CHAPTER 4

PHASE 2: RESULTS

This chapter presents the quantitative results of the questionnaires in table and graphic format as well as the qualitative results with some explanatory discussion. A more detailed discussion of the results follows in Chapter 5.

4.1 RESPONSE RATE

The response rate was 100%. All interns drawn in the 2006 and 2007 samples (n=76 in each year) agreed to participate in the survey, and so did their supervisors and the 0researcher selected colleagues and patients. The willingness on the part of all the respondents to complete the questionnaires and to be interviewed removed the problem of self selection and volunteer bias which Oppenheim (1966 p. 19) warns can be "of an intractable nature". Where a sampled intern was not available the closest match from the group of "spare" sampled interns was substituted. The reasons for non-availability were that one intern was on leave and one on sick leave at the time of the survey while a third had transferred to another institution.

4.2 BIOGRAPHICAL INFORMATION ON THE 2006 AND 2007 INTERN SAMPLES

4.2.1 Gender distribution

Figure 4.1 shows the gender distribution of the intern samples in 2006 and 2007. The ratios of males to females (1:1.3 in 2006 and 1:1.4 in 2007) are close to the population ratios of 1:1.5 for both years. Gender was not one of the criteria used to select the matched sample in 2007 but the distribution of males and females in the two samples was similar. Barnsley, Lyon, Ralston, *et al* (1994) found no significant overall difference when their data were analysed by gender, nor was there a difference in clinical competence scores. However, women scored a point higher on average than men on personal characteristics. Any gender differences in this study should be similar for both traditional and GEMP intern groups.

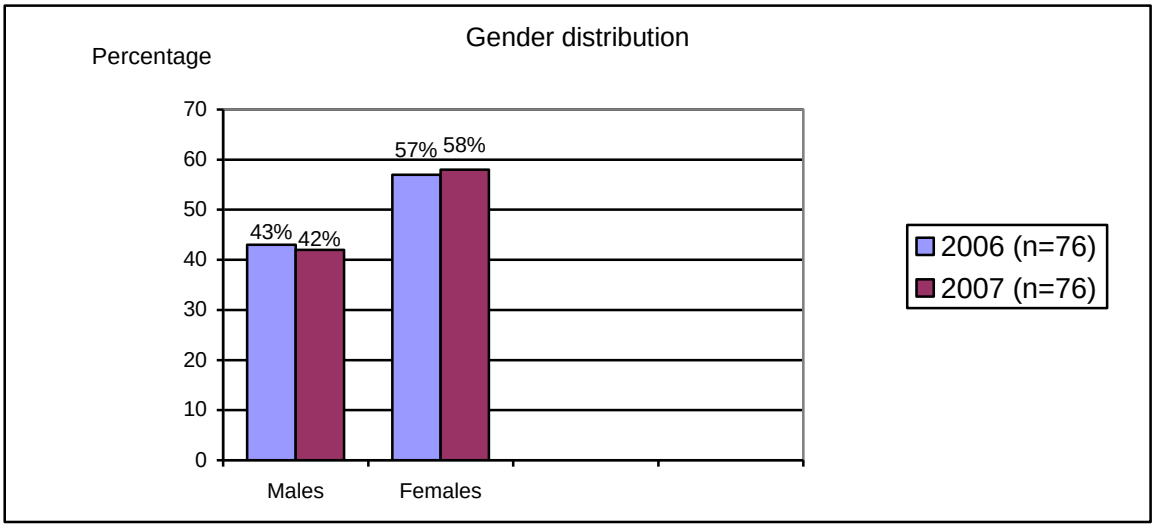

Figure 4.1 Comparison between the distributions of male and female interns in the 2006 and 2007 intern samples

4.2.2 Racial Distribution

Figure 4.2 compares the racial distribution of the two samples. Despite careful one-to-one matching of the 2006 and 2007 interns, it was not possible to get a one hundred percent match. There were 3% more White interns in 2007 and 2% fewer Black and Coloured interns. These small differences are unlikely to have had much effect on results.

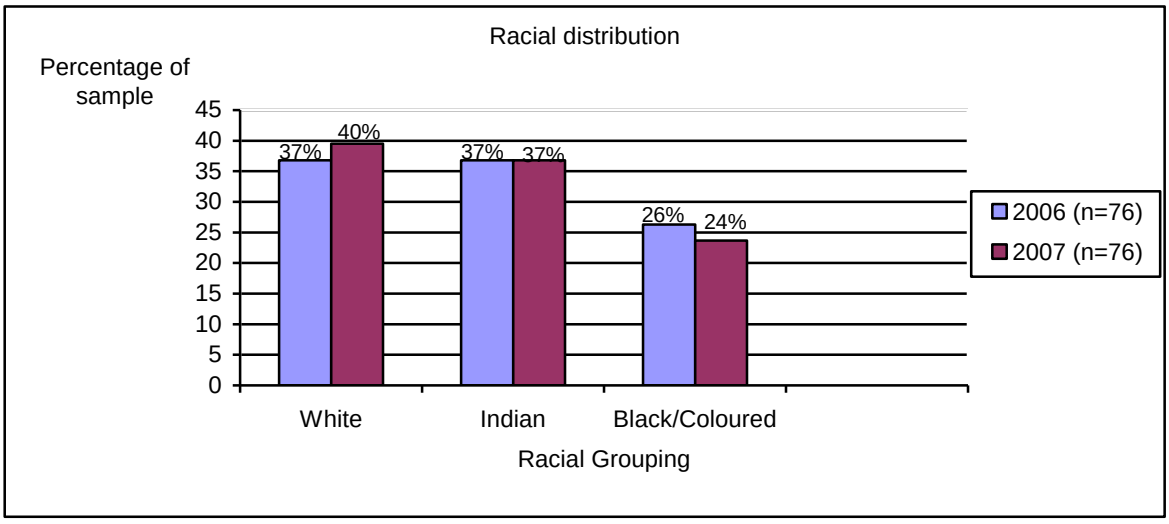

Figure 4.2 Comparison between the racial distributions for the 2006 and 2007 intern samples

4.2.3 Quartile Ranking

The 2006 and 2007 samples were matched for intellectual ability and application using quartile rankings based on the final class position in MBBCh VI (GEMP 4). Figure 4.3 shows that there were more traditional graduates in the lower quartiles and more GEMP graduates in the top quartile but the difference is not significant ($\chi^2 = 0.59$; df = 3, p= 0.89).

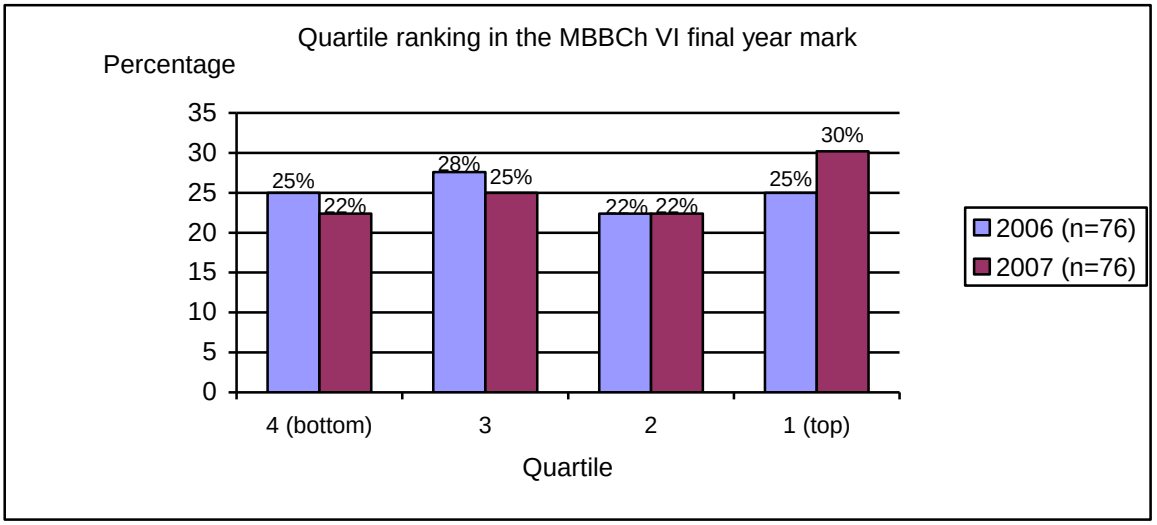

Figure 4.3 Comparison between the quartile rankings in the MBBCh final year for the 2006 and 2007 intern samples

4.2.4 Hospital Level

Medical graduates in South Africa must be prepared for service in regional and district hospitals as well as in the better-resourced tertiary hospitals. It is clear from Figure 4.4 that, even with oversampling, there were fewer interns in the district level hospitals. This was exacerbated in 2007 as the new two-year internship necessitated re-accreditation of intern training institutions. Some the previously-used district hospitals no longer accepted interns. The samples were so similar that a statistically significant difference was unlikely.

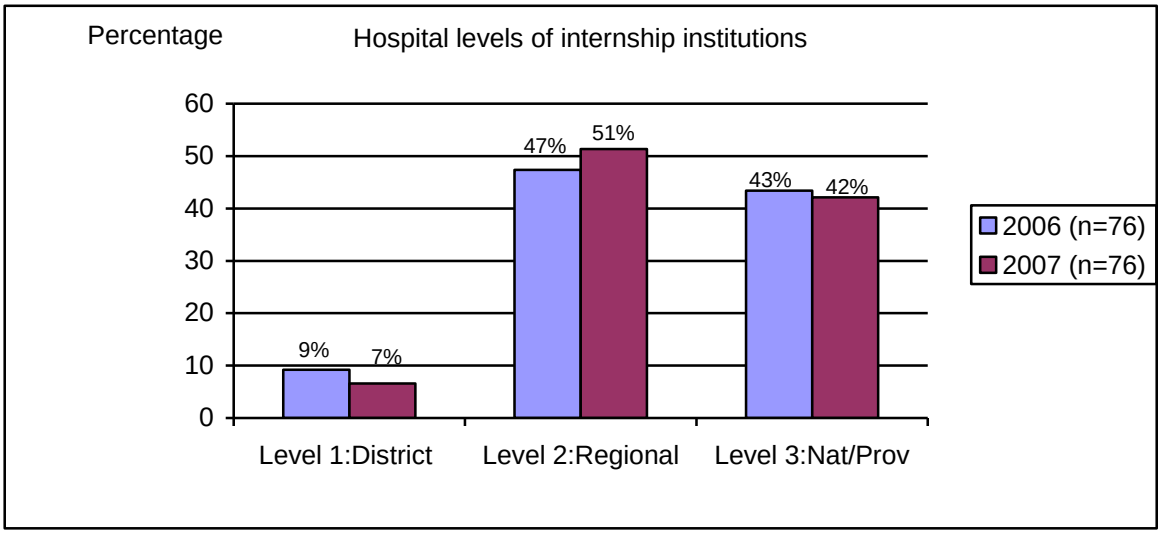

Figure 4.4 Comparison between the hospital levels to which interns in the 2006 and 2007 samples were allocated

4.2.5 Age groups

The average age of interns was 25.4 years in 2006 and 24.5 years in 2007. Figure 4.5 shows that in 2006 there were equal numbers of interns in each age group. In 2007 sixty seven percent (67%) of the interns were under twenty five years. The age difference between the samples is statistically significant (χ^2=3.9; df =1; **p=0.048**).

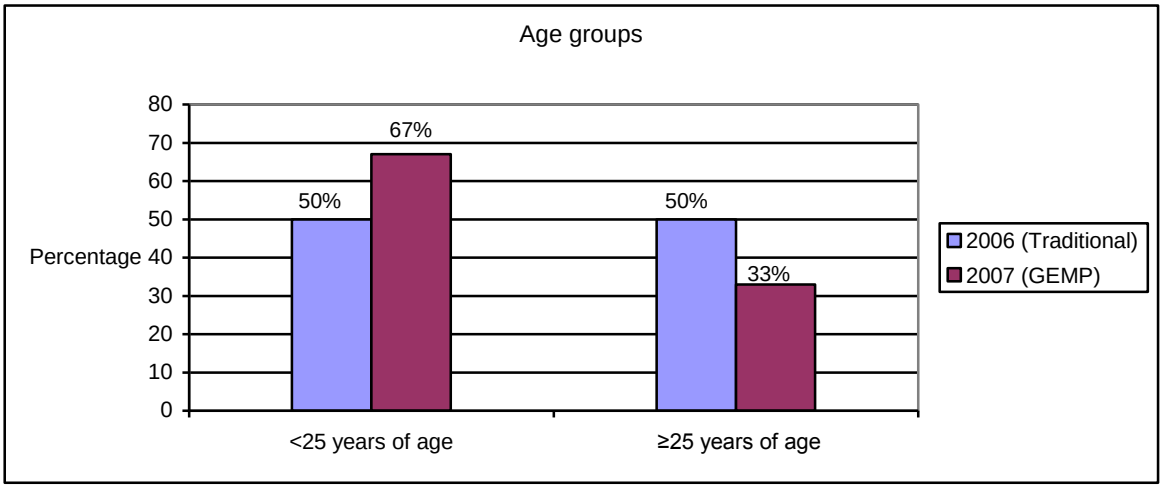

Figure 4.5 Comparison between the age groups of interns in the 2006 and 2007 intern samples

Barnsley *et al* (1994) studied interns from three different undergraduate curricula and found that supervisors' ratings for overall clinical competence and personal characteristics were significantly higher for younger graduates (<25 years), independent of the university of graduation and of sex. The current study did not examine age as a factor influencing intern competence but this might be important in future research as the number of graduate entrants to the GEMP increases.

4.3 QUESTIONNAIRE RESULTS

Throughout the results section, significant results are presented in bold typeface and non-significant results are represented as "n/s". It should be understood though that a significant difference is not always an important one (see Figure 1.3). The quantitative differences may be small and yet significant. For this reason some non-significant results are presented and respondents' comments which qualify and augment the numerical data are also presented.

4.3.1 Overall results for the 2006 and 2007 intern years

An overall score was calculated for the fifty seven questionnaire items for all interns and supervisors in the 2006 (traditional curriculum) samples and these were compared to the overall scores for the 2007 (GEMP) samples using the Cochran-Mantel-Haenszel statistical technique. The results are given in Table 4.1 and presented graphically in Figures 4.6 and 4.7 respectively. The colleagues' overall scores and scores by hospital level and racial group are not comparable as they did not complete the full questionnaire. Their responses are reported under the nine categories and later in this chapter. Qualitative patient data are also given under each category and at the end of this chapter.

Table 4.1: Results of the comparison between the overall scores for all questionnaire items for interns and supervisors in 2006 and 2007

	2006		2007	
Overall scores (57 items)	Intern (%)	Supervisor (%)	Intern (%)	Supervisor (%)
1&2=not well prepared	504 (11.8)	229 (5.9)	316 (7.4)	228 (5.9)
3=fairly well prepared	851 (19.9)	810 (20.9)	768 (17.9)	867 (22.6)
4=well prepared	1443 (33.8)	1714 (44.2)	1577 (36.8)	1572 (41.0)
5=fully prepared	1470 (34.4)	1124 (29.0)	1621 (37.9)	1169 (30.5)
TOTAL: item responses	4268 (100.0)	3877 (100.0)	4282 (100.0)	3836 (100.0)

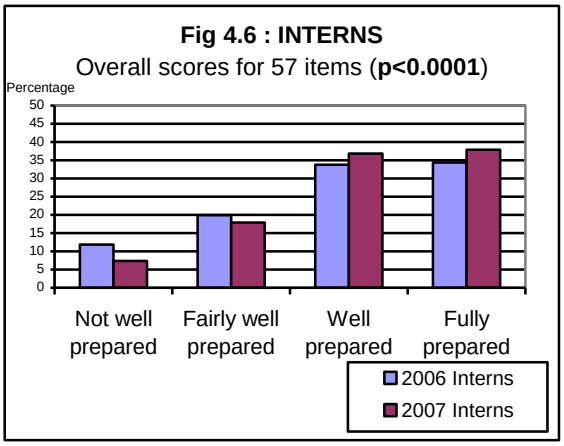

Figure 4.6
Comparison between the 2006 and 2007 interns on the overall scores for all 57 items of the questionnaire (**p<0.0001**)

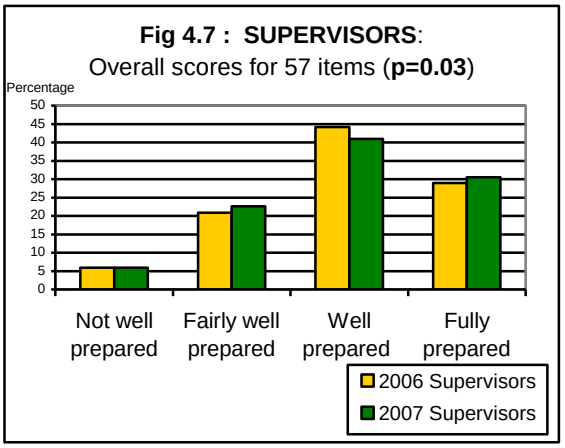

Figure 4.7
Comparison between the 2006 and 2007 supervisors on the overall scores for all 57 items of the questionnaire (**p=0.03**)

Figure 4.6 shows a significant difference between the intern scores in the two years (**p<0.0001**). The 2007 (GEMP) interns reported feeling significantly better prepared overall than the 2006 (traditional curriculum) interns. Figure 4.7 gives a comparison of supervisor scores in 2006 and 2007. There is a significant difference (**p=0.0330**) between the overall scores for the fifty seven items although the directional difference is less clear than with the interns. The supervisors rated an equal percentage of interns as "not well prepared" in each of the study years and only one and a half percent more GEMP interns as "fully prepared" overall. The directional difference in the supervisors' ratings occurred in the two middle response categories where they are the opposite of the interns' self ratings.

It was initially planned to combine the responses of interns, supervisors and, where appropriate, colleagues to achieve a unified 360^0 score for each year. A weighted Cohen's kappa coefficient analysis (Simon, 2005) was performed to measure inter-rater agreement between the responses of interns and their supervisors in the two study years. If the raters were in complete agreement then $\kappa = 1$ and if there were no effective agreement (other than would be expected by chance) then $\kappa \leq 0$ (Lowry, 2009). The highest kappa score reached in 2006 was for item 26: $\kappa = 0.3530$ (95% CI = 0.1071-0.5790). In 2007 the highest scores reached were $\kappa = 0.3995$ (95% CI = 0.1526-0.6464) and $\kappa = 0.5299$ (95% CI = 0.3253-0.7344) for items 22 and 25 respectively. Table 4.2 gives the agreement levels in 2006 and 2007.

Table 4.2 Levels of agreement between intern and supervisor responses in 2006 and 2007 using the weighted kappa coefficient

Weighted kappa score	2006	2007
<0	20 items	9 items
0.00 - 0.20	32 items	44 items
0.21 – 0.40	5 items	2 items
0.41 – 0.60	0 items	1 item
0.61 – 0.80	0 items	0 items
0.81 – 1.00	0 items	0 items
Too many missing responses for a reliable kappa score		1 item

These results show little agreement between interns and supervisors, suggesting that they were probably responding to the questionnaire items from different perspectives. The different constructs; "my potential as I see it" (interns) and "what I see x doing" (supervisors) did not correlate. It was therefore decided to analyse and present results from the different groups of respondents separately. Kappa coefficients were not possible between the scores of the interns or supervisors and the colleagues as the latter did not complete the full questionnaire but only those items appropriate to their experience.

