers show.

Even where the data are comparable, they are open to different interpretations; they are rarely clear-cut. Consider for example how we should interpret something as apparently straightforward as declining fire service expenditure. This could be interpreted as a measure of increased efficiency. But that is not necessarily true. It could simply show that fire fighters are being paid less on average than the year before; that more use is being made of less experienced and less skilled firefighters; or less overtime is required because there are fewer fires. That tells us nothing about efficiency, but rather more about the Government's remuneration and employment policies. Far more important are the trends in the relationships between real inputs and outputs, and whether these deliver the quality services expected from them as shown by for example the number of fires, their scale and the damage to life and property arising from them.

There are similar problems associated with data on increased spending. This could be interpreted to mean a decline in efficiency, especially if the number of fires stays the same or even falls. This is also open to dispute. It would be entirely reasonable and expected as good policy for a Government to spend more on fire services at a time when climate change is making it more likely that we will experience with increased likelihood major fire events of the type we saw last summer. The fire services must be ready and available just in case, even if that means having equipment that are rarely used and firefighters that spend a goodly share of their time waiting to be called.

Almost all of the measures of efficiency and effectiveness in the Productivity Commission's model are open to this sort of challenge.

But there is another more important limitation. As was pointed out earlier, a core assumption underpinning the framework and its methodology is that fire services are like a factory where inputs, outputs and outcomes are clearly

separate and easily measured. It is relatively easy to work out the efficiency of car manufacturing, for example, because the inputs and outputs are separate and measurable (people, materials, machinery and the finished vehicles). This is not so in the fire services. Each fire is different to the previous one – some are big, others are small; some are easy to extinguish, others might last for days; some involve toxic chemicals, others are chemical free. Some big fires affect lots of lives and property, yet others may have little impact. Yet all fires must be suppressed and their damage mitigated, and we cannot tell by looking at raw numbers how serious or difficult each fire was. Thus, the number of incidents need not reflect the real resources required to extinguish fires or the potential harm associated with them. The outputs – fire prevention, suppression and mitigation – are all different not just from one another but on a case-by-case basis, and in the case of prevention at least, almost impossible to measure. Yet paradoxically, preventing a fire spreading can be more important than putting it out.

Also, unlike a factory, fires and the ability of fire services to prevent and suppress them are all affected by decisions and activity over which the fire services have no control. Climate change, the use of combustible cladding in buildings, decisions by large companies to underspend on fire prevention and mitigation, and traffic congestion slowing fire response times are all examples the ability of fire services to manage the number and severity of fires is a product of decisions and forces that go well beyond the fire service to determine.

A related issue is that fire services must always be available, even in the event that there are no fires; availability is a critical part of an efficient fire service, even if for most of the time the equipment and firefighters are simply on standby. The right equipment needs to be at hand, as does the skilled labour, especially, as is the case now, when the scale and complexity of fires is increasing. And unlike manufacturing, space and time play a distinctive, yet crucial role in the production of fire services. This is because the location of the “inputs” is not where the “output” and “outcome” is delivered. It takes time to get to a fire and put it out. Time is a major determinant of the damage

done to people and property, and each fire presents a different challenge in space and time to others. The “inputs”, “outputs” and “outcomes” are rarely, if ever, located in the one space and at one time. The location of fire stations and the ready availability of skilled fire firefighters are core determinants of whether fire services can be delivered efficiently and effectively. Fire services are not at all like a factory, yet the Productivity Commission effectively assumes that they are.

It is for these reasons that, however attractive they appear for policy purposes, the Productivity Commission’s framework and data should be treated with great care and hasty conclusions avoided at all costs.