Report to the Managing Director of Pronurse Limited, advising on the most suitable alternative option to original budget.

EXECUTIVE SUMMARY

- The original budget shows an operating profit of $216,000 and ROCE of 18%, both considered unsatisfactory. Break-even sales are $400,000 with a 54.5% margin of safety (MOS).

- Option 1 (account manager) increases risk as it raises break-even sales by 24% to just under $500,000 and reduces MOS to just under 50%. However, this is still relatively safe unless demand fluctuates dramatically. Profit should rise $36,000 (17%) to $252,000 and ROCE to 21%. This depends on finding a good administrator and achieving a 12.5% price increase without loss of volume.

- Option 2 (advertising) has a lower break-even (due to lower fixed costs) and higher MOS (52.5%) than option 1, so seems less risky. However, $41,000 advertising expenditure must increase sales by 17.5% to achieve profits of $244,300 which are below option 1 by 3%, and ROCE is only 19.7% (due to increased debtors).

- As these results are based on estimates, detailed sensitivity analysis and careful consideration of the non-financial factors identified in this report are advised.

- For option 2 to achieve 21% ROCE (as predicted for option 1) would require sales that are $189,778 (21.6%) above the original budgeted sales of $880,000. This could be quite a challenge based only on a $41,000 advertising campaign.

- Option 1 is recommended as it offers more customer service (an account manager that facilitates improved customer service - rather than just 'advertising') and has less downside risk.

MAIN REPORT

The original budget and the two alternatives are compared using the key measures in table 1 (supporting details in Appendix 1). These key measures are based on the estimates provided by company personnel.

This report makes recommendations on the best option based on consideration of financial and qualitative factors, but advises suitable sensitivity analysis and consideration of risk before a final decision.

	Original Budget	***Option 1 - Manager***	***Option 2 - Advertising***
Contribution margin	45.0%	51.1%	45.0%
Break even sales (£)	400,000	496,957	491,111
Margin of safety:	54.5%	49.8%	52.5%
Profit (£)	216,000	252,000	244,300
ROCE	18.0%	21.0%	19.7%

Table 1 - Key Measures (before sensitivity analysis).

Review of Financial Measures

The original budget shows a relatively safe position (break-even sales $400,000 and MOS 54.5%), but profits of $216,000 and ROCE of only 18% are considered inadequate.

Option 1 (employ account manager) increases prices without loss of volume but involves higher fixed salary costs (by $74,000) and hence, although contribution margin increases to 51.1%, break-even sales is 24% higher and MOS falls to 49.8%. If sales volumes do not fall with the price increase, profit is up $36,000 (17%) on original budget and ROCE is a more acceptable 21%.

Option 2 (advertising campaign) breaks-even at slightly lower sales than option 1, and has higher MOS (52.5%) and so appears less risky. Profits are expected to be $244,300 and hence $28,300 (13.1%) above the original budget, but $7,700 (3.1%) below option 1 expected profits, and ROCE will be lower at 19.7% (largely because the extra debtors raise capital employed by $40,000).

Sensitivity

This report is based on estimates provided by the company and it is suggested that key estimates are adjusted (say by + or - 5%) to assess the effect on key measures. Particularly speculative estimates (such as sales volumes) must be treated with caution.

Option 1 depends on the firm's ability to increase prices without loss of volume by offering improved service (through an account manager). This depends on competition and whether quality of service is an order winning criteria (with price a secondary factor influencing customers). Sensitivity analysis should include recalculations for lower price increases, (say 7.5%) and/or a fall in output (say by 5%). If sales volume did fall by 5% due to the price increase, profit would be $226,700 and ROCE 18.9%.