4.3.2 Overall results by hospital level

The questionnaire scores for interns and supervisors were analysed in terms of the interns' preparedness to work in all three hospital levels. Colleagues' scores are not reported as they did not complete the full fifty seven item questionnaire. Table 4.3 and Figure 4.8 show the self-reported preparedness of interns to work in the different level hospitals in 2006 and 2007. The differences were significant for Level II and Level III hospitals but not for Level I. This might be as a result of the smaller sample sizes here.

Table 4.3: Results of the comparison of overall scores for interns in Level I, II and III hospitals in 2006 and 2007

INTERNS HOSPITALS LEVELS	LEVEL I District		LEVEL II Regional		LEVEL III National/Provincial	
	2006(%)	2007(%)	2006(%)	2007(%)	2006(%)	2007(%)
1&2=not well prepared	29 (7.3)	14 (4.9)	190 (9.4)	129 (5.9)	285 (15.3)	173 (9.6)
3=fairly well prepared	76 (19.2)	47 (16.6)	440 (21.9)	371 (16.9)	335 (18.0)	350 (19.4)
4=well prepared	131 (33.2)	113 (39.8)	679 (33.8)	765 (34.8)	633 (34.0)	699 (38.8)
5=fully prepared	159 (40.3)	110 (38.7)	703 (34.9)	931 (42.4)	608 (32.7)	580 (32.2)
Total: item responses	395 (100)	284 (100)	2012 (100)	2196 (100)	1861 (100)	1802 (100)
Significance (p)	p = 0.2322 (n/s)		**p = <0.0001 (sig)**		**P = <0.0001 (sig)**	

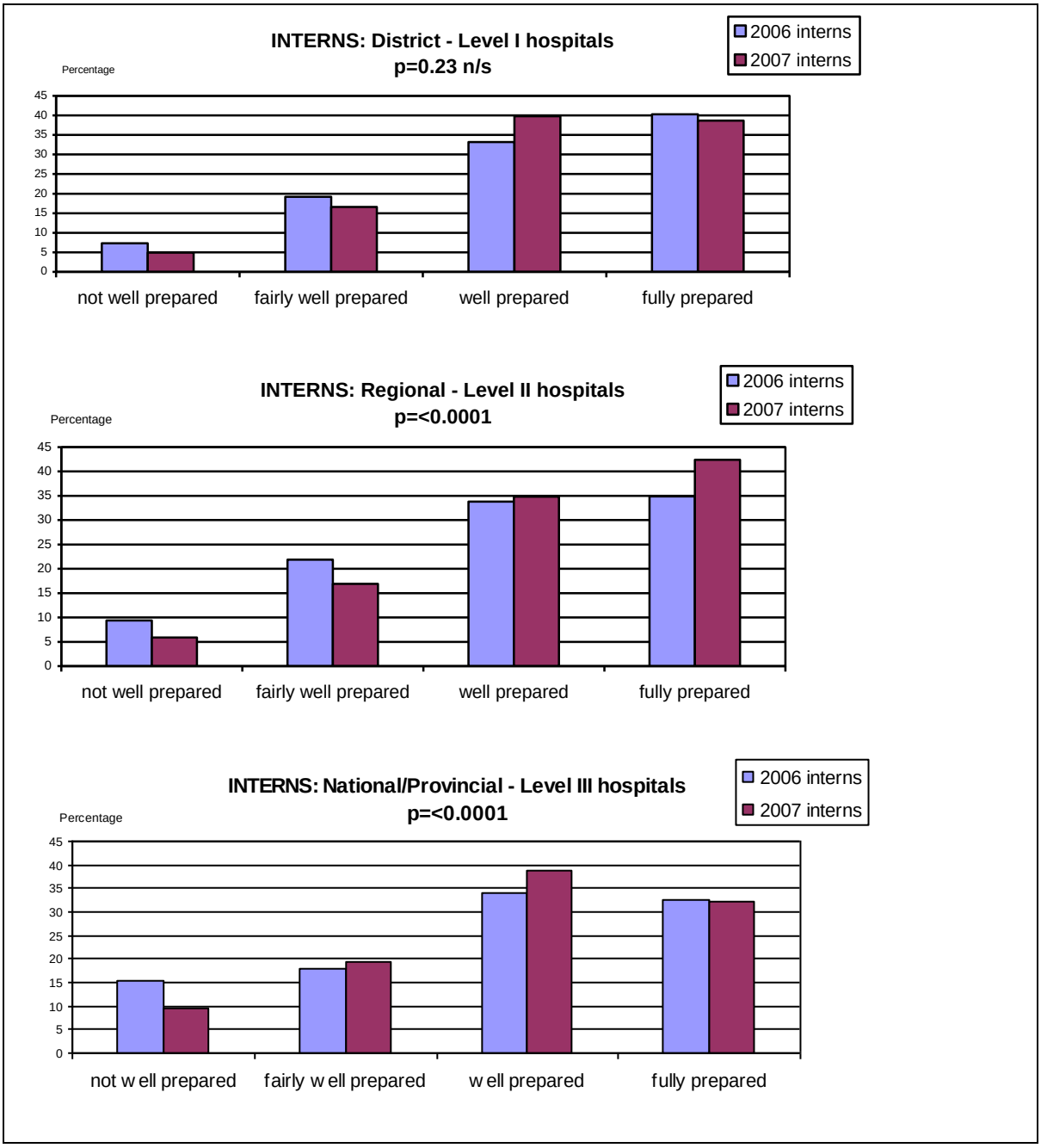

Figure 4.8: Overall intern responses in 2006 and 2007 in the three hospital levels, Level I (district), Level II (regional) and Level III (nat/prov)

The results for intern supervisors in the three hospital levels in 2006 and 2007 are given in Table 4.4 and Figure 4.9. The differences were significant for all three hospital levels.

Table 4.4 Overall supervisor ratings in the three hospital levels in 2006 and 2007

SUPERVISORS HOSPITALS LEVELS	LEVEL I		LEVEL II		LEVEL III	
	2006 (%)	2007(%)	2006 (%)	2007 (%)	2006 (%)	2007 (%)
1&2=not well prepared	27(7.5)	3(1.2)	124(6.7)	128(6.5)	78(4.7)	97(6.1)
3=fairly well prepared	65(18.0)	89(34.8)	403(21.9)	392(19.8)	342(20.5)	386(24.1)
4=well prepared	140(38.7)	105(41.0)	806(43.7)	807(40.8)	768(45.9)	660(41.2)
5=fully prepared	130(35.9)	59(23.1)	510(27.7)	652(33.0)	484(29.0)	458(28.6)
Total: item responses	362(100)	256(100)	1843(100)	1979(100)	1672(100)	1601(100)
Significance (p)	**p = <0.0001 (sig)**		**p = 0.0052 (sig)**		**p = 0.00071 (sig)**	

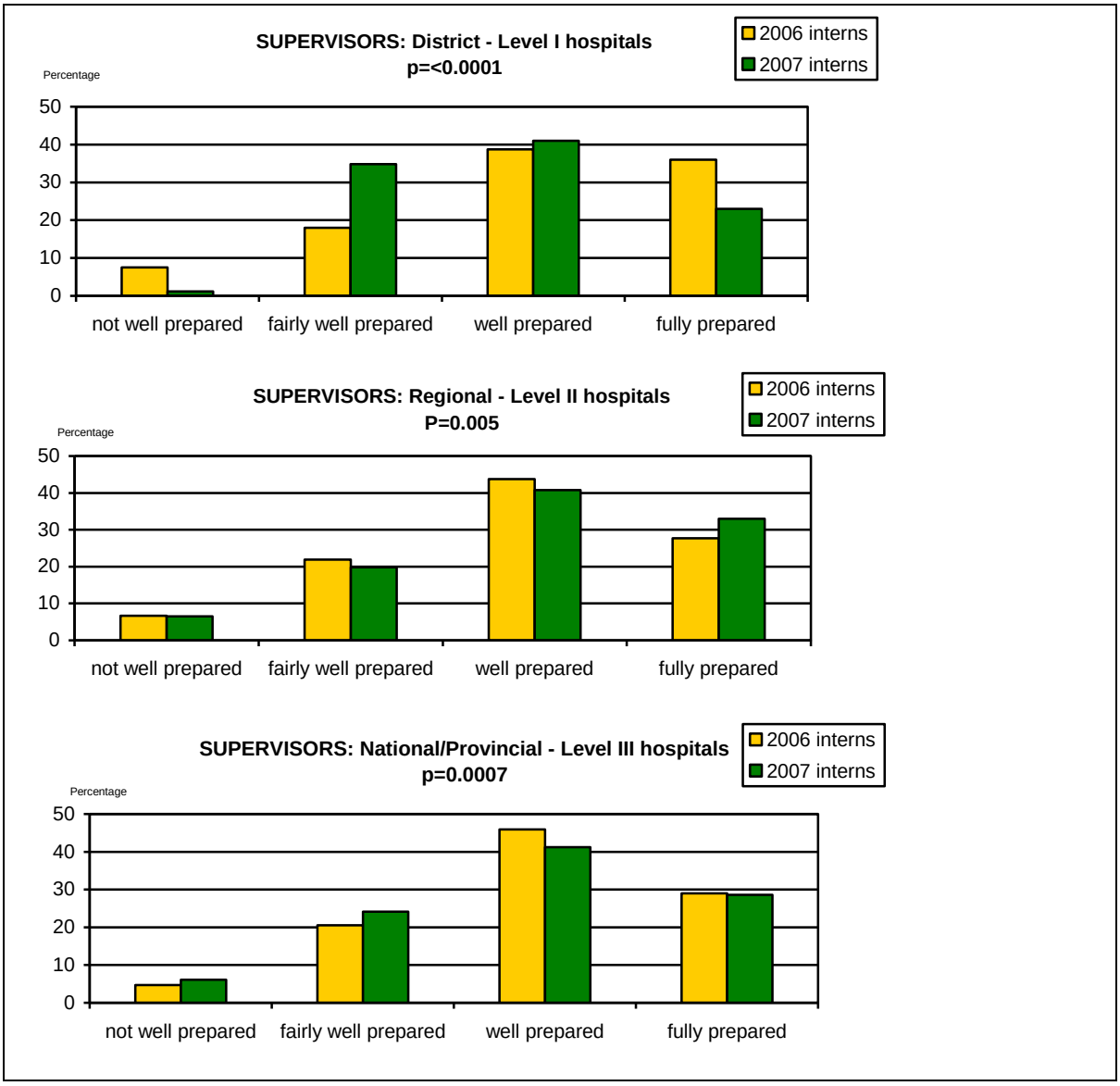

Figure 4.9: Comparison of supervisor ratings for interns working in the three hospital levels in 2006 and 2007

The supervisors' scores indicate that traditional interns were better prepared to work in Level I and III hospitals, while GEMP interns were better prepared for Level II hospitals.

4.3.3 Overall results by population group

Table 4.5 and Figure 4.10 show how the interns in the different populations groups responded to the fifty seven questionnaire items in 2006 and 2007.

Table 4.5: Comparison of overall responses from interns in the three population groups in 2006 and 2007

INTERNS' POPULATION GROUPS	WHITE		INDIAN		BLACK/COL	
	2006	2007	2006	2007	2006	2007
1&2=not well prepared	184(11.7)	100(5.7)	223(14.2)	137(9.0)	97(8.6)	79(7.8)
3=fairly well prepared	268(17.0)	314(18.0)	342(21.8)	308(20.2)	241(21.4)	146(14.5)
4=well prepared	538(34.1)	714(40.8)	534(34.1)	556(36.5)	371(33.0)	307(30.4)
5=fully prepared	587(37.2)	621(35.5)	467(29.8)	522(34.3)	416(37.0)	478(47.3)
Total: item responses	1577(100)	1749(100)	1566(100)	1523(100)	1125(100)	1010(100)
Significance (p)	**p = <0.0001**		**p = <0.0001**		**p = <0.0001**	

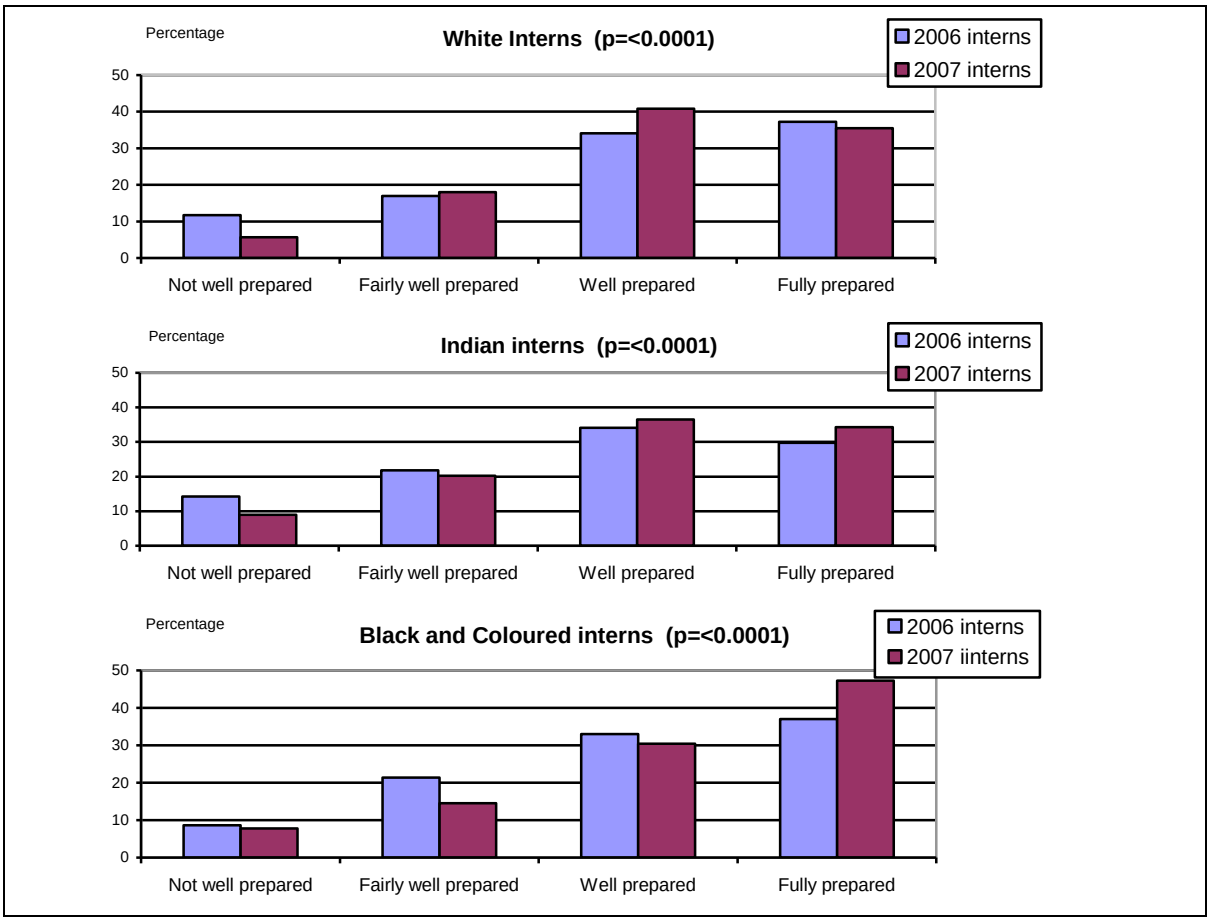

Figure 4.10: Overall responses to feeling competent for internship by interns from the three different population groups in 2006 and 2007

The differences between the two years are significant in all three population groups (**p=<0.0001** for each) with the GEMP interns rating fewer items "not well prepared" and

more items "well prepared" and/or "fully prepared". Table 4.6 and Figure 4.11 show the supervisors' ratings for interns of the three race groups.

Table 4.6: Comparison of overall responses from the supervisors of interns in the three population groups under their supervision in 2006 and 2007

SUPERVISORS OF :	WHITE INTERNS		INDIAN INTERNS		BLACK/COL INTERNS	
	2006(%)	2007(%)	2006(%)	2007(%)	2006(%)	2007(%)
1&2=not well prepared	70(4.9)	70(4.5)	68(4.7)	103(7.6)	91(9.2)	55(6.0)
3=fairly well prepared	307(21.3)	275(17.5)	259(17.9)	338(25.0)	244(24.7)	254(27.8)
4=well prepared	650(45.1)	635(40.5)	658(45.5)	566(41.8)	406(41.1)	371(40.6)
5=fully prepared	416(28.8)	590(37.6)	460(31.8)	346(25.6)	248(25.1)	233(25.5)
TOTAL: item responses	1443(100)	1570(100)	1445(100)	1353(100)	989(100)	913(100)
Significance (p)	**p = <0.0001**		**p = <0.0001**		**p = 0.0441**	

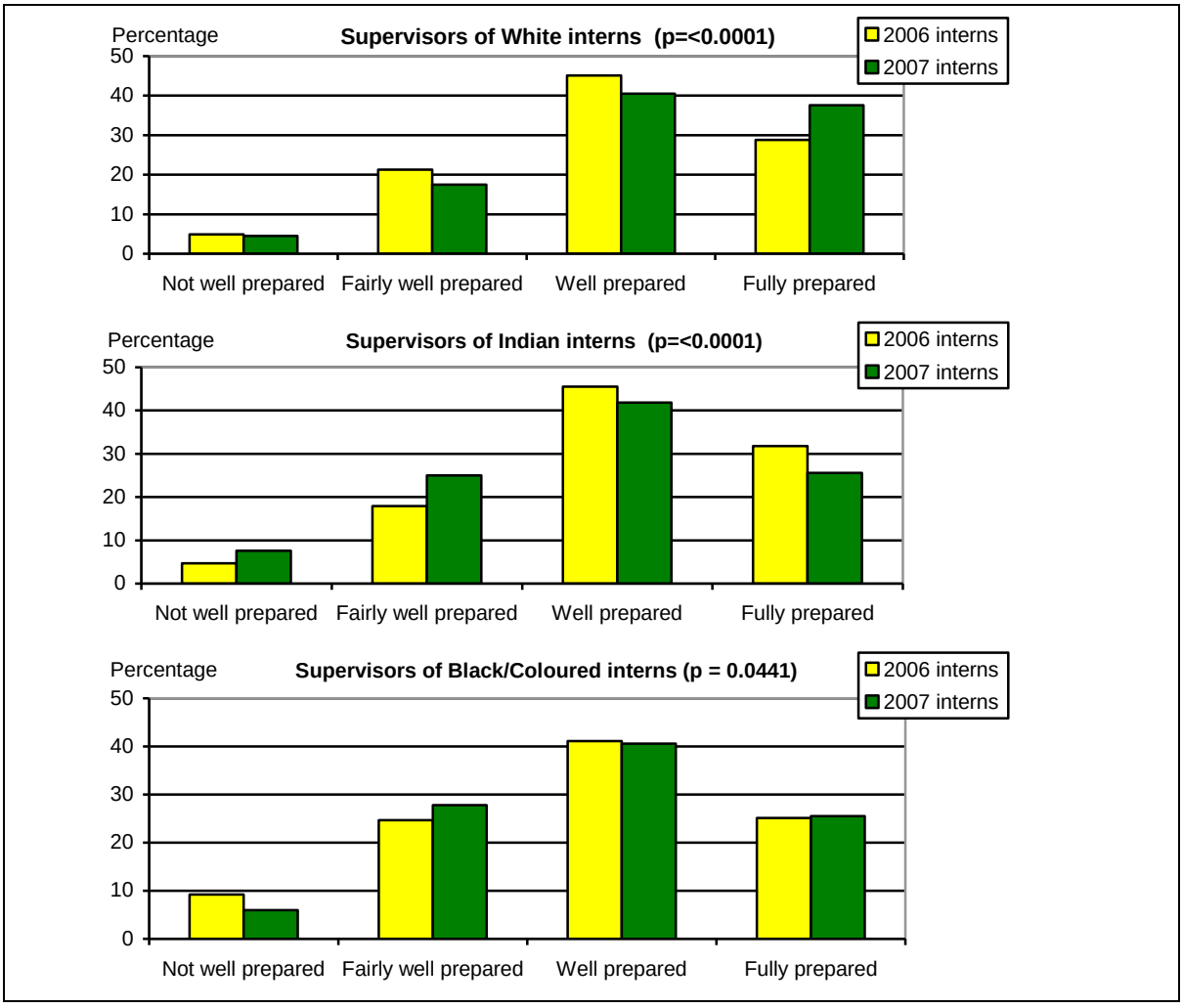

Figure 4.11: Overall responses of the supervisors of interns from the three population groups under their supervision in 2006 and 2007

Supervisors' scores for all three population groups showed significant differences. The GEMP interns scored better in the white group but the traditional curriculum interns scored better in the Indian group. In the case of the Black and Coloured group there were fewer GEMP interns rated "not well prepared" with little difference in the higher categories.

4.3.4 Results for the nine categories of the intern model

Table 4.7 reports the differences between the scores given by the interns, supervisors and, where appropriate, colleagues in 2006 and 2007 for each of the nine categories identified in the model. Statistically significant differences are shown in bold typeface and where there is no significant difference this is indicated by "n/s". The colleagues only responded to categories 3, 5, 6, 7 and 9.

Table 4.7 The nine categories identified in the Model of the Competent South African Intern showing significant differences (bold) between interns', supervisors' and colleagues' responses in 2006 (traditional) and 2007 (GEMP)

		Cochran-Mantel-Haenszel Statistics for ordinal data		
No.	**CATEGORY NAME**	**Interns** 2006 vs 2007	**Supervisors** 2006 vs 2007	**Colleagues** 2006 vs 2007
1	Fundamental (theoretical) knowledge	**p=0.01 *Trad>GEMP**	p=0.47 n/s	
2	Medical problem solving/ clinical judgement/ overall competence	**p=0.009 GEMP >Trad**	p=0.32 n/s	
3a	Holistic patient management and skills (3b: specific procedures not included)	**p=0.0005 GEMP >Trad**	p=0.91 n/s	p=0.71 n/s
4	Community health	**p=0.0002 GEMP >Trad**	p=0.26 n/s	
5	Professional values and attitudes/ Ethics	p=0.37 n/s	p=0.14 n/s	p=0.16 n/s
6	Effective communication skills	**p=0.02 GEMP >Trad**	p=0.27 n/s	p=0.76 n/s
7	Working with others in a team	p=0.33 n/s	**p=0.0453 GEMP >Trad**	p=0.55 n/s
8	Self-directed learning	**p<0.0001 GEMP >Trad**	p=0.19 n/s	
9	Confidence and personal attributes (intangible personal resources)	p=0.34 n/s	**p=0.0446 *Inconclusive**	p=0.52 n/s

* The direction of the difference was difficult to determine:
Category 1 (interns) scored one item strongly opposite to the trend.
Category 9 (supervisors) - direction of difference unclear. See section 4.3.5 for details.

There were significant differences between the responses of the 2006 and 2007 interns in six of the nine categories while the supervisors reported significant differences in two

categories. There were no significant differences between the responses of colleagues (nurses or intern peers) in any of the categories.

4.3.5 Results for each of the nine categories of the model and those items showing statistically significant differences between 2006 and 2007

The amount of data collected from the questionnaires and interviews was so great that it was decided to report only the following results as described below:

A: Data which support Objective 3:

- For each category a table of overall scores and bar charts are given for interns, supervisors and, where applicable, also colleagues
- For each category a table is then given showing which individual items had significant differences between the two study years
- Thereafter, for categories with significant items (Categories 1, 3, 4, 6, 7, and 8) the detailed results of each item showing a significant difference are treated thus:

  - Quantitative data are presented in table and graph form comparing 2006 and 2007 results on intern competence for these significant items only.

  - Qualitative data are given to amplify understanding of the scores and the differences between the groups. Vertical analyses are presented as counts in tables, complemented by illustrative quotes from intern, supervisor and colleagues.

B: Data which support Objective 4

Qualitative data are presented that relate the item responses to the curriculum experienced. Vertical analysis counts and selected illustrative quotations are given.

Special cases

- Categories 2 and 9 showed significant overall category scores for interns and supervisors respectively but no individual items reached significance. Here a composite table of non-significant item scores and qualitative data are presented.
- Category 5 showed no significance category or item differences. A summary table of non-significant scores and qualitative themes are presented.
- Patient data are treated separately. The reasons are explained in section 4.3.6.

Table 4.8 provides a summary of significant results for all categories and items for easy reference. It also includes original item numbers used in the questionnaires (Appendix B).

Table 4.8 Summary of results of the intern, supervisor and colleague responses to questionnaire items by category and by individual item

Cat No	Questionnaire number and item description (Item numbers on the actual questionnaires are included for reference)	Cochrane Mantel Haenszel (Mod Ridit) scores		
		Interns 2006 vs 2007	**Supervisors 2006 vs 2007**	**Colleagues 2006 vs 2007**
1	**Fundamental (theoretical) knowledge**	χ^2_{MH}= 10.85 **p = 0.0126**	χ^2_{MH} = 2.51 p=0.47 n/s	Not applicable
1.1	Item 1: remember and apply the basic sciences to understand your patients' illness and when discussing cases	n/s	n/s	na
1.2	Item 2: know sufficient Anatomical Pathology, Pathophysiology and Microbiology to understand the disease processes you encountered	**p = 0.01 2006>2007**	n/s	na
1.3	Item 3: know enough Pharmacology (therapeutics, pharmacokinetics and pharmacodynamics) to safely prescribe routine medicines	**p <0.0001 2006>2007**	n/s	na
1.4	Item 4: apply theory of interpersonal and communication skills to all doctor/patient and doctor/colleague relationships	**P <0.000001 (Fisher) 2007>2006**	n/s	na
2	**Medical problem solving and clinical judgement**	χ^2_{MH} = 11.51 **p=0.0093**	χ^2_{MH} = 3.51 p=0.32 n/s	Not applicable
2.1	Item 5: take good histories from patients and/or family members/minders	n/s	n/s	na
2.2	Item 6: focus your history without losing important information	n/s	n/s	na
2.3	Item 7: perform a thorough physical examination on adult patients	n/s	n/s	na
2.4	Item 8: perform a thorough physical examination on children	n/s	n/s	na
2.5	Item 9: elicit and interpret physical signs	n/s	n/s	na
2.6	Item 10: request appropriate special investigations (tests, x-rays, etc) for particular conditions	n/s	n/s	na
2.7	Item 11: request only tests that are really necessary, in order to save on costs	n/s	n/s	na
2.8	Item 12: write good, complete patient notes which other members of the health care team can also use in planning their patient care	n/s	n/s	na
2.9	Item 13: analyse and interpret patient data from various sources so as to identify problems, develop and test hypotheses and come up with reasonable differential diagnoses	n/s	n/s	na
2.10	Item 14: make decisions regarding the initial management of patients under your care	n/s	n/s	na

Cat No	Questionnaire number and item description (Item numbers on the actual questionnaires are included for reference)	Cochrane Mantel Haenszel (Mod Ridit) scores		
		Interns 2006 vs 2007	**Supervisors 2006 vs 2007**	**Colleagues 2006 vs 2007**
3a	**Holistic patient management**	χ^2_{MH}= 18.41 **p=0.0004**	χ^2_{MH} = 4.99 p=0.17 n/s	χ^2_{MH} = 2.53 p=0.28 n/s
3.4	Item 18: perform basic clinical procedures safely	**p=0.04 (Fisher) 2007>2006**	n/s	n/s
3.14	Item 28: respond effectively in an emergency	n/s	n/s	n/s
3.16	Item 30: formulate an orderly patient care plan from admission to discharge (including investigation, observations, therapy, medications, counselling)	n/s	n/s	n/s
3.17	Item 31: involve the patient and his/her family in planning care	**p = 0.01 2007>2006**	n/s	n/s
3.18	Item 32: manage chronic conditions and follow your patients' progress in outpatient clinics	n/s	n/s	n/s
3.19	Item 33: identify lifestyle risk factors and educate your patients to change their behaviour so as to promote health and prevent disease	n/s	n/s	n/s
3b	**Individual procedural skills (not included in Cat 3a analysis)**	**-**	**-**	**-**
3.1	Item 15: assist competently with surgery in the operating theatre	n/s	n/s	n/s
3.2	Item 16: perform an endotracheal intubation	n/s	**p=0.009 (Fisher)** 61% data missing **2006>2007**	n/s
3.3	Item 17: perform minor surgical procedures (eg. biopsy) on your own	n/s	n/s	n/s
3.5	Item 19: perform a venepuncture for taking blood samples	n/s	n/s	n/s
3.6	Item 20: insert a nasogastric tube	n/s	n/s	n/s
3.7	Item 21: put up a drip (IV cannulation)	**p=0.03 (Fisher) 2007>2006**	n/s	n/s
3.8	Item 22: insert an indwelling urinary catheter in a male or female patient	n/s	n/s	n/s
3.9	Item 23: take an ECG recording	n/s	n/s	n/s
3.10	Item 24: initiate basic life support (CPR)	**p = 0.01 2007>2006**	n/s	n/s
3.11	Item 25: take an accurate blood pressure measurement	n/s	n/s	n/s
3.12	Item 26: put in a central venous line	n/s	n/s	n/s
3.13	Item 27: Perform a lumbar puncture	n/s	n/s	n/s
3.15	Item 29: prioritise the patients needing care first (triage)	n/s	n/s	n/s

Cat No	Questionnaire number and item description (Item numbers on the actual questionnaires are included for reference)	Cochrane Mantel Haenszel (Mod Ridit) scores		
		Interns 2006 vs 2007	**Supervisors 2006 vs 2007**	**Colleagues 2006 vs 2007**
4	**Community health**	$\chi^2_{MH} = 19.68$ **p=0.0002**	$\chi^2_{MH} = 4.04$ p=0.26 n/s	Not applicable
4.1	Item 34: work with ambulatory patients in clinics and outpatient departments	**p = 0.05 2007>2006**	n/s	na
4.2	Item 35: provide the best possible care for your patients within the delivery constraints of the SA health care system	n/s	n/s	na
4.3	Item 36: take into account the patients' home circumstances when planning for discharge and aftercare	**p = 0.003 2007>2006**	n/s	na
4.4	Item 37: incorporate knowledge of SA communities and cultures in caring for your patients	**p = 0.01 2007>2006**	n/s	na
5	**Professional values and attitudes/ Ethics**	$\chi^2_{MH} = 3.14$ p=0.37 n/s	$\chi^2_{MH} = 5.52$ p=0.14 n/s	$\chi^2_{MH} = 3.71$ p=0.16 n/s
5.1	Item 38: incorporate ethical principles (beneficence, non-maleficence, autonomy and justice) into your patient care	n/s	n/s	n/s
5.2	Item 39: deal respectfully with patients and colleagues of all races, cultures, abilities and socioeconomic levels	n/s	n/s	n/s
5.3	Item 40: know your patients' rights and assist them to stand up for their rights	n/s	n/s	n/s
5.4	Item 41: know about medico-legal risks and working within the law	n/s	n/s	n/s
6	**Effective communication skills**	$\chi^2_{MH} = 10.08$ **p=0.018**	$\chi^2_{MH} = 3.90$ p=0.27 n/s	$\chi^2_{MH} = 0.55$ p=0.76 n/s
6.1	Item 42: ask appropriate questions in a manner which allows the patient time to give full answers	n/s	n/s	n/s
6.2	Item 43: support or counsel a dying patient and his/her relatives	**p = 0.002 2007>2006**	n/s	n/s
6.3	Item 44: adapt your communication style appropriately when talking to colleagues, or to patients and family members of diverse cultures and educational or socioeconomic backgrounds	n/s	n/s	n/s
6.4	Item 45: present patient cases to seniors and colleagues during ward rounds and teaching sessions	n/s	n/s	n/s

Cat No	Questionnaire number and item description (Item numbers on the actual questionnaires are included for reference)	Cochrane Mantel Haenszel (Mod Ridit) scores		
		Interns 2006 vs 2007	**Supervisors 2006 vs 2007**	**Colleagues 2006 vs 2007**
7	**Working with others in a team**	$\chi^2_{MH} = 3.42$ p=0.33 n/s	$\chi^2_{MH} = 8.04$ **p=0.0453**	$\chi^2_{MH} = 1.19$ p=0.55 n/s
7.1	Item 46: develop good professional relationships with others in the health care team (nursing staff, colleagues, therapists, administrators)	n/s	n/s	**p = 0.0407 (Fisher) 2007>2006**
7.2	Item 47: carry your full share of the routine work load without burdening others with things you should have done	n/s	n/s	n/s
7.3	Item 48: accept constructive feedback positively in order to learn from your mistakes and improve your clinical skills	n/s	n/s	n/s
7.4	Item 49: know the roles and skills of other health professionals so that you can enlist their help or refer patients to them where appropriate	n/s	n/s	n/s
8	**Self-directed learning**	$\chi^2_{MH} = 38.50$ **p<0.0001**	$\chi^2_{MH} = 4.84$ p=0.19 n/s	na
8.1	Item 50: find up-to-date information to improve your knowledge about the conditions with which your patients present	**p <0.0001 2007>2006**	n/s	na
8.2	Item 51: recognise when your knowledge is not sufficient to proceed safely	n/s	n/s	na
8.3	Item 52: ask the right person for help when you don't know something	n/s	n/s	na
8.4	Item 53: use research articles and evidence based medicine (e.g. Cochrane) searches to reflect on, or make sense of, complex patient management problems	**p <0.0001 2007>2006**	n/s	na
9	**Confidence and personal attributes (intangible personal resources)**	$\chi^2_{MH} = 3.36$ p=0.34 n/s	$\chi^2_{MH} = 8.07$ **p=0.0446**	$\chi^2_{MH} = 1.32$ p=0.52 n/s
9.1	Item 54: take responsibility and be accountable for your part in your patients' care	n/s	n/s	n/s
9.2	Item 55: cope with the long hours and demands of internship	n/s	n/s	n/s
9.3	Item 56: manage your time so as to maintain a balance between work demands and personal life	n/s	n/s	n/s
9.4	Item 57: cope with the uncertainty that doctors sometimes feel (ie. having to start management of patients' conditions without always knowing the final diagnosis)	n/s	n/s	n/s

4.3.5.1 Category 1: Fundamental (theoretical) knowledge

A Comparison of competence (Objective 3)

This category sought to determine whether undergraduate theoretical preparation in the basic, medical and human sciences was sufficient for graduates to apply this knowledge and gain an understanding of the diseases and disease processes encountered during internship. It included knowledge of the basic and medical sciences as well as theories of communication and interpersonal relationships including the patients' individual and cultural responses to disease.

Table 4.9 Category 1: Overall scores for Fundamental (theoretical) knowledge

	2006		2007	
CATEGORY 1	Intern (%)	Supervisor (%)	Intern (%)	Supervisor (%)
1&2=not well prepared	57 (18.8)	19 (6.3)	36 (12.0)	18 (6.0)
3=fairly well prepared	81 (26.7)	86 (28.3)	102 (33.9)	92 (30.7)
4=well prepared	103 (34.0)	140 (46.1)	118 (39.2)	146 (48.7)
5=fully prepared	62 (20.5)	59 (19.4)	45 (15.0)	44 (14.7)
TOTAL item responses	303 (100)	304 (100)	301 (100)	300 (100)

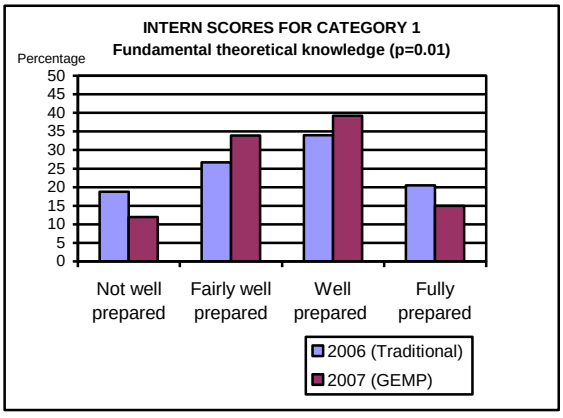

Figure 4.12 Comparison between intern responses for Category 1: Fundamental theoretical knowledge in 2006 and 2007 (Significant difference **p=0.01**)

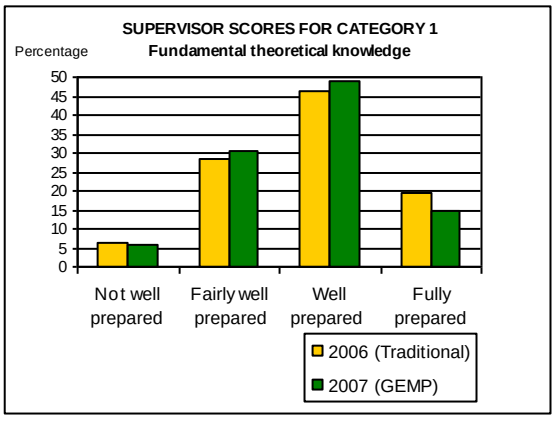

Figure 4.13 Comparison between supervisor responses for Category 1: Fundamental theoretical knowledge in 2006 and 2007 (p=0.47, not significant)

Table 4.9 and Figures 4.12 and 4.13 show that the interns reported a significant difference (**p=0.01**) between the years for the overall category regarding theoretical preparedness for internship (Objective 3). The "overall" direction of this difference is difficult to determine conclusively from Figure 4.12 but may be explained by examining Table 4.10. There was no significant difference between the responses of the supervisors in 2006 and 2007.

Table 4.10 Results for all items in Category 1 of the intern model: Fundamental (Theoretical) Knowledge

		Cochran-Mantel-Haenszel Statistics for ordinal data (or Fisher's Exact Test)	
		Interns 2006 vs 2007	**Supervisors 2006 vs 2007**
Category 1: Fundamental (theoretical) knowledge (overall) **How prepared was this intern to:**		$\chi^2_{MH} = 10.85$ **p=0.01**	$\chi^2_{MH} = 2.51$ p=0.47 n/s
1.1	remember and apply the basic sciences to understand your patients' illness and when discussing cases	n/s	n/s
1.2	know sufficient Anatomical Pathology, Pathophysiology and Microbiology to understand the disease processes you encountered	**p = 0.01** **2006>2007**	n/s
1.3	know enough Pharmacology (therapeutics, pharmacokinetics and pharmacodynamics) to safely prescribe routine medicines	**p <0.0001** **2006>2007**	n/s
1.4	apply theory of interpersonal and communication skills to all doctor/patient and doctor/colleague relationships	**p <0.000001 (Fisher)** **2007>2006**	n/s

Table 4.10 gives the scores for each of the four items comprising category 1. There was no significant difference between the intern scores regarding their preparedness in the basic sciences such as Chemistry, Physics, Biology, Anatomy and Physiology. However, the 2006 interns from the traditional MBBCh curriculum reported being significantly better prepared in the medical sciences such as Anatomical Pathology, Pathophysiology and Microbiology (item 1.2) and Pharmacology (item 1.3) than did the GEMP interns. This was reversed for the theoretical basis of the human sciences (item 1.4). Here the scores given by the GEMP interns showed that they were highly significantly better prepared than the traditional interns.