Option 2 requires an advertising spend of $41,000 to increase sales volumes by 17.5%. This might be considered doubtful unless advertising spend was too low previously. Moreover, stealing market share (through advertising) may be short-term as competitors will fight back with their own advertising or with price cuts. Hence downside risk must be considered. Sensitivity analysis should could include only a 12.5% sales increase (still appreciable) and this would result in profits of $224,500 and a ROCE of 18.1% (barely above the original budget). Note that achieving a 10.4% sales increase is needed to match original budgeted profit, but this yields an unacceptable ROCE (below 18%).

Qualitative factors to consider

Option 1 depends on the availability of a suitably qualified and motivated account manager. Would there be any recruitment and/or training costs or a long lead-time before prices could be increased (due to annual contracts). Would price increases make Pronurse uncompetitive and/or bring more competitors into the market? (Perhaps attracted by higher margins and ROCE).

Option 2 requires a 17.5% increase in sales, but has Pronurse the capacity for this increase? Can it hire and train more nurses or will overtime premiums have to be paid? Are the costs of this included or will contribution margin fall. Can Pronurse finance the extra working capital ($40,000 additional debtors) needed for this growth? It has been assumed that the only additional fixed cost is advertising, but will a 17.5% increase in activity increase other "so called" fixed costs, like supervision, administration, and perhaps recruitment costs

What sales increase from advertising would achieve ROCE of 21%?

Option 2 is expected to produce higher sales and hence debtors increase by $40,000 and capital employed rises to $1,240,000. Therefore, to achieve a 21% ROCE the profit needs to be $260,400 (21% x $1,240,000).

Required sales volume (in $s) = (fixed costs + desired profit) divided by contribution margin.

$$= \frac{\$221,000 + \$260,400}{0.45} = \$1,069,778$$

This is $189,778 or 21.6% above the original budgeted sales of $880,000 and hence it could be quite a challenge for a $41,000 advertising campaign (option 2) to achieve the 21% ROCE initially predicted for option 1.

Limitations of CVP analysis.

CVP analysis is based on relatively simplistic assumptions about cost behaviour, including that all Pronurse's costs can be accurately classified into either fixed or variable costs with respect to nursing hours sold and that the relationship of both revenue and variable costs to sales volume is linear. Such assumptions may not hold true for a wide range of activity levels and in particular a large increase in volume of sales may lead to steps in fixed costs. However, as the present analysis on Pronurse is only considering relatively small changes in volumes and as Pronurse does have spare capacity it is considered unlikely that steps in fixed costs will be reached. Thus, the relatively simplistic assumptions of CVP analysis are considered to be applicable for the 'relevant range' being considered at Pronurse and hence the analysis is considered valid.

Conclusions and recommendations.

Option 2 should be rejected unless it is thought that extra advertising will boost sales by at least 17.5% (or even 21.5% if a ROCE of 21% is desired). This requires evidence and is only likely if there is untapped demand and limited competition, otherwise there are considerable risks associated with this suggestion and it should be rejected as even on the estimates provided, ROCE is lower than option 1. Compared to the original budget, option 1 improves profit, ROCE and MOS and appears to have less downside risk than option 2 as long as customers are not too price sensitive because they require quality of service. Moreover, the availability of a suitable account manager has already been established (although advertising the job may provide even better candidates) and as in the healthcare environment service quality is paramount to customers Option 1 is recommended.