The quantitative results for each of the three significant items are presented in tables and graphically. These are followed by a thematic analysis, including selected quotations from comments made during the post questionnaire interviews with the interns. Where appropriate, comments from supervisors and colleagues are also included.

4.3.5.1.1 Anatomical Pathology, Pathophysiology and Microbiology

A Comparison of competence (Objective 3)

Table 4.11 Item 1.2: Comparison between interns and supervisors in 2006 and 2007 regarding theoretical knowledge of Anatomical Pathology, Pathophysiology and Microbiology.

	2006		2007	
Item 1.2	Intern (%) n=75	Supervisor (%) n=76	Intern (%) n=76	Supervisor (%) n=74
1&2=not well prepared	3 (4.0)	7 (9.21)	18 (23.7)	4 (5.4)
3=fairly well prepared	33 (44.0)	23 (30.3)	27 (35.5)	31 (41.9)
4=well prepared	30 (40.0)	38 (50.0)	28 (36.8)	33 (44.6)
5=fully prepared	9 (12.0)	8 (10.5)	3 (4.0)	6 (8.1)

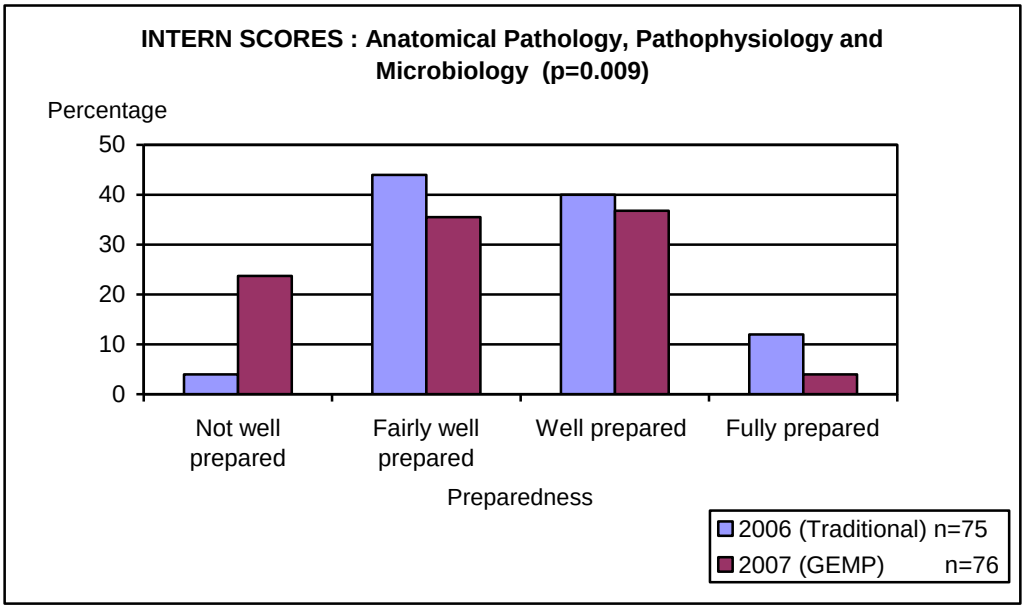

Figure 4.14 Intern responses regarding how well the curricula in 2006 and 2007 had prepared graduates in the medical sciences (Microbiology, Anatomical Pathology and Pathophysiology) (item 1.2) (**p=0.009**)

Table 4.11 and Figure 4.14 show a significant difference between 2006 and 2007 scores for the interns regarding their knowledge of medical sciences (MH Chi square (Mod Ridit) DF 1, Value 6.8136, p = **0.009**). The GEMP interns in 2007 clearly felt less prepared than the 2006 interns from the traditional curriculum. Many more of the 2007 interns responded with a one or two ("not well prepared") in 2007 and less that five percent recorded a five ("fully prepared"). However, there was no significant difference between the scores given by the supervisors in the two years.

The qualitative comments from interns and supervisors which indicated comparisons of competence during internship (research Objective 3) were counted and are presented in Table 4.12a to record the similarities and differences between the years regarding the basic medical sciences of Anatomical Pathology, Pathophysiology and Microbiology.

Table 4.12a Themes and patterns identified by interns and supervisors in 2006 and 2007 comparing competence in the basic medical sciences

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> Interns 2006: Solid grounding allows one to tie up points to work out a problem 2007: None - all related to the curriculum Supervisors 2006: Good knowledge of basic sciences 2007: No comments	1	1	0	0
<u>Negative:</u> Interns: 2006 So far back, forgotten much Supervisors 2006: Does not remember or apply, basic concepts not good 2007: Microbiology a problem, can't apply	1	3	2	0

There were more negative comments from the supervisors in 2006 than in 2007 regarding the knowledge base of interns. One intern and three supervisors mentioned that there was some difficulty applying basic concepts to practice. One supervisor in 2006 said:

"He uses words but does not conceptualise the meaning and he hasn't got a solid integrated way of handling things. He uses pattern recognition and relies heavily on what has gone before. He struggles if there are no previous notes for patients and he also struggles to formulate from basic principles – Physiology is poorly linked to the Pathophysiology of disease".

None of the interns in 2007 commented directly on how competent they felt as interns but there were many comments relating to their curriculum which are discussed in the next section. The supervisors in 2007 only commented negatively on the application of knowledge and on a problem with Microbiology.

During the colleague interviews, one intern peer in 2007 made an unsolicited comment about the lack of basic Microbiology knowledge of the sampled GEMP graduate with whom he was working:

"Microbiology was a problem for this intern. A patient had had a lumbar puncture but the final result was not available. Given the result: Gram –ve diplococci, the intern didn't know the two most likely organisms. At UCT the 3rd years did a full year course of micro, but it was not dealt with again after this. However I felt that I had better knowledge than this intern".

B Competence related to the curriculum experienced (Objective 4)

Interns from the traditional curriculum in 2006 did not comment in detail on specific aspects of the basic medical sciences as related to their curriculum. One intern mentioned Haematology and Anatomy as being good but did not explain why this was so. The GEMP interns, however, made very specific comments about problems encountered with Microbiology and Pathology. The comments were counted and included in Table 4.12b, followed by selected quotations that explain the interns' views. Any unique issues or ideas raised were also considered important and presented as direct quotations.

Table 4.12b Themes identified by interns and supervisors in 2006 and 2007 which relate preparedness in the basic medical sciences to the curriculum experienced.

Themes	Frequency 2006		Frequency 2007	
B : Comments on competence related to the curriculum (Objective 4)	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> Interns 2006: Solid grounding in Microbiology, Pathology, Physiology, Haematology and Anatomy 2007: Excellent teaching, Pathophysiology and Anatomical Pathology came across well Supervisors 2006: Good knowledge and can apply it 2007: Knowledge there	4	1	2	0
<u>Negative</u> Interns 2006: Very general comments about lack of reinforcement and time elapsed since learning 2007: Insufficient content and difficulty in learning specific basic medical sciences in integrated curriculum. Supervisors – no comments on curriculum	4	0	25	0

The interns in 2006 were very satisfied with the teaching that they had received and found that the background information and solid grounding were accessible to them during their internship and helpful in problem solving.

> *"Generally the basic sciences, Path, Micro, Physiology, were taught so well that one can tie up points to work out a problem".*

This was backed up by one supervisor in 2006 who said that the intern had:

> *Good knowledge of basic sciences and can apply this".*

On the negative side they felt that the teaching was so far back and was not reinforced in the clinical years, so that much was forgotten, although it did eventually come back.

"At first, after exam hype, I felt as though much had been forgotten, very daunting, but knowledge came back gradually".

Although one supervisor in 2006expressed satisfaction, there were three who said that certain interns did not remember the basic concepts nor conceptualise the meaning of the words that they used.

"Doesn't remember or apply anything"

"All interns have good knowledge of clinical work but basic concepts not good"

"Uses words but does not conceptualise meaning. Hasn't got a solid integrated way of handling things – pattern recognition - relies heavily on what has gone before – struggles if no previous notes for patients – struggles to formulate from basic principles - physiology poorly linked to pathophysiology of disease".

Many of the interns in 2007 admitted to feeling very unsure of their knowledge. This was especially evident in the comments relating to subjects Microbiology and Anatomical Pathology in their undergraduate curriculum. Twenty five interns commented at interview that there were many gaps in their knowledge and that the focus of these subjects was lost in the integrated curriculum. A breakdown in the count of comments indicated the level of the problem in the different medical sciences; (Microbiology (16), Anatomical Pathology (6), Pathophysiology (2) and Chemical Pathology (1).

A number of comments referred to PCMS. This was the introductory block called Preliminary Concepts in Medical Science which aimed at giving an introduction to the fields of medical science, a firm grounding in each disciple and an introduction to the terminology (see Table 1.1 for details). The block was not examined in the first year of the GEMP although examinations have since been introduced.

The 2007 interns commented on the teaching and learning in the basic medical sciences as follows.

> *"Microbiology was a problem – it never sank in. It was done in PCMS – a lot of info was lost by the time we were seeing patients. There were many gaps and one had to teach oneself"*

> *"There was a lack of content. Microbiology was very lacking – it needs to be reinforced. It was not carried through to GEMP 3 and 4. Pathophysiology was better than micro but still lacking"*

> *"Integration of basic sciences was difficult. Everything was broken into blocks, isolated, fragmented, not integrated. Micro did not make much sense at the time it was done – most in PCMS – isolated from rest of curriculum"*

> *"In initial PCMS there was not much focus on Path and Micro. There was no formal teaching of Pathophysiology. It was incorporated into the blocks and focus was lost"*

> *"Anatomical Pathology was not covered adequately at all. Chemical Pathology was not focused on enough".*

Eleven interns spoke about the lack of emphasis given to these subjects in the GEMP system of integrated examinations.

> *"Path is heavy but you could get away with leaving a lot out – so I didn't learn it properly"* .

Two interns showed some personal insight, admitting that:

> *"Microbiology was really bad – maybe I didn't do enough on my own, but may be also the curriculum"* and *"Maybe I didn't do enough on my own"*.

4.3.5.1.2 Pharmacology

A Comparison of competence (Objective 3)

Table 4.13 and Figure 4.15 give the results of Item 1.3 which looked at the interns' competence in using the Pharmacology learnt in the undergraduate years in the care and management of their patients during internship. Pharmacology was treated separately from the other basic medical sciences as it was identified in the model as an area of importance.

Table 4.13 Item 1.3: Know enough Pharmacology (therapeutics, pharmacokinetics and pharmacodynamics) to safely prescribe routine medicines

	2006		2007	
Item 1.3	Intern (%) n=76	Supervisor (%) n=76	Intern (%) n=76	Supervisor (%) n=76
1&2=not well prepared	18 (23.7)	2 (2.6)	37 (48.7)	8 (10.7)
3=fairly well prepared	24 (31.6)	38 (50.0)	29 (38.2)	29 (38.7)
4=well prepared	27 (35.5)	31 (40.8)	7 (9.2)	35 (46.7)
5=fully prepared	7 (9.2)	5 (6.6)	3 (4.0)	3 (4.0)

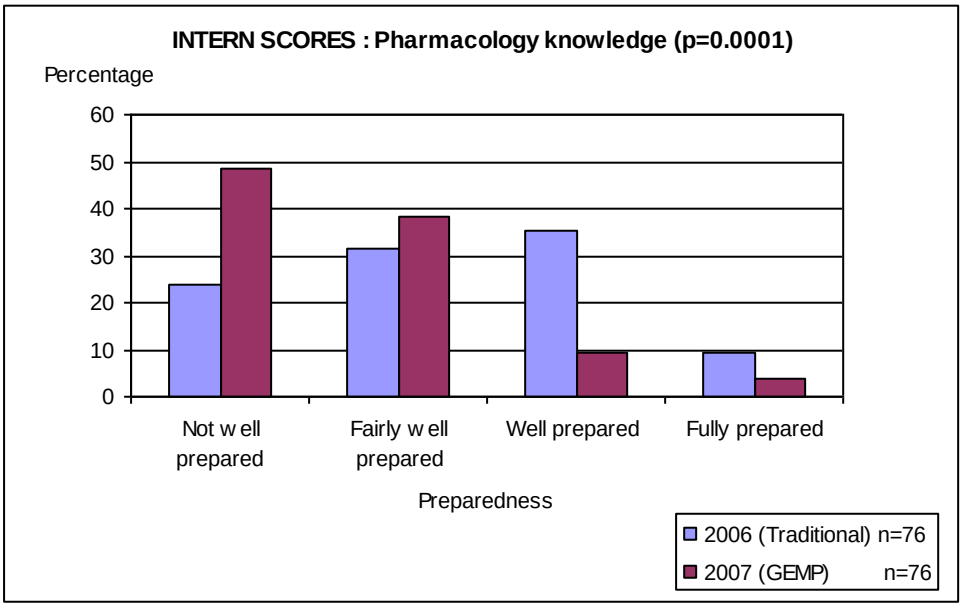

Figure 4.15 Intern responses regarding how well the curricula in 2006 and 2007 had prepared graduates in Pharmacology (therapeutics, pharmacokinetics and pharmacodynamics) (item 1.3) (**p=0.0001**)

Although less than ten percent of the interns in each year felt fully prepared in Pharmacology, the GEMP interns in 2007 considered themselves highly significantly less well prepared than did the 2006 interns from the traditional curriculum (**p = 0.0001**). There was no significant difference between the scores given by the supervisors in the two years.

The qualitative data given in Table 4.14a and the comments quoted show how initially unprepared both groups of interns felt at the start of their internship. The supervisors' comments were generally more critical of the GEMP interns concerning their lack of Pharmacology knowledge. There were ten comments in 2007 compared to only two in 2006. Two supervisors expressed satisfaction with GEMP Pharmacology while none did so in 2006.

Table 4.14a Themes identified by interns and supervisors in 2006 and 2007 regarding interns' preparedness in Pharmacology

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: Satisfaction with Pharmacology knowledge and its application during internship 2006 and 2007: No positive comments about competence in Pharmacology during internship.	0	0	0	0
Negative: Weakness in Pharmacology competence during internship Interns 2006: - Pharmacology bad have to consult - don't feel knowledgeable 2007: - deficient in knowledge, - have to refer to books - not sure of actions and side effects - poor knowledge of antibiotics - no general approach to treating organisms Supervisors 2006: -Weakness in prescribing - deficient in this area 2007: Has knowledge but can't apply it, not familiar with drugs and dosages, Pharmacology aspect lacking, query as to sufficient basic knowledge	2	2		8

There were no positive comments about competence in Pharmacology from either the interns or their supervisors in 2006 or 2007. In 2006 the interns made only two comments on their perceived lack of Pharmacology knowledge:

> *"Pharmacology is bad – I have to consult before writing up medications and need help with prescribing"*

> *"Prescribing – I still need to consult someone as to the appropriate medication and dosage. I don't feel knowledgeable about indications/contraindications".*

There were also two supervisor comments that were critical of the interns' competence in Pharmacology in 2006.

> *"Prescribing medications, doses, etc is a general weakness (writing scripts). They usually observe first and only make decisions later"*

> *"Deficient in this area".*

Nursing colleagues were also aware of the difficulties that many new interns experienced with prescribing, regardless of their training school. One nurse colleague in 2006 commented:

> *"This was general for most of the interns (not necessarily only Wits). They don't know drugs well and struggle to prescribe accurately. Sometimes they confuse oral and intravenous drugs or are unsure of dosages".*

The interns in 2007 made eight comments about their perceived lack of knowledge of Pharmacology that were similar to those of the traditional interns.

> *"Pharmacology – doses – I always have to refer to the book. I'm not sure about drug actions and side effects*

"I never knew which antibiotics covered what – you slowly learn. Pharmacology was a problem specifically with regard to antibiotics"

"I didn't know doses and was not competent enough. I always had to check with others and look up in a book".

Although the supervisors did not record significant differences in their quantitative responses, there was more criticism of the 2007 interns during the interviews regarding Pharmacology.

"Pharmacology is bad – poor understanding of doses, poor knowledge of drugs and what they do"

"More knowledge needed about drugs - doses, indications, contraindications, side effects and particular medication"

"Not familiar with drug dosages – but they do get to know as they go along. Not sure what is the right drug for the right job. Knowledge of antibiotics is weak – they need antibiotics guidelines".

Although the theoretical preparation of undergraduate students in the medical sciences was not one of the items in the questionnaire for colleagues, the topic was raised spontaneously by intern peers in 2007. One intern peer from another medical school commented:

"*Pharmacology is lacking – this intern needed assistance in the dosages. We were in the wards from 4th year and managed patients from 5th year"*

B Competence related to the curriculum experienced (Objective 4)

Table 4.14b presents the themes that arose in the comments around Pharmacology teaching and linked these to specific aspects of the particular undergraduate curriculum followed. The supervisors did not comment on the undergraduate teaching of Pharmacology in either year.

Table 4.14b Themes identified by interns and supervisors in 2006 and 2007 linking Pharmacology competence to specific aspects of the curriculum experienced

Themes B : Comments on competence related to the curriculum (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> 2006: - Pharm well done, - Made aware of drug interaction	2	0	0	0
<u>Negative</u> 2006: - big course done early in our training - not integrated clinically with illness - don't learn about dosages - rigid learning, regurgitation - lack of application - trade names not taught but used on wards - learned all drugs, not commonly used ones 2007: - need more formal teaching, lectures - should link Pharm and Micro together - big gap in terms of theory and ongoing revision - PCMS was badly taught, no structure - integrated learning made it difficult – too scattered - knowledge of antibiotics poor - no practice in prescribing in patient context - prescribing a problem, we didn't know dosages - insufficient assessment in the exams	17	0	34	0
Personal learning issues in Pharmacology, not using opportunities effectively	6	0	3	0

The only positive comments relating to the Pharmacology curricula came from two interns in 2006. All other comments were directed towards problems and some suggestions on how to make learning more effective.

In both years the interns expressed a need for some change in the way that Pharmacology is taught in the undergraduate curriculum and used the interview as an opportunity to express their insecurity, and to make suggestions for teaching the subject differently so as to improve their understanding and confidence. The 2006 interns commented that:

"In 3rd year [sic] Pharmacology was a big course. We were expected to know it but we were never taught to integrate physical illness with the medication. Theory was done in 3rd year [sic] and finished – it should be included every year. We were able to miss out sections to pass 3rd year [sic] and don't work at it again"

"Pharmacology was not taught clinically enough. It was very much up to the student. Opportunities are there but it's up to the student to use them"

"Teaching was not helpful in terms of clinical experience. It was too academic with a lack of application. Rigid learning and regurgitation – it should focus on more common stuff".

One of the nurse colleagues in 2006 commented on the interns' lack of undergraduate preparation in Pharmacology:

"Interns need more Pharmacology prescribing in the undergraduate years – even basic things like iron and vitamins".

The problems of Pharmacology teaching were not confined to Wits interns. A colleague in 2006 who was an intern peer from another medical school said:

"I can only speak for [University name]. Pharmacology was not enough. We did 5 weeks of block work in the middle of 5th year. It only counted 10% of the block mark so we left it out".

The interns' comments in 2007 were somewhat different. In relation to Objective 4 these interns frequently referred to the introductory Pharmacology taught in the PCMS block, the problems of consolidating their pharmacological knowledge in an integrated curriculum and the way that Pharmacology was examined.

"Pharmacology – the majority was taught in PCMS. Just a lot of theory was given to us – it was difficult to take in. Then we had just a little bit in each block – it was done in isolation and was not in fact integrated. We needed a more solid foundation at the beginning - the clinical application did not come across in lectures"

"Pharmacology should run as a separate subject throughout – a more solid base is needed – everything else can be integrated. The emphasis in the hospital is on drug treatment. The sisters ask us what to do and we don't know. We needed to have been in the wards to find out what is commonly prescribed - we need to get this well initially. Medical students should do what the Pharmacy students do in the wards"

"*Pharm was done in PCMS – so much it was hard to remember. We developed an attitude that it is difficult - knew drugs but not how to use them. Some interns know drugs better but generally we are at par. Dosages/administration more difficult"*

"Not well taught in Pharmacology, especially when it came to pharmacokinetics – in GEMP 1 and 2 we didn't do much. I didn't understand drug interactions – there wasn't much Pharmacology in the cases we had. Not much on drug resistance or alternate drugs. I had to buy a book when I came here to help me prescribe and find out about drug interactions".

Relating specifically to the examinations, GEMP interns commented:

"We could get through blocks without learning any Pharmacology - not enough in the exams – we need it now"

"The workload was not reflected in the exams – only a question for 2 marks – so everyone left it out"

"*Pharmacology was not adequately taught – the learning topics were difficult. Because the subject was integrated it was not properly taught or tested – there was an*

imbalance in the exams – not a lot of Pharmacology. We needed more emphasis on Pharmacology in exams as assessments guide study. Less integration might be better. On the other hand, I probably didn't take enough initiative with Pharmacology myself".

Many of the interns and one supervisor in 2007 commented on the natural link between Pharmacology and Microbiology and felt that this would have served as an excellent approach for the integrated teaching of antibiotics.

"Poor knowledge of antibiotics - which? when? how to choose? time periods? I have no real frame of reference. There was a lot on analgesia theory but it was not patient applied. Again we need to know which and when"

"It would definitely have helped to have been taught in a more formal way, putting micro and Pharmacology together. These subjects complement each other and this would be a relevant way to learn them. We needed more on antibiotics"

"*Pharmacology was too scattered to have an holistic understanding. Not sure how to prescribe or what to prescribe – it was not covered. This is linked also with Microbiology – have had to learn both Pharmacology and Micro from MOs and consultants. These problems were identified early in the internship".*

One of the intern peers in 2007 acknowledged the need for more basic sciences in the medical curriculum. This intern was from a medical school which had also changed its curriculum.

"We all (interns) have a concern with basic sciences, especially Pharmacology and Physiology. We lack basic understanding - definitely need more at medical school".

Further discussion on the issue of undergraduate Pharmacology preparation for medical interns is covered in Chapters 5 and 6.

4.3.5.1.3 Interpersonal and communication skills

A Comparison of competence (Objective 3)

Table 4.15 gives the intern and supervisor ratings concerning the interns' ability to apply theories of communication and interpersonal relationships in their dealings with patients and colleagues. Figure 4.16 shows the significant difference in intern responses to this item in 2006 and 2007.

Table 4.15 Item1.4: Apply theory of interpersonal and communication skills to all doctor/patient and doctor/colleague relationships

	2006		2007	
Item 1.4	Interns (%) n=75	Supervisors (%) n=76	Interns (%) n=76	Supervisors (%) n=76
1&2=not well prepared	9 (12.0)	6 (7.9)	0 (0.0)	2 (2.6)
3=fairly well prepared	15 (20.0)	6 (7.9)	4 (5.3)	5 (6.6)
4=well prepared	32 (42.7)	25 (32.9)	23 (30.7)	38 (50.0)
5=fully prepared	19 (25.3)	39 (51.3)	48 (64.0)	31 (40.8)

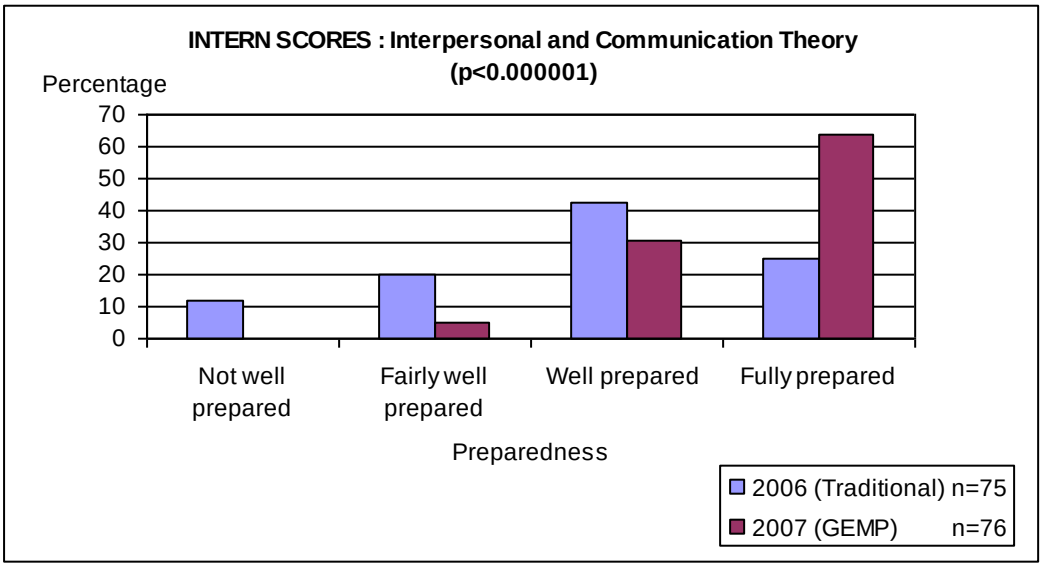

Figure 4.16 Intern responses regarding how well the curricula in 2006 and 2007 had prepared graduates in interpersonal and communication theory (item 1.4) (**p<0.000001**)

There was a highly significant difference (**p<0.000001**) between the 2006 and 2007 scores for interns regarding the application of interpersonal and communication theory. The GEMP interns in 2007 felt very much better prepared than the 2006 interns from the traditional curriculum. In fact, none of the sampled GEMP interns gave responses in the category "not well prepared", hence the need to use the Fisher Exact Test for significance level. There was no significant difference between the scores given by the supervisors in the two years.

Table 4.16a Comparison of the themes identified by interns and supervisors in 2006 and 2007 regarding competence in the application of knowledge of interpersonal and communication theory

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> Interns 2006: - ability to communicate, good skills - good role models - probably personality 2007: - generally get on well with others - good at this, like to interact - related to personality Supervisors 2006: - Good communication skills - personality and upbringing is a factor 2007: - very good on communication, excellent - probably personality and not taught	5	18	5	15
<u>Negative</u> Interns 2006: - no experience in this area - communication skills difficult to apply 2007: No comments Supervisors 2006: - interpersonal and communication skills lacking - Not a great communicator 2007: - general weakness with junior doctors - poor communication, may be personality	4	4	0	2

Table 4.16a compares the themes that emerged from the interns' and supervisors' comments regarding the application of knowledge of interpersonal and communication theory. This table shows that in each group of interns made five comments about their competence in communication. The supervisors gave similar comments for both years and these were often accredited to individual personality rather than curriculum related.

> 2006**:** *"Great interpersonal skills – not necessarily curriculum", "Relates well to people – she has that kind of personality", "Interpersonal skills are very good – personal?", "Excellent communicator. Makes a great effort and speaks to patients in their own language. This may be related more to individual personality"*
>
> 2007: *"Interacts well especially with patients - lively, friendly personality so will be good at this", "Excellent – personality probably and not taught", Good communicative personality".*

The supervisors in both years also made some critical comments. In 2006 these included:

> *"Interpersonal and communication skills are lacking"* and *"It's his personality – he is not a great communicator".*

In 2007 two negative comments were made although one was a very general statement:

> *"Poor communication skills – this may be a personality issue"* and *"This is a general weakness of interns – a problem with all junior doctors".*

B <u>Competence related to the curriculum experienced (Objective 4)</u>

Table 4.16b sets out the themes identified in the interns' and supervisors' comments that relate to the undergraduate curriculum and the teaching experienced by the two groups of interns.

Table 4.16b Themes and patterns identified by interns and supervisors in 2006 and 2007 relating competence in interpersonal and communication skills to the particular curriculum that they had experienced

Themes B : Comments on competence related to the curriculum (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> Interns 2006: - skills well taught in 4^{th} – 6^{th} yr - communication skills emphasised at Wits - clinical groups helped develop skills - good role models in clinical years 2007: - Recognition of good teaching - psychosocial aspects were well drilled in theme sessions - patients brought to class to practise skills - taught well, role play, counselling - PBL groups helped to open up skills - good clinical role models - many opportunities to practice - biopsychosocial model taught us to look at patient as a whole - emphasised in all years of the curriculum	9	0	21	0
<u>Negative</u> Interns 2006: - Communication skills lacking in the curriculum - They don't really teach you, learn for yourself - interpersonal skills not dealt with adequately 2007: No negative comments	9	0		0

The 2006 interns appeared to have developed their communication skills through practice and exposure to role models in the clinical years. However, nine of the interns in 2006 commented that the area of interpersonal and communication skills was lacking in their curriculum.

> *"Skills with interacting and communicating with patients are lacking - interpersonal skills were not dealt with adequately"*

"Communication skills are difficult to apply – they could be emphasized more in the curriculum".

One of the intern colleagues, who had also graduated from the Wits traditional curriculum, reinforced the 2006 interns' perceptions that teaching in interpersonal skills was lacking.

"Speaking from my own experience of the traditional Wits curriculum there was a lack of training in psychosocial. I feel it is difficult to decide how to interact on this level. Knowing patients' rights and advocacy was lacking - seems to be a general matter. We lacked interpersonal practicality but had excellent procedural skills".

The 2007 interns commented positively on the emphasis placed on acquiring interpersonal skills in their pre-clinical as well as clinical years and the benefits that this had brought, even though some had resisted this emphasis during their third and fourth years (GEMP 1 and 2).

"The GEMP curriculum was all about biopsychosocial. It looked at the person as a whole – this helped"

"Every Friday morning we had three lectures on PPD – a lot of this. They even brought patients for interviews. This part was well done"

"We had a lot of formal teaching – it seemed ridiculous at the time but I found it useful later"

"This was extensively taught in theme sessions and in meetings with people from other disciplines. We focused a lot on PPD themes – we were pretty well taught".

There were no negative comments from the GEMP interns and none of the supervisors in the two study years related communication skills to undergraduate training.

4.3.5.2 Category 2: Medical problem solving and clinical judgement

A Comparison of competence (Objective 3)

Table 4.17 and Figures 4.17 and 4.18 give the overall scores for medical problem solving and clinical judgement.

Table 4.17 Category 2: Overall scores for medical problem solving and clinical judgement

	2006		2007	
CATEGORY 2	Intern (%)	Supervisor (%)	Intern (%)	Supervisor (%)
1&2=not well prepared	42 (5.6)	27 (3.9)	17 (2.3)	39 (5.6)
3=fairly well prepared	120 (16.1)	180 (25.7)	123 (16.5)	189 (27.4)
4=well prepared	312 (41.8)	347 (49.5)	336 (45.0)	331 (47.9)
5=fully prepared	272 (36.5)	147 (21.0)	271 (36.3)	132 (19.1)
TOTAL item responses	746 (100)	701 (100)	747 (100)	691 (100)

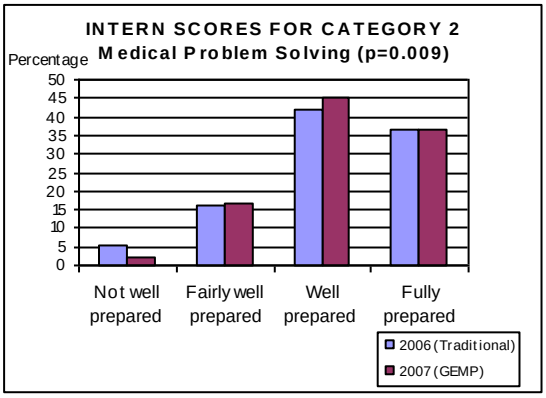

Figure 4.17 Comparison between intern responses for Category 2: Medical Problem Solving in 2006 and 2007 **(p=0.009)**

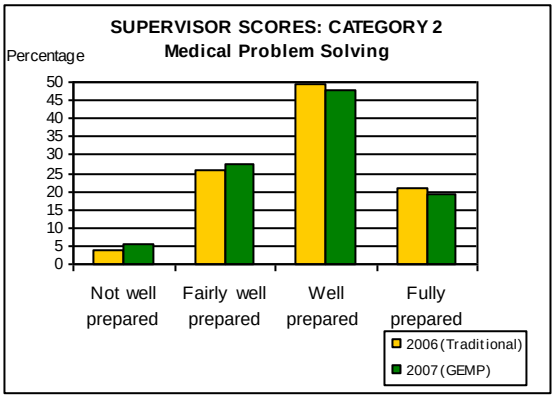

Figure 4.18 Comparison between supervisor responses for Category 2: Medical Problem Solving in 2006 and 2007 (n/s)

Table 4.18 shows that interns in 2007 reported feeling significantly better prepared overall than those in 2006 **(p=0.009)**. There was no significant difference between the supervisors' scores for the category, nor were there significant differences for any of the individual item scores in this category.

Table 4.18 Results for all items in Category 2 of the Intern Model: Medical problem solving and clinical judgement

		Cochran-Mantel-Haenszel Statistics for ordinal data	
		Interns 2006 vs 2007	**Supervisors 2006 vs 2007**
2 Medical problem solving and clinical judgement		$\chi^2_{MH} = 11.51$ **p=0.0093**	$\chi^2_{MH} = 3.51$ p=0.32 n/s
2.1	Item 5: take good histories from patients and/or family members/minders	n/s	n/s
2.2	Item 6: focus your history without losing important information	n/s	n/s
2.3	Item 7: perform a thorough physical examination on adult patients	n/s	n/s
2.4	Item 8: perform a thorough physical examination on children	n/s	n/s
2.5	Item 9: elicit and interpret physical signs	n/s	n/s
2.6	Item 10: request appropriate special investigations (tests, x-rays, etc) for particular conditions	n/s	n/s
2.7	Item 11: request only tests that are really necessary, in order to save on costs	n/s	n/s
2.8	Item 12: write good, complete patient notes which other members of the health care team can also use in planning their patient care	n/s	n/s
2.9	Item 13: analyse and interpret patient data from various sources so as to identify problems, develop and test hypotheses and come up with reasonable differential diagnoses	n/s	n/s
2.10	Item 14: make decisions regarding the initial management of patients under your care	n/s	n/s

The individual interns' and supervisors' scores for each of the items in this category showed no significant differences in competence between the two groups of interns. However, when all the item responses were considered together to give the overall the category scores the interns' scores showed a significant difference (p=0.0093). As was explained in the introduction to this section (4.3.5) a composite table of scores for all the non-significant items was therefore included to help determine the areas which might have contributed to the overall significance of the interns' score.

Table 4.19 Composite table of interns' and supervisors' responses to the ten non-significant items in Category 2

	2006		**2007**	
Item 2.1: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to take good histories from patients and/or family members/minders.				
	Intern (%) n=76	Supervisor (%) n=76	Intern (%) n=76	Supervisor (%) n=75
1&2=not well prepared	2 (2.6)	2 (2.6)	0 (0.0)	0 (0.0)
3=fairly well prepared	2 (2.6)	9 (11.8)	0 (0.0)	9 (12.0)
4=well prepared	27 (35.5)	39 (51.3)	23 (30.3)	32 (42.7)
5=fully prepared	45 (59.2)	26 (34.2)	51 (67.1)	34 (45.3)
Item 2.2: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to focus the history without losing important information				
	Intern (%) n=75	Supervisor (%) n=76	Intern (%) n=76	Supervisor (%) n=76
1&2=not well prepared	1 (1.3)	5 (6.6)	0 (0.0)	2 (2.6)
3=fairly well prepared	3 (4.0)	15 (19.7)	6 (7.9)	15 (19.7)
4=well prepared	34 (45.3)	39 (51.3)	31 (40.8)	40 (52.6)
5=fully prepared	37 (49.5)	17 (22.4)	39 (51.3)	19 (25.0)
Item 2.3: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to perform a thorough physical examination on adult patients				
	Intern (%) n=74	Supervisor (%) n=68	Intern (%) n=76	Supervisor (%) n=61
1&2=not well prepared	1 (1.4)	2 (2.9)	0 (0.0)	3 (4.9)
3=fairly well prepared	6 (8.1)	12 (17.7)	3 (4.0)	9 (14.8)
4=well prepared	23 (31.1)	35 (51.5)	31 (40.8)	38 (62.3)
5=fully prepared	44 (59.5)	19 (27.9)	42 (55.3)	11 (18.0)
Item 2.4: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to perform a thorough physical examination on children				
	Intern (%) n=65	Supervisor (%) n=34	Intern (%) n=65	Supervisor (%) n=31
1&2=not well prepared	4 (6.2)	0 (0.0)	1 (1.5)	1 (3.2)
3=fairly well prepared	10 (15.4)	6 (17.7)	15 (23.1)	7 (22.6)
4=well prepared	22 (33.9)	18 (52.9)	28 (43.8)	21 (67.7)
5=fully prepared	29 (44.6)	10 (29.4)	21 (32.3)	2 (6.5)
Item 2.5: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability elicit and interpret physical signs				
Item 2.5	Intern (%) n=76	Supervisor (%) n=74	Intern (%) n=75	Supervisor (%) n=75
1&2=not well prepared	1 (1.3)	1 (1.4)	0 (0.0)	1 (1.3)
3=fairly well prepared	11 (14.5)	17 (23.0)	9 (12.0)	18 (24.0)
4=well prepared	31 (40.8)	44 (59.5)	37 (49.3)	41 (54.7)
5=fully prepared	33 (43.4)	12 (16.2)	29 (38.7)	15 (20.0)

	2006		2007	
Item 2.6: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to request appropriate special investigations (tests, x-rays) for particular conditions				
Item 2.6	Intern (%) n=76	Supervisor (%) n=75	Intern (%) n=76	Supervisor (%) n=75
1&2=not well prepared	5 (6.6)	3 (4.0)	1 (0.7)	4 (5.3)
3=fairly well prepared	11 (14.5)	21 (28.0)	9 (11.8)	18 (24.0)
4=well prepared	33 (43.4)	35 (46.7)	42 (55.3)	34 (45.3)
5=fully prepared	27 (35.5)	16 (21.3)	24 (31.6)	19 (25.3)
Item 2.7: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to request only tests that are really necessary, in order to save on costs				
Item 2.7	Intern (%) n=76	Supervisor (%) n=74	Intern (%) n=76	Supervisor (%) n=73
1&2=not well prepared	10 (13.2)	7 (9.5)	9 (11.8)	12 (16.4)
3=fairly well prepared	22 (29.0)	35 (47.3)	20 (26.3)	32 (43.8)
4=well prepared	34 (44.7)	25 (33.8)	30 (39.5)	28 (38.4)
5=fully prepared	10 (13.2)	7 (9.5)	17 (22.4)	1 (1.4)
Item 2.8: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to write good, complete patient notes which other members of the health care team can also use in planning their patient care				
Item 2.8	Intern (%) n=76	Supervisor (%) n=76	Intern (%) n=76	Supervisor (%) n=74
1&2=not well prepared	3 (4.0)	2 (2.6)	2 (2.6)	4 (5.4)
3=fairly well prepared	13 (17.1)	10 (13.2)	14 (18.4)	18 (24.3)
4=well prepared	34 (44.7)	40 (52.6)	34 (44.7)	38 (51.4)
5=fully prepared	26 (34.2)	24 (31.6)	26 (34.2)	14 (18.9)
Item 2.9: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to analyse and interpret patient data from various sources so as to identify problems, develop and test hypotheses and come up with reasonable differential diagnoses				
Item 2.9	Intern (%) n=76	Supervisor (%) n=73	Intern (%) n=75	Supervisor (%) n=75
1&2=not well prepared	2 (2.7)	2 (2.7)	1 (1.3)	7 (9.3)
3=fairly well prepared	25 (34.3)	25 (34.3)	23 (30.7)	29 (38.7)
4=well prepared	38 (52.1)	38 (52.1)	43 (57.3)	30 (40.0)
5=fully prepared	8 (13.2)	8 (11.0)	8 (10.7)	9 (12.0)
Item 2.10: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to make decisions regarding the initial management of patients under your care				
Item 2.10	Intern (%) n=76	Supervisor (%) n=75	Intern (%) n=76	Supervisor (%) n=76
1&2=not well prepared	10 (13.2)	3 (4.0)	3 (4.0)	5 (6.6)
3=fairly well prepared	20 (26.3)	30 (40.0)	22 (29.0)	34 (44.7)
4=well prepared	35 (46.1)	34 (45.3)	37 (48.7)	29 (38.2)
5=fully prepared	11 (14.5)	8 (10.7)	14 (18.4)	8 (10.5)

Looking at the intern scores in Table 4.19, if one combines the upper two percentages ("well prepared" and "fully prepared") for each item it may be noted that the traditional interns in 2006 rated themselves better prepared in only two items (2.2 and 2.4) while the interns in 2007 rated themselves better prepared in seven of the ten items, (2.1, 2.3, 2.5, 2.6, 2.7, 2.9 and 2.10). One item (2.8) had the same percentage for both groups. The greatest difference (8%) was for item 2.6 on requesting appropriate diagnostic tests. The supervisors rated the GEMP interns higher on four of the items (2.1, 2.2, 2.3 and 2.6) and the traditional interns higher on six items (2.4, 2.5, 2.7, 2.8, 2.9 and 2.10).