Appendix 1	Original Budget	Option 1 Account Manager		Option 2 Advertising		*(Notes are for guidance only – not part of the report)*			
						Notes on option 1		Notes on option 2	
		As predicted	What if?	As predicted	What if?	As predicted	What if ?	As predicted	What if?
		Prices up 12.5%. Same volume	Volume falls by 5%	Volume up 17.5%. Same price.	Volume up 12.5% only. Same price.	No fall in sales volume	Sales volume falls 5%?	Sales volume rises 17.5%	Sales volume rises 12.5%?
Sales ($)	880,000	990,000	940,500	1,034,000	990,000	Original sales x112.5%	Original sales x95% x112.5%	Original sales x117.5%	Original sales x112.5%
Variable Cost ($)	484,000	484,000	459,800	568,700	544,500	Same volume = same VC	Original VC x95%	Original VC x117.5%	Original VC x112.5%
Contribution($)	396,000	506,000	480,700	465,300	445,500	Sales - Variable cost	Sales - Variable cost	Sales - Variable cost	Sales - Variable cost
Contribution margin	45.0%	51.1%	51.1%	45.0%	45.0%	Contribution/sales	Contribution/sales	Contribution/sales	Contribution/sales
Fixed Costs ($)	180,000	254,000	254,000	221,000	221,000	FC up by $74,000	FC up by $74,000	FC up by $41,000	FC up by $41,000
Profit ($m)	**216,000**	**252,000**	**226,700**	**244,300**	**224,500**	Contribution - fixed costs	Contribution - fixed costs	Contribution - fixed costs	Contribution - fixed costs
Break even sales ($)	**400,000**	**496,957**	**496,957**	**491,111**	**491,111**	FC/contribution margin	FC/contribution margin	FC/contribution margin	FC/contribution margin
Margin of safety:									
in sales ($)	**480,000**	**493,043**	**443,543**	**542,889**	**498,889**	Budgeted sales - b/e sales	Budgeted sales - b/e sales	Budgeted sales - b/e sales	Budgeted sales - b/e sales
as % of bgt sales	**54.5%**	**49.8%**	**47.2%**	**52.5%**	**50.4%**	MOS sales/budgeted sales	MOS sales/budgeted sales	MOS sales/budgeted sales	MOS sales/budgeted sales
Capital Employed ($)	1,200,000	1,200,000	1,200,000	1,240,000	1,240,000	No change in CE	No change in CE	CE (drs) up $40,000	CE (drs) up $40,000
ROCE	**18.0%**	**21.0%**	**18.9%**	**19.7%**	**18.1%**	ROCE = profit/CE	ROCE = profit/CE	ROCE = profit/CE	ROCE = profit/CE
							Alternative sensitivities could be considered		**Alternative sensitivities could be considered**

Table 2 – Workings ***(For guidance only – not part of the report).***

Original Budget:

Contribution Margin = $\frac{396{,}000}{880{,}000} = 45\%$

Break-even Sales = $\frac{180{,}000}{0.45} = \$400{,}000$

MOS = $\left(\frac{880{,}000–400{,}000}{880{,}000}\right)x100\% = 54.5\%$

ROCE (given) = 18%

Note that (if not given) capital employed could have been deduced = $\frac{216{,}000}{0.18} = \$1{,}200{,}000$

Option 1

	$	
Sales revenue increases 12.5% to	990,000	
Variable costs don't change at	484,000	
Contribution becomes	506,000	a contribution margin of 51.1%
Fixed costs become	254,000	
Profit =	**252,000**	

Break-even sales = $\frac{254{,}000}{0.51111} = \$496{,}957^*$

MOS = $\left(\frac{990{,}000 – 496{,}957}{990{,}000}\right)$ x 100% = 49.8%

ROCE = $\frac{252{,}000}{1{,}200{,}000} = 21\%$

** If contribution margin is rounded to 51.1% break-even sales = $497,065 (MOS is still 49.8%)*

Option 2

Increased advertising (fixed costs) by $41,000 is predicted to raise sales by 17.5% to $1,034,000 but contribution margin is unchanged (at the original 45%)

So, Break-even sales = $\frac{221{,}000}{0.45} = \$491{,}111$

MOS = $\left(\frac{1{,}034{,}000– 491{,}111}{1{,}034{,}000}\right)$ x 100% = 52.5%

		$
Revised Sales	= (880,000 x 1.175) =	1,034,000
Revised Contribution	= 1,034,000 x 45% =	465,300
Revised Fixed Costs	=	(221,000)
Profit	**=**	**244,300**

ROCE = $\frac{244{,}300}{1{,}240{,}000} = 19.7\%$