The qualitative data were analysed to identify the main themes arising from comments about this category. Five themes were identified:

- history taking, the physical examination and the eliciting of signs
- the cost conscious ordering of diagnostic tests
- note writing
- development and testing of hypotheses to come up with reasonable differential diagnoses
- patient management.

The themes are first dealt with in relation to comments on the interns' competence (Objective 3) and thereafter looking at the comments which relate these themes to the undergraduate curriculum (Objective 4).

A Comparison of competence (Objective 3)

History taking, the physical examination and the eliciting of signs

In the questionnaire, the items on physical examination were divided into competence in the examination of adult patients and paediatric patients. Generally, the supervisors could only assess one of these items for each of the interns, depending upon the rotation to which the intern had been allocated at the time of the study. This is the reason for the low number of responses for these two items. The interns in both years reported feeling generally competent in this area and especially in history taking. Most of their comments related to their curriculum experience. One intern in 2006 commented:

"Histories and exams really good – we were better at this than others".

The ability of Wits interns to take good, focused histories was praised by the supervisors in both years. Some of the comments made in 2006 were:

"Clinical judgement and assessment are good - focuses histories well"

"Very thorough history and examination – almost overkill".

The supervisors in 2007 made several positive comments about the history taking skills of the GEMP graduates. Some examples were:

"History taking appropriate and thorough"

"Excellent history taking – a strong point".

One area where the traditional interns felt less competent was the examination of paediatric patients. Two interns in 2006 commented on this:

"My Paeds approach was shaky – children can't talk" and *"I was not comfortable working with children".*

There were a few critical comments from the 2006 supervisors about individual interns:

"Disorganised – this intern relies heavily on the registrar and is functioning more as a 6th year, as an observer"

"She needs to focus on issues around the patient when presenting to seniors; takes long to get to the crux of the matter. Interns need to take a good, full history but must be selective in presenting".

There was one negative comment made by the supervisors in 2007 and this was directed towards the interns in general in that year, but included the intern under consideration.

> *"Interns generally (including this one) have a routine way learned during training. It doesn't vary and is not focused according to the case in point, which means something can be missed and a lot of irrelevant material is included".*

The cost-conscious ordering of diagnostic tests

Very few of the interns in either year were confident about ordering laboratory tests in a cost-conscious manner although some said that they had been taught about this in their final two years as undergraduates. Graduates from both curricula admitted that early on in their internship they were less concerned about the costs and tended to order more tests than were probably necessary to ensure that they did not miss any important information.

> *"Don't know costs – just order – you order a battery of tests and hopefully can decide what is wrong" (2006)*

> *"In the beginning I ordered everything to make sure everything was covered – with experience one gets to know better"* (2007).

A few of the supervisors in 2006 had problems with specific interns regarding the ordering of diagnostic procedures:

> *"No insight regarding special investigations, not cost conscious"*

> *"Will request investigations like CT scans, MRIs before doing a proper assessment".*

In 2007 the supervisors' critical comments tended to be more general in nature:

"Generally these are issues with interns – they are not aware of pressure relating to budget cuts. Takes a lot of training to stop them from ticking all boxes"

"A weakness across the board with interns – order without thinking".

Note writing

It was mentioned in Chapter 3 that one of the planned methods of empirical data collection, the assessment of intern's written notes, had to be abandoned as it was not feasible to implement this during the study. However, one of the items in Category 2 dealt with note taking. Although there was no significant difference between the scores for 2006 and 2007 interns, their comments and those of their supervisors highlighted aspects of the teaching and practice of this skill that are important to record here.

Although some interns in each year felt competent to write good notes, many did not. An intern in 2006 commented:

"No one writes decent notes here. I don't know what is acceptable. We need experienced clinicians to give more input".

This was supported by one of the supervisors in 2006 who said:

"*Very poor - in general notes are poor, but seniors set a poor example"*.

The comments from the GEMP interns, while admitting to not being good at writing notes, indicated a preparedness to learn to write better notes.

"*Notes are tied to ward rounds. I looked at others' notes here and taught myself. Even a month into internship I didn't feel that my notes reflected the important things – the take-home message"*

"One Medical Officer called me and showed me how I am expected to write notes, eg including discussions of the case with other doctors. I was taught how to write note here. I forget to mention everything – rush to move on".

One supervisor noted the diligence of a GEMP graduate regarding note writing but pointed out that this was not sufficient for writing good clinical notes.

"Note writing was immature. The intern is diligent therefore writes more than is needed – not all of it is useful, some is rubbish".

<u>Development and testing of hypotheses to come up with reasonable differential diagnoses</u>

The GEMP interns might have been expected to show more confidence and competence in the analysis and interpretation of data from various sources to identify problems, develop and test hypotheses and come up with differential diagnoses. This is the basis of problem based learning and was practised over two years of paper-based problems as well as during the clinical experienced in the final two years. The questionnaire results, however, did not support this as evidenced by the lack of a significant difference between the two groups of interns and the almost identical number of ratings given as "fully prepared" by interns and supervisors.

Two interns in 2006 felt that they lacked competence in this area.

"I was not confident at the beginning – overwhelmed"

"Unprepared – I am not competent enough to handle and interpret deranged values".

One supervisor in 2006 also commented that a particular intern

"This intern relied very much on seniors".

One of the 2007 interns commented:

"If you had to bring scans I couldn't make sense. Some x-rays and lab results OK".

The supervisors in 2007 gave mixed comments. One commented that the intern was

"... not good at hypothesis development"

while another was impressed saying that the intern with whom she had worked with was

"...able to analyse and interpret data very competently".

Patient management

The interviews highlighted a final aspect of medical problem solving and clinical judgement that needs attention in undergraduate medical education, that of deciding upon and instituting initial patient management. Interns in both years expressed a lack of confidence in their abilities and supervisors also made some comments on this.

Interns in 2006 made the following comments:

"*This is a confidence issue – I still need to ask for advice or a second opinion. If I don't agree with that then I even ask for a third opinion"*

"Initial management is fine but not prepared for follow up".

Supervisors in 2006 commented both positively and negatively:

"Good at managing patients"

"Sometimes on the wrong track. Missed things a few times, but no crucial mistakes".

The interns in 2007 only made comments which related to their undergraduate experience and these are given in section B. One supervisor in 2007 said:

"This intern is confident with initial management".

B Competence related to the curriculum experienced (Objective 4)

The interns made many comments relating their responses to their respective curricula and the interview data gave some interesting perspectives on study Objective 4, the relationship of the questionnaire responses to the undergraduate curriculum experienced by the two groups of interns.

History taking, the physical examination and the eliciting of signs

The comments of both groups of interns and their supervisors were generally very positive. The interns felt well prepared to take histories from their patients and, where necessary, from other family members, and to conduct physical examinations on both adults and children. This was taught in the fourth, fifth and sixth years of the traditional curriculum and from the third year of the GEMP curriculum where the students had weekly clinical skills sessions and hospital or clinic visits. Both groups had a great many opportunities to practise their skills and were satisfied with the experience and the teaching received. Their competence had also been tested repeatedly in examinations. A few illustrative examples of the comments are included below.

The 2006 interns commented:

"I feel that I was particularly well trained with history taking and examination"

"Histories and physical signs – started in 4th year – we took histories for hours – this was covered really well especially in internal medicine".

The only feelings of being unprepared were concerned with paediatric examinations and difficulties with language.

"I performed few examinations on children as an undergraduate", "The only exposure to children was in 5th and 6th year"

"There is often a language barrier. Zulu should have been compulsory – would help with history taking – history leads to management".

The GEMP interns in 2007 were also very positive about their competence in taking good histories and focusing these and commented on the benefits of early clinical exposure.

"History taking skills have been well taught - appropriate and thorough and we were tested in OSCEs"

"We were taught to take histories and include most important things – had a lot of print outs to take away – given an approach that helped a lot"

"We went to hospitals very early in training – from 3rd year. It was right to start teaching us histories from GEMP 1".

There were no comments which indicated that the 2007 interns felt unprepared however, as with the traditional curriculum graduates, one intern mentioned language as a potential barrier to obtaining good histories.

"We spent so much time taking focused histories that it just comes naturally now. Except for a language barrier sometimes, I can get information more quickly than other interns – definitely the Wits system helped me".

Supervisors also commented on the good undergraduate preparation of interns in both years. In 2006 one said:

"Good at examinations and histories – good teaching".

A supervisor in 2007 commented:

> *"History taking skills have been well taught"*.

The cost-conscious ordering of diagnostic tests

One GEMP intern in 2007 wrote:

> "*We had a lot of teaching on ordering and sequence of ordering - we were encouraged to think about what was requested and what was necessary"*

while another thought that cost considerations were not a matter to be taught at medical school where it is more important to learn the range of available tests.

> *"Not a medical school problem. It's more important to know what you can and can't do at medical school – you adjust and bring in cost considerations during internship"*.

The interns in smaller hospitals were forced to become more aware of costs.

> *"Limited here (small district hospital in Somerset West). We have to think of the urgency, costs, is the lab open, etc. At the teaching hospitals one just did everything. Here I need to ask – the consultants help us to decide"* (2006)

> *"In teaching hospitals things are done routinely, so we are not prepared when we come to another, less wealthy place"* (2006).

Note writing

Both groups felt that they had not received sufficient preparation for writing good patient notes during their undergraduate years. One of the 2006 interns said:

> *"I never had good exposure, just followed the standard"*

while a GEMP intern in 2007 admitted:

> *"I was not good at writing notes when I came from medical school. Med school teaches us to write up everything when we really need specifics".*

A supervisor in 2007 noted that the interns had not been well taught.

> *"Note writing does not seem to be taught well – it's not just in the case of this intern though – others are just the same".*

There seems to be a need for better teaching and example during medical training in the writing of clear, concise and complete notes. This is an important aspect of clinical competence and also has legal implications.

<u>Development and testing of hypotheses to come up with reasonable differential diagnoses</u>

Relating this aspect to the undergraduate curriculum, one of the 2006 interns commented that as students they had been:

> *"We were made to present many times and were forced to come to conclusions using an ordered approach. This was well taught in wards".*

A 2007 intern acknowledged that there had been exposure to diagnostic decision making during undergraduate training:

> *"There was a lot of training especially in theme sessions".*

<u>Patient management</u>

Interns in both years commented on their lack of confidence in patient management and related this to a lack of experience during their undergraduate years. Some comments from the interns in 2006 were:

"General patient management has always been a problem for me. Wits is good at teaching practical things – doing procedures, but I always struggled with the actual management. We didn't seem to do much of this"

"When I started at this hospital (on call) I needed help for someone to come and start management. It would help if I had managed a few emergency patients at med school. We only saw patients in the wards and if we did go to the resuscitation room it was always the registrars who did the hands-on. We were at the back".

Similar comments were received from the GEMP interns in 2007.

"Initial management was difficult. Protocols differ between hospitals. I felt very insecure here and I always had to check – but am picking it up now. They never really teach management at med school – much more time is spent on differentials"

"In four years I had only 2-8 weeks managing my own patients – lack of confidence, not enough".

One of the supervisors in 2007 also commented on the need for more preparation in patient management:

"More emphasis is needed on diagnosis and management. In general interns are good at following instructions. Their diagnoses are usually off the mark or they can't think of one – this relates to all junior doctors".

4.3.5.3 Category 3: Holistic patient management and skills

Category 3 on "Holistic Patient Management and Skills" was very large, comprising six (6) items on holistic patient management and thirteen (13) items which measured the performance of specific procedures expected of interns at the commencement of their training.

The difficulty in dealing with all these items together became evident during the data analysis. Many supervisors and colleagues had not observed all of the listed procedures resulting in many missing data which may have affected the overall results. For this reason only the six items dealing with holistic care were scored as Category 3a and represented "holistic patient management" for purpose of category analysis. These items included the interns' response in emergencies, ability to perform basic procedures safely, development of management plans, encouragement of the patients' involvement in their care, managing chronic conditions and patient education. The scores for the thirteen (13) items on specific procedures were grouped as Category 3b. These were not analysed together but each item was analysed individually for comparison between the two intern groups.

A Comparison of competence (Objective 3)

Table 4.20 and Figures 4.19, 4.20 and 4.21 show the overall results for Category 3a.

Table 4.20 Overall scores for Category 3a: Holistic patient management

	2006			2007		
CATEGORY 3a	Interns (%)	Supervisors (%)	Colleagues (%)	Interns (%)	Supervisors (%)	Colleagues (%)
1&2=not well prepared	58 (13.0)	26(6.2)		29 (6.5)	27 (6.4)	
3=fairly well prepared	108 (24.2)	114 (27.0)	48 (15.8)	103 (23.0)	122 (29.1)	45 (14.0)
4=well prepared	188 (42.1)	197 (46.7)	124 (40.7)	199 (44.3)	187 (44.5)	127 (39.4)
5=fully prepared	93 (20.8)	85 (20.1)	133(43.6)	118 (26.3)	84 (20.0)	150 (46.6)
TOTAL item responses	447 (100)	422 (100)	305 (100)	449(100)	420(100)	322(100)

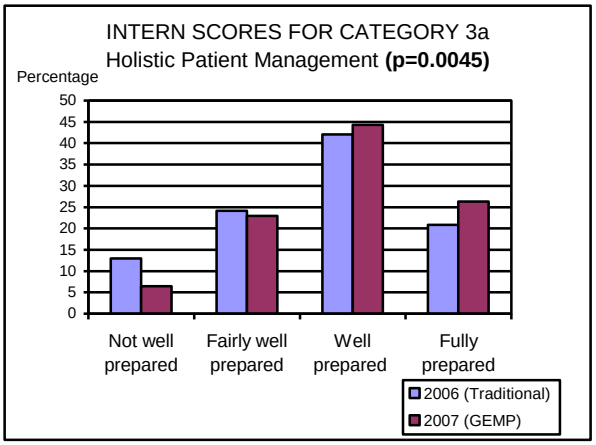

Figure 4.19 Comparison between interns' responses for Category 3a: Holistic Patient Management in 2006 and 2007 (**p=0.0045**)

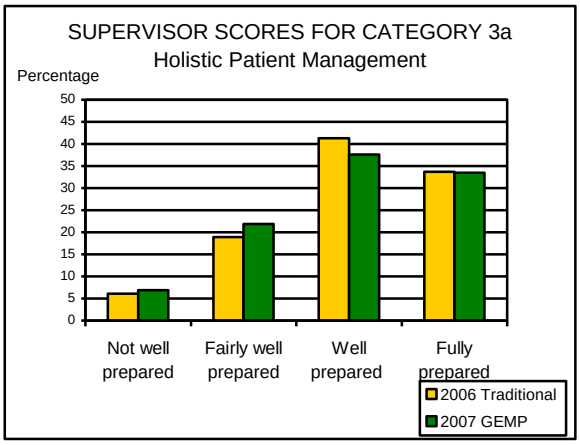

Figure 4.20 Comparison between supervisors' responses for Category 3a: Holistic Patient Management in 2006 and 2007 (n/s)

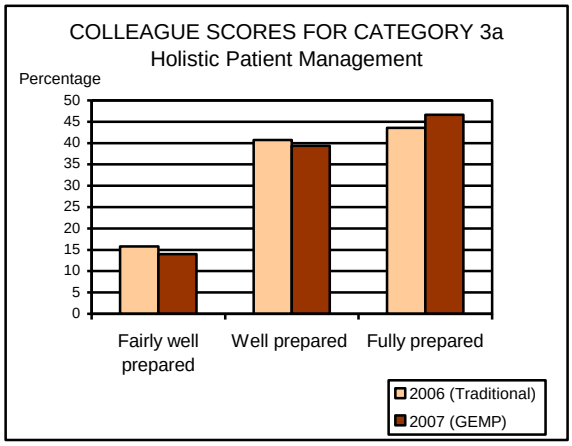

Figure 4.21 Comparison between colleagues' responses for Category 3a: Holistic Patient Management in 2006 and 2007 (n/s)

Table 4.21 shows the breakdown of items into Categories 3a and 3b. There was a significant overall difference between the 2006 and 2007 interns (**p=0.0045**) in Category 3a, with the GEMP interns rating themselves better prepared than the traditional interns in holistic patient management. The overall category scores for supervisors and colleagues did not show significant differences. Two individual items (items 3.4 and 3.17) showed a significant difference with the GEMP interns reporting that they felt better prepared.

Table 4.21 Results for items in Category 3 of the Intern Model: 3a Holistic patient management and 3b Individual procedural skills

		Cochran Mantel Haenszel Statistics: ordinal data		
		Interns 2006vs2007	**Supervisors 2006vs2007**	**Colleagues 2006vs2007**
3a	**Holistic patient management**	$\chi^2_{MH} = 13.04$ **p=0.0005**	$\chi^2_{MH} = 0.55$ p=0.91 n/s	$\chi^2_{MH} = 0.69$ p=0.71 n/s
3.4	Item 18: perform basic clinical procedures safely	**p=0.04 (Fisher) 2007>2006**	n/s	n/s
3.14	Item 28: respond effectively in an emergency	n/s	n/s	n/s
3.16	Item 30: formulate an orderly patient care plan from admission to discharge (including investigation, observations, therapy, medications, counselling)	n/s	n/s	n/s
3.17	Item 31: involve the patient and his/her family in planning care	**p = 0.01 2007>2006**	n/s	n/s
3.18	Item 32: manage chronic conditions and follow your patients' progress in outpatient clinics	n/s	n/s	n/s
3.19	Item 33: identify lifestyle risk factors and educate your patients to change their behaviour so as to promote health and prevent disease	n/s	n/s	n/s
3b	**Individual procedural skills NOT ANALYSED "OVERALL"**	**Interns 2006vs2007**	**Supervisors 2006vs2007**	**Colleagues 2006vs2007**
3.1	Item 15: assist competently with surgery in the operating theatre	n/s	n/s	n/s
3.2	Item 16: perform an endotracheal intubation	n/s	**p=0.0087 (Fisher) 2006>2007**	n/s
3.3	Item 17: perform minor surgical procedures (eg biopsy) on your own	n/s	n/s	n/s
3.5	Item 19: perform a venepuncture for taking blood samples	n/s	n/s	n/s
3.6	Item 20: insert a nasogastric tube	n/s	n/s	n/s
3.7	Item 21: put up a drip (IV cannulation)	**p=0.03 (Fisher) 2007>2006**	n/s	n/s
3.8	Item 22: insert an indwelling urinary catheter in a male or female patient	n/s	n/s	n/s
3.9	Item 23: take an ECG recording	n/s	n/s	n/s
3.10	Item 24: initiate basic life support (CPR)	**p = 0.01 2007>2006**	n/s	n/s
3.11	Item 25: take an accurate blood pressure measurement	n/s	n/s	n/s
3.12	Item 26: put in a central venous line	n/s	n/s	n/s
3.13	Item 27: Perform a lumbar puncture	n/s	n/s	n/s
3.15	Item 29: prioritise the patients needing care first (triage)	n/s	n/s	n/s

In Category 3b the interns' scores showed a significant difference in two procedures; putting up a drip (item 3.7) and initiating basic life support (item 3.10). There was also one item on passing an endotracheal tube (item 3.2) which showed a significant difference in the supervisors' scores. These significant items are dealt with in more detail later in this section.

4.3.5.3.1 Perform basic clinical procedures safely

A Comparison of competence (Objective 3)

There was a significant difference (Fisher's exact test **p=0.04**) between the interns' scores regarding the safe performance of basic clinical skills. The 2007 (GEMP) interns clearly felt significantly better prepared than the 2006 interns. There was no significant difference between the supervisors' or the colleagues' scores on this item. Table 4.22 gives the actual scores for interns, supervisors and colleagues and Figure 4.22 displays the interns' results graphically.

Table 4.23a compares the number of positive and negative comments made by interns and supervisors during the interviews. The colleagues' comments related mostly to specific skills but a few comments are included as quotations.

Table 4.22 Item 3.4 "Perform basic clinical procedures safely"

	2006			2007		
Item 3.4	Interns (%) n=73	Supervisors (%) n=72	Colleagues (%) n=59	Interns (%) n=72	Supervisors (%) n=74	Colleagues (%) n=70
1&2=not well prepared	7 (9.6)	3 (4.2)		0 (0.0)	1 (1.4)	
3=fairly well prepared	11 (15.1)	15 (20.8)	11 (18.6)	9 (12.5)	21 (28.4)	10 (14.3)
4=well prepared	25 (34.3)	37 (51.4)	18 (30.5)	29 (40.2)	34 (46.0)	20 (28.6)
5=fully prepared	30 (41.1)	17 (23.6)	30 (50.9)	34 (47.2)	18 (24.3)	40 (57.1)

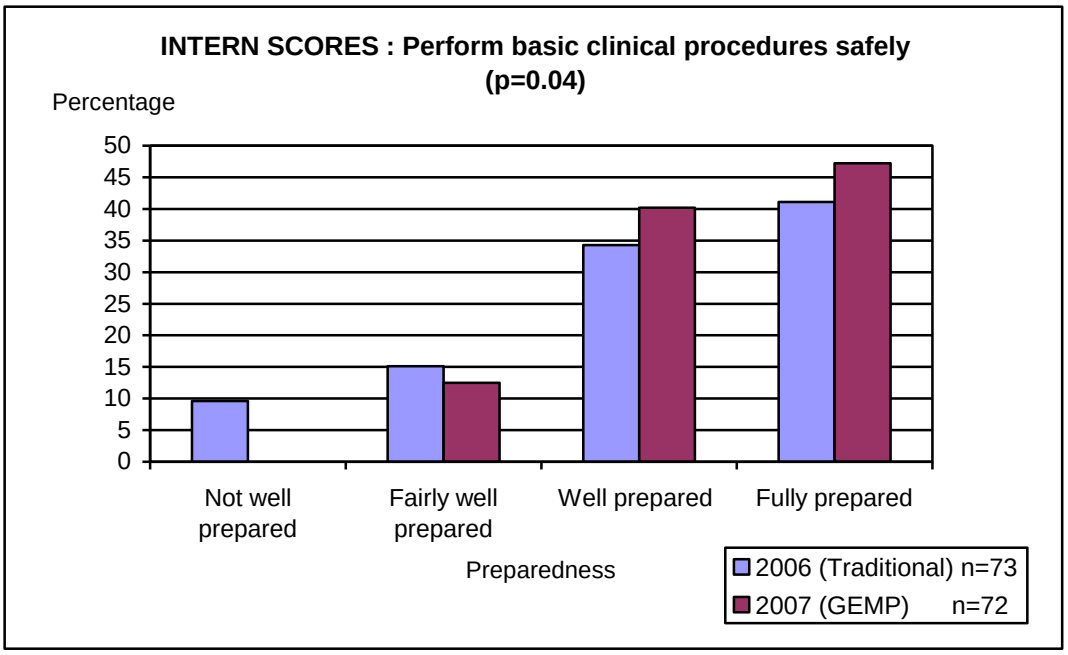

Figure 4.22 Intern responses on how well the curricula in 2006 and 2007 had prepared them for the safe performance of basic clinical skills (item 3.4) (**p=0.04**)

Table 4.23a Themes identified by interns and supervisors in 2006 and 2007 comparing the interns' ability to perform basic clinical procedures safely in 2006 and 2007

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> Interns 2006: - confident at skills - plenty of practice 2007: - very skilled and confident with these - no difficulties with routine procedures - personal initiative important	38	20	38	34
<u>Negative</u> Interns in 2006: - frightened to do things alone - good at assisting but not confident - my fault, not enthusiastic as a student Supervisors 2006: - unsure, not done enough procedures, - practical, hands-on skills need help	3	2	0	0

In 2006 nineteen interns from the traditional curriculum commented on their general confidence and experience in performing clinical skills at the outset of their internship.

"Plenty of experience with these procedures".

"Taught lots of these to other interns – one of only ones who could do them confidently"

and their supervisors also made comments such as:

"*Very well prepared in all these areas".*

However, a few interns from this group indicated that they felt unsure of their practical skills.

"I was frightened to do things alone"

"I am good at assisting but I don't feel confident in terms of the bigger picture".

Two of the supervisors in 2006 commented on individual students' weakness in clinical skills.

"This intern doesn't seem to have done enough procedures in general – unsure of herself" and *"His practical, hands-on skills needed help".*

The GEMP interns 2007 felt generally competent at clinical skills. There were no interns or supervisors who made negative comments for this item. Most comments related to curriculum experiences but one intern commented:

"I feel very confident with procedures – I forced myself to do everything as a student".

The 2007 supervisors made positive comments about the GEMP interns' skills as follows:

"Basic procedures – this intern was very skilled and confident.

"No problems with procedures. He has good skills and knows how to do all these skills/procedures without supervision".

The colleagues in both 2006 and 2007 found the interns were generally able to undertake most of the clinical procedures required of them with little need to ask for help.

"Always comes forward, eager to do things, seeks information and learning" (2006)

"Competent and confident. His skills, and the necessary basic Anatomy to perform these skills, are awesome. A very confident man" (2007).

The nurses in both years suggested that the interns sometimes needed help with clinical procedures.

"Always assisted by the registrar" and *"Needs someone present"(2006)*

"They were unable to do most procedures alone at first but can do it on their own after 3 months" (2007).

B <u>Competence related to the curriculum experience (Objective 4)</u>

Table 4.23b lists the themes from comments that link to the curriculum experienced. These themes are augmented by quotations from interns, supervisors and colleagues.

The comments that follow Table 4.23b help to elucidate the themes recorded in the table and relate these to the way that the medical students were taught skills in the traditional and GEMP curricula.

Table 4.23b Themes that emerged during the interviews that related responses about the safe performance of basic clinical procedures to curriculum experience

Themes B : Comments on competence related to the curriculum (Objective 4)	Frequency 2006		Frequency 2007	
	Int	Sup	Int	Sup
<u>Positive: Interns</u> 2006: - Plenty of good skills practice since 4th year - Excellent experience at Bara, procedures well drilled - 4th year book from the medicine department was very useful 2007: - mainly covered in three week medical block in 6th year - enough exposure and opportunity as students - skills well taught, well drilled - going to hospitals, doing procedures, filling in logbooks really helped - clinical skills unit, skills sessions really helped <u>Positive: Supervisors</u> 2006: Well prepared, done in 6th year 2007: Well trained	14	2	15	3
<u>Negative: Interns</u> 2006: - no practical training at medical school, observation only 2007: - possibly not enough actual skills taught in GEMP 1&2 <u>Negative: Supervisors</u> 2006:- not enough procedures done in training 2007: - more complicated procedures not so well covered	3	0	1	0

The 2006 interns were generally very satisfied with their skills training and identified the book received in their fourth year as particularly helpful.

"We practiced skills many times as an undergraduate"

"Good exposure to these procedures since 4th year, but this is situations-dependent on the medical officers in charge. The 4th year book from medicine dept was very useful"

"Confident but many students got away without being in the wards when they should be. For those who enjoyed practicing skills, opportunities were available, but attendance was not enforced".

This last comment was reinforced by an intern in 2006 who seemed to be one of those that did not seek out opportunities to learn and practice procedures and claimed that there was:

> *"No practical teaching – observation only as a student".*

One of the 2006 supervisors commented that the interns needed more practice in paediatrics during their undergraduate clinical training.

> *"Students should be allowed to work on babies – 80-90% of Paeds is procedures and they should have some experience when they arrive here".*

The 2007 GEMP interns linked their satisfaction with their skills training to teaching and practice in the clinical skills unit as well as clinical teaching and experience in the hospitals.

> *"Clinical skills sessions were really helpful – we were able to use models to get the techniques before working on real people – even the simple stuff (e.g. how to hold an opthalmoscope) needs to be taught"*

> *"Possibly not enough input in GEMP 1 and 2. Going to hospitals, doing procedures, filling in log books really helped"*

> *"All basic clinical procedures were well taught and we had enough practice"*

> *"Skills are a function of how much you participated in your intakes. I forced myself to do everything as a student".*

The supervisors of GEMP interns made only positive comments such as:

> "*Good with procedures – had a lot of experience in O&G as a student, a fast learner".*

Nurse colleagues were not realistically able to relate intern competence in clinical skills to medical curricula but intern peers from other universities could do so in both study years:

"Superb education – impressive" (2006)

"She clearly has a lot of confidence in her training. She's taken her opportunities to learn and is well prepared for clinical work" (2007).

The second part of this category (Category 3b) listed the procedural skills expected of interns at the start of their training. There were three items in which the scores regarding psychomotor skills differed significantly between 2006 and 2007, one for the supervisors and two for the interns. The results for these items are presented as sections 4.3.5.3.1 (a) to (c).

4.3.5.3.1 (a) Performing an endotracheal intubation

A Comparison of competence (Objective 3)

Table 4.24 shows the scores for interns and supervisors regarding the ability to perform an endotracheal intubation. Figure 4.23 gives a graphical representation of the supervisors' scores

Table 4.24 Item 3.2: Comparison between 2006 and 2007 scores for supervisors with regard to the performance of an endotracheal intubation

	2006		2007	
Item 3.2	Interns (%) n=71	Supervisors (%) *n=27	Interns (%) n=71	Supervisors (%) *n=32
1&2=not well prepared	23 (32.4)	5 (18.5)	22 (31.0)	14 (43.8)
3=fairly well prepared	16 (22.5)	11 (40.7)	27 (38.0)	7 (21.9)
4=well prepared	23 (32.4)	6 (22.2)	12 (16.9)	11 (34.4)
5=fully prepared	9 (12.7)	5 (18.5)	10 (14.1)	0 (0.0)

*Note: there were a large number of missing data for supervisors in 2006 (49) and 2007 (44). Fisher's Exact Test

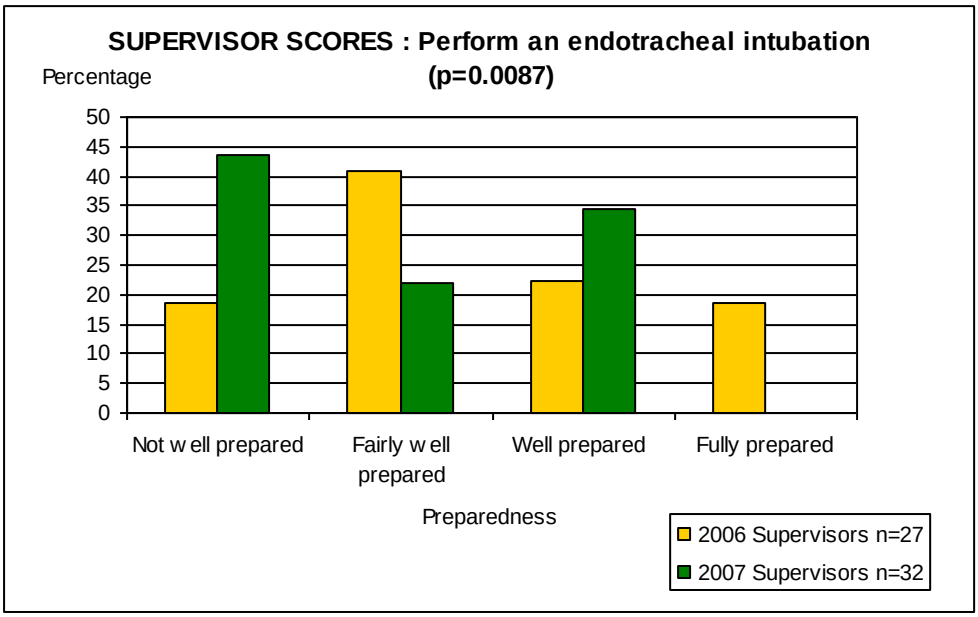

Figure 4.23 Supervisor responses regarding how well the curricula in 2006 and 2007 had prepared graduates to pass an endotracheal tube (item 3.2) (**p=0.0087**)

There was a significant difference between the supervisors' scores in the two years (Fisher's exact: **p=0.0087**). Figure 4.23 shows that the 2007 supervisors were less satisfied with the preparation of the GEMP graduates. Eighteen and a half percent (18.5%) of supervisors considered the 2006 interns to be "fully prepared" while none gave a score of five to interns in 2007. At the other extreme of the scale, more than double the number of supervisors indicated that the 2007 interns were not well prepared to perform endotracheal intubation.

There was no significant difference between the intern scores for endotracheal intubation with similar numbers of interns from both the 2006 and 2007 responding that they were "not well prepared" (32% in 2006 and 31% in 2007) and "fully prepared (13% in 2006 and 14% in 2007). The differences fell in the middle response categories.

Table 4.25a gives a summary the numbers of positive and negative comments made by the interns and supervisors comparing the two years.

Table 4.25a Summary of interview comments for interns and supervisors comparing the performance of endotracheal intubation by interns in 2006 and 2007

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Super-visors	Interns	Super-visors
Well prepared Done in anaesthetics	2	1	1	
Under prepared Not enough practice, few or none done, practised on dummies Supervisors: insufficient practical experience, had to be taught, weakness, fault of the internship system	24	2	22	7

There was a general trend in the comments that the interns from both years lacked experience and felt unsure of this procedure. Most of the comments related to the curriculum and are given in section B. One GEMP intern in 2007 stated:

"I am very unsure. I would do it in emergency but I'm not happy to do it".

The supervisors understood the intern's insecurity and some did not expect new graduates to be able to do this. They blamed the internship system for the lack of practice.

"Lack of experience – but would expect this with a new graduate. They learn here"

"She had difficulty on starting. She struggled, but undergraduate training is not the issue. It's the fault of the internship programme. They are not required to do this often enough in general surgery. They do enough in trauma but interns only do one or the other"

"There is a weakness *with the whole emergency resuscitation scene, but usually interns get better as they progress".*

B Competence related to the curriculum experienced (Objective 4)

Table 4.25b presents the themes that emerged from interns' and supervisors' comments which explained why the curricula had not adequately prepared interns for endotracheal intubation.

Table 4.25b Summary of interview comments for interns and supervisors in 2006 and 2007 relating their questionnaire responses to curriculum experience regarding endotracheal intubation

Themes B Comments on competence related to curriculum Experience (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Super-visors	Interns	Super-visors
Positive The anaesthetics rotation help to prepare for intubation	2	1	1	
Negative Interns: Insufficient practice on patients, not comfortable doing intubation, competition for practice with registrars and MOs, not well enough prepared, needed guidance and supervision, would do one in an emergency but not happy, taught this but find it difficult, used models rather than real patients, not taught, could not do paediatric intubation. Supervisors: Lacks experience, didn't seem to have done this	18	2	16	7
Anaesthetics rotation too short not always possible to tube in the two week block, amount of practice depended on the MO in charge	5		5	
Student issues My own fault, not enthusiastic as a student, there were opportunities but I didn't do it	2		1	

There were no positive comments which recorded experiences that were beneficial in learning to intubate patients. In 2006 two interns merely stated:

"It was done in anaesthetics" and *"I did anaesthetics for my elective"*.

One intern in 2007 said: *"Anaesthetics helped with intubations"*.

Both groups of interns reported not having had sufficient practice on actual patients even though they had been taught on models during their undergraduate training and a two-week

anaesthetics rotation in the fifth year. The interns in 2006 gave a variety of reasons why they felt under prepared in inserting endotracheal tubes.

"ET Intubation: We were in line behind registrars and medical officers for a chance to do intubations. We did some but it wasn't enough to feel confident doing them now"

"Not practiced – dummies used – not the same as real patients"

"We had only 2 weeks of anaesthetics; we didn't take it very seriously. It depended on whom you were with how much skill you developed".

The interns in 2007 gave similar comments regarding how they had been taught endotracheal intubation in their GEMP curriculum.

"I never got one at medical school. There were opportunities but I didn't do it"

"I did this as a student in anaesthetics but I haven't done it here. I dread the day I'll be alone and have to do it"

"We need more experience with people rather than with dummies. It's not always possible to tube in the 2 week block. Anaesthetics was short and in 5th year, a very long time since we had done it".

4.3.5.3.1 (b) Put up a drip (intravenous cannulation)

A Comparison of competence (Objective 3)

Table 4.26 gives the actual scores for interns, supervisors and colleagues regarding intravenous cannulation. The Fisher Exact test was used to compare the results because 25% of the cells had counts of less than five. There was a significant difference reported between the scores of the 2006 and 2007 interns (**p=0.03**).

Table 4.26 Intern, supervisor and colleague responses to the item on putting up a drip (intravenous cannulation) (item 3.7)

	2006			2007		
Item 3.7	Interns (%) n=75	Supervisors (%) n=76	Colleagues (%) n=71	Interns (%) n=76	Supervisors (%) n=75	Colleagues (%) n=73
1&2=not well prepared	1 (1.3)	2 (2.6)		0 (0.0)	0 (0.0)	
3=fairly well prepared	3 (4.0)	4 (5.3)	7 (9.9)	0 (0.0)	6 (8.0)	5 (6.9)
4=well prepared	3 (4.0)	23 (30.3)	19 (26.8)	10 (13.2)	23 (30.7)	12 (16.4)
5=fully prepared	68 (90.7)	47 (61.8)	45 (63.4)	66 (86.8)	46 (61.3)	56 (76.7)

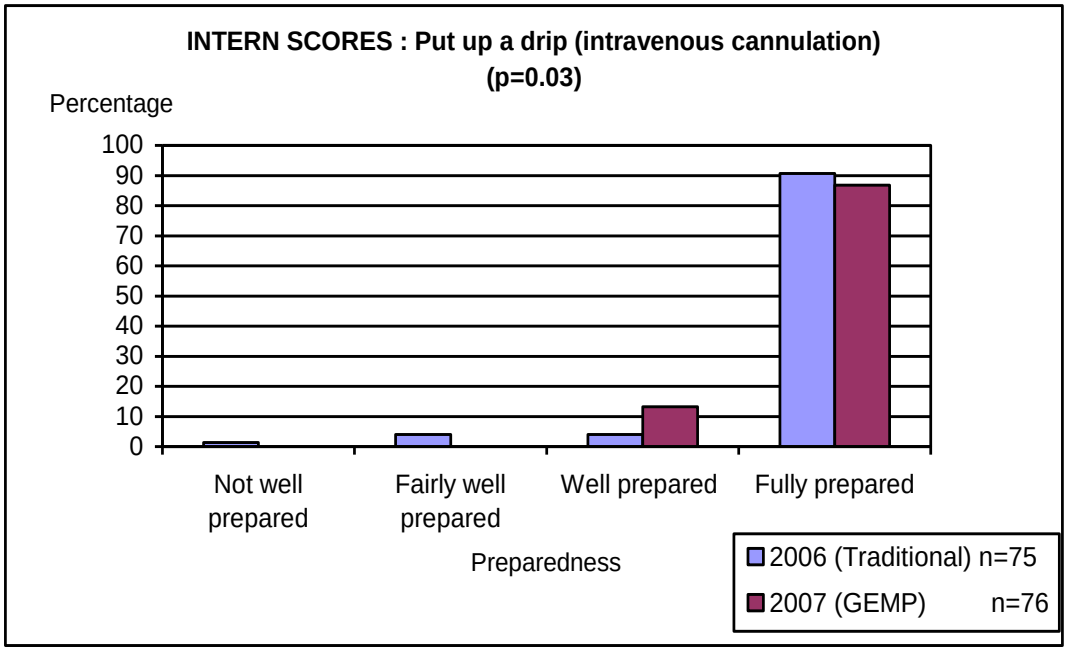

Figure 4.24 Comparison between the responses of the 2006 and 2007 interns regarding intravenous cannulation (item 3.7) (**p=0.03**)

The 2007 (GEMP) interns gave no responses in the lower two categories and more of them felt well prepared. The 2006 interns, however, had a slightly higher response rate in the "fully prepared" category. Overall the direction of the differences was in favour of the GEMP interns. Figure 4.24 shows these results graphically. There was no significant difference between the supervisor and colleague scores for this item.

Table 4.27a gives a count of the number of positive comments made by interns and supervisors while Table 4.28b relates the positive responses to curriculum experience gained in the traditional and GEMP curricula.

Table 4.27a Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding putting up a drip (intravenous cannulation)

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive comments only 2006: - Interns were well prepared, sufficient practice 2007: - clinical skills session helped - plenty of opportunities to learn and practice	50	26	35	28

Interns in both years commented that they generally felt confident in this skill.

"I was confident with this skill from the beginning" (2006).

The supervisors in both years made many comments about the intern's abilities with basic skills such as putting up an intravenous line but tended to consider these skills together.

"In general skills are very good" (2006)

"Basic procedures are very skilled and confident" (2007).

No negative comments were made by the 2006 or 2007 interns. A few colleagues made comments relating to intravenous cannulation which included both positive and negative observations about the interns' competence. In 2006 nurses said:

"She is especially good with drips"

"On the first day she was scared – needed lots of help on day one. Now she's fine".

Colleagues in 2007 commented:

"*Even scalp veins and arterial bloods on children were done alone and competently"*

"Clinical skills could be better e.g. drips, blood gases. This intern initially struggled with blood gas".

B Competence related to the curriculum experienced (Objective 4)

Table 4.27b Summary of interview comments for interns and supervisors in 2006 and 2007 relating their questionnaire responses to curriculum experience in putting up a drip (intravenous cannulation)

Themes B Comments on competence related to curriculum Experience (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Super-visors	Interns	Super-visors
Positive only in 2006 and 2007 Skills were well taught in the clinical years	9	3	6	3
Clinical experience – a lot of opportunities to practise skills, especially at Chris Hani-Baragwanath Hospital	31		12	
Dependent on the amount of initiative and effort put in by the interns themselves, taking every opportunity	1		4	
Formal training on putting up drips in a clinical skills unit			2	
Experience could be dependent on the medical officers in charge	1			
Problem that some interns were able to get away with not being in the wards – attendance was not enforced	2			

The interns in 2006 made the following comments about their undergraduate teaching and experience in putting up drips. It was clear that opportunities to learn and practice were plentiful but students needed to take advantage of these.

'We really had a lot of opportunity to do practical procedures like putting up drips. Of course it depended on how much we actually put into it"

"Able to perfect skills as an intern because of the good training as a student"

"Good exposure to these procedures, but this is situation–dependent on the medical officers in charge – others did not have such good experience"

"Confident herself, but commented that many students got away without being in the wards when they should be. For those who enjoyed practicing skills, opportunities were available, but attendance not enforced".

The 2006 supervisors' comments were rather general such as:

"Skills were well taught" and *"Good skills and emergency training"*.

The interns' colleagues were only asked to respond to the general item about competence in basic clinical skills but some in 2006 commented specifically on putting up drips.

"Fine with adults but less well prepared with children"

"Very well prepared, we don't have to be behind her, she knows her task and is fine with adults".

The 2007 interns commented:

"Skills are a function of how much you participated in your intakes"

"Clinical skills sessions were really helpful. We were able to use models to get the techniques before working on real people – even the simple needs to be taught"

"There was plenty of opportunity to learn procedures".

The 2007 supervisors commented on the training as follows:

"Well trained in these procedures".

4.3.5.3.1 (c) Initiate basic life support (cardiopulmonary resuscitation)

A Comparison of competence (Objective 3)

The second item in Category 3a on holistic patient management which showed a significant difference between the scores given by interns from the traditional curriculum and the GEMP related to the interns' ability to initiate basic life support. The 2007 (GEMP) interns felt significantly better prepared than the interns from the traditional degree in the (**p=0.01**). There was no significant difference between 2006 and 2007 supervisors on this item.

Table 4.29 shows the responses for interns and supervisors and Figure 4.25 presents the intern scores graphically.

Table 4.28 Item 3.10: Interns' responses to regarding the initiation of basic life support (cardiopulmonary resuscitation)

	2006		2007	
Item 3.10	Interns (%) n=75	Supervisors (%) *n=58	Interns (%) n=76	Supervisors (%) *n=53
1&2=not well prepared	8 (10.7)	5 (8.6)	4 (5.3)	6 (11.3)
3=fairly well prepared	23 (30.7)	12 (20.7)	13 (17.1)	13 (24.5)
4=well prepared	24 (32.0)	32 (55.2)	27 (35.5)	19 (35.9)
5=fully prepared	20 (26.7)	9 (15.5)	32 (42.1)	15 (28.3)

*Note: There were a large number of missing data for supervisors in 2006 (18) and 2007 (23) for this item

It is clear from Figure 4.25 that the GEMP interns rated themselves significantly better at initiating basic life support than did the interns from the traditional curriculum. Table 4.29a compares the comments made by interns and supervisors in 2006 and 2007 which relate the scores given regarding the initiation of basic life support to curriculum experiences.

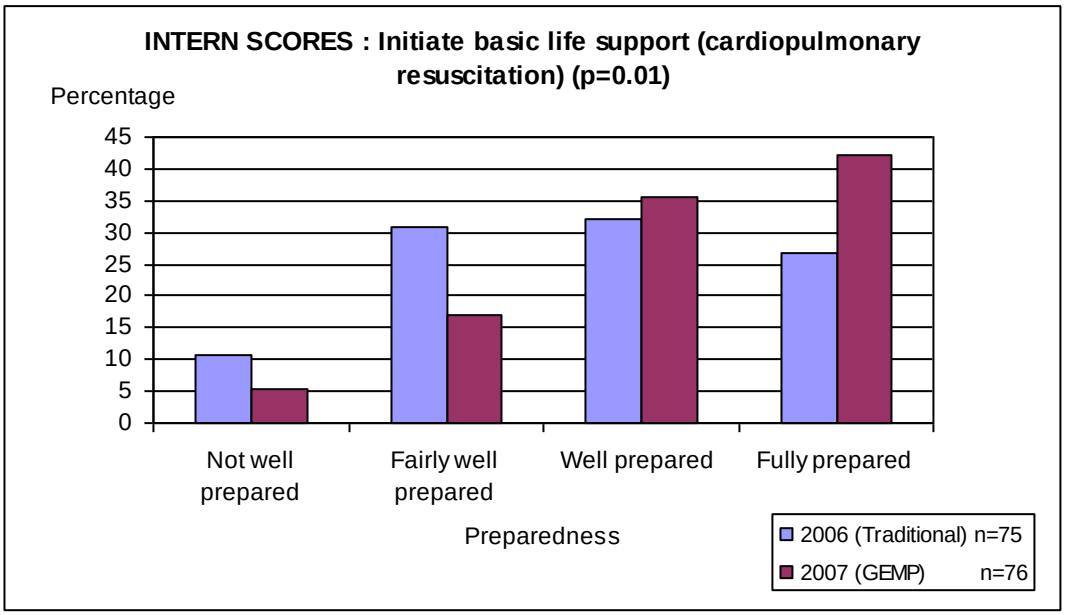

Figure 4.25 Comparison between scores for the 2006 and 2007 interns regarding the initiation of basic life support (item 3.10) **(p=0.01)**

Table 4.29a Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding the initiation of basic life support

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive: interns</u> 2006: No comments 2007: Did resuscitation alone, no problem <u>Positive: supervisors</u> 2006:Handles emergencies well, good skills 2007: Copes well, excellent in emergencies	0	4	1	8
<u>Negative: interns</u> 2006: - not prepared for the responsibility, observed only - not confident, not sure what to do 2007: - used to panic, all goes out of head - not at all confident, daunting Negative: supervisors 2006: - not confident at all, could be better 2007: - not well trained, general weakness, not good at providing basic life support	10	4	10	7

Despite this clear difference in the questionnaire responses, both groups of interns frequently commented on their problems with initiating basic life support in emergency situations at the start of their internship. A number of the comments are similar in the two years. The interns in 2006 commented:

"I was not prepared for such a big responsibility – had to learn to calm down"

"CPR is different in real life"

"At first wanted to run away from emergencies – just the word stresses me but at the same time I want to learn".

Supervisors' comments in 2006 indicated that some interns coped well with emergencies.

"Did well at performing a CPR" and *"Handles emergencies well".*

However there were also several criticisms with supervisors not satisfied with the interns' performance. One supervisor saw this as a problem of internship rather than of undergraduate training.

"In life support this intern is not confident at all"

"Fear of responding to emergencies – a general problem, not only this intern. It's almost as though there is avoidance"

"Again part of set up – they are not given enough responsibility as interns. They are over shadowed by Medical Officers".

Colleagues were not asked to respond to the item on initiating basic life support, but they did have an item in their questionnaire on the interns' ability to respond in an emergency. Some of their comments that relate to the initiation of care are also included in this section as the

nurses are often the first to call an intern to assist in an emergency. Their comments add additional perspective.

The colleagues in 2006 made both positive and critical comments as follows:

> *"He was called for a pneumothorax and inserted the drain alone. He handled it well and didn't panic"*

> "*There was a resuscitation the other day, fortunately he was here and he was excellent"*

> *"I think she wasn't confident enough".*

The interns in 2007 also made both positive and negative comments about their competence in emergencies:

> *"I did resuscitations on my own – no problem.*

> *It's a confidence thing for me. I'm not confident to be in charge. I need to call someone else".*

There were more positive supervisors' comments in 2007 than in 2006.

> *"Coped extremely well with emergencies right from the start"*

> *"This intern excelled at dealing with emergencies and triage".*

Some of the colleagues commented in 2007. There were no negative comments but a few that mentioned that the intern would call for help if necessary.

> *"We have been together for many resuscitation situations where she has remained calm and helped to organise the situation well"*

"Could even resuscitate, handled emergencies on his own before next call arrived"

"He manages to stabilise patients on his own. A senior was present for the resuscitation but this intern intubated alone".

B Competence related to the curriculum experienced (Objective 4)

Table 4.29b summarises the interns' and supervisors' comments that related competence in initiating basic life support to the training received in their respective undergraduate curricula.

Table 4.29b Summary of interview comments for interns and supervisors in 2006 and 2007 relating their questionnaire responses to curriculum experience in the initiation of basic life support

Themes B Comments on competence related to curriculum experience (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: Interns: Excellent course in medical emergencies 2006 and 2007: Supervisors: Good teaching (2006)	2	1	3	2
Negative: Interns: Insufficient training and practice, practice on dummies, big gap between course and internship 2006 and 2007: not enough casualty, only observed as students (2006) Supervisors: Better emergency training needed 2006: Need ATLS and PTLS before graduating	10	2	15	3

The interns in 2006 made the following comments relating to their undergraduate training in basic life support:

"*Definite deficiencies here – basic life support, trauma life support. There was not enough emergency training. We often have to deal with problems alone"*

"Third year emergency medicine was paper-based, not practical. 5th year very little – not enough"

"Emergency medicine was not adequate. In 3rd year nobody really cared and 5th year was not enough. I will solve the problem myself by taking an ATLS course"

"No basic CPR – this needs to be included"

"*Exposure as a student was inadequate. You struggle as an intern because you have to take over and take responsibility"*

"I handled emergency training in 6th year alright but after that I didn't deal with any for 6 or 7 months. As a student one is detached but as an intern one is much more involved – this requires adjustment"

"I never had the chance to assist with CPR – observation only".

The supervisors' comments in 2006 relating to training included one positive comment but others suggested the need for greater exposure to emergency training in the undergraduate curriculum:

"Medical schools could help by providing greater exposure in undergrad years"

"Basic life support training could be better"

"Universities do not prepare interns for emergencies. They should have Advance Trauma Life Support and Primary Care Trauma Life Support before they qualify – they should not be allowed to qualify if they don't".

None of the colleagues in 2006 made comments that related specifically to the interns' training in emergency procedures.

In 2007 the interns made a number of references to their undergraduate preparation to deal with emergencies. Some were positive and other highlighted the need for more training.

> *"The Emergency Medical block really helped – the way it was taught helped me remember"* and *"Emergency management was a brilliant course – we learned it well"*

> *"Life support – the knowledge is there but not enough practice on real patients"*

> *"We did trauma at the beginning of 5th year so there's a big gap. Perhaps a refresher course in 6th year would help"*

> *"More responsibility could be given to 6th year students. I have just done a Basic Life Support course – it might help to do BLS or Advanced Trauma Life Support in 6th year (we did do a mini BLS – but only one week)".*

The supervisors in 2007 made many positive comments about skills in general but none relating directly to how basic life support skills are taught at undergraduate level. One negative comment was, however, specific on this:

> **"***Not well trained, not good at providing basic life support".*

In 2007 a colleague, who was an intern peer, commented as follows about the interns' training:

> *"I would suggest more emphasis on this. As an intern these situations are most stressful for us on call alone and we should be adequately prepared".*

4.3.5.3.2 Involve the patient and his or her family in planning care

A Comparison of competence (Objective 3)

The second item that showed a significant difference in Category 3a on holistic patient management concerned the interns' competence at involving the patients and their families in care planning. The 2007 (GEMP) interns reported feeling significantly better prepared than interns from the traditional degree (**p = 0.01**). Table 4.30 gives the intern and supervisor scores. Figure 4.26 shows a graphic comparison between interns' scores in 2006 and 2007. There was no significant difference between the 2006 and 2007 supervisors' scores.

Table 4.30 Item 3.17: Scores for the 2006 and 2007 interns and supervisors regarding the involvement of the patient and his or her family in planning care

	2006		2007	
Item 3.17	Interns (%) n=75	Supervisors (%) n=74	Interns (%) n=76	Supervisors (%) n=70
1&2=not well prepared	12 (16.0)	3 (4.1)	4 (5.3)	8 (11.43)
3=fairly well prepared	25 (33.3)	25 (33.8)	18 (23.68)	18 (25.71)
4=well prepared	27 (36.0)	33 (44.6)	35 (46.05)	33 (47.14)
5=fully prepared	11 (14.7)	13 (17.6)	19 (25.00)	11 (15.71)

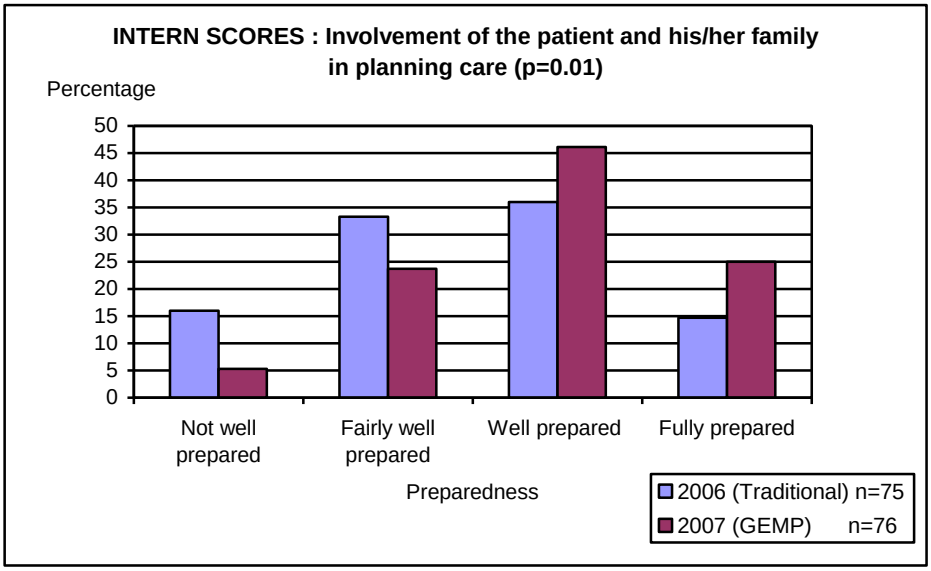

Figure 4.26 Comparison of the responses of interns in 2006 and 2007 regarding the involvement of patients and their families in planning care (item 3.17) (**p=0.01**)

Table 4.31a compares the general themes identified by interns and supervisors in 2006 and 2007 regarding the interns' competence at involving patients and their families in planning their care.

Table 4.31a Summary of interns' and supervisors' comments comparing the competence of the 2006 and 2007 interns in the involvement of patients and their families in planning care

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> 2006: - try to help patients 2007: -I try but get no support because of resources (other comments related to curriculum) Supervisors 2006: - works in the best interests of patients 2007: - very patient orientated	7	3	5	2
<u>Negative</u> Interns 2006: - have not had experience - families not around 2007: - didn't do much of this - difficult to get families involved, absent Supervisors 2006: - emphasis on disease rather than patient - don't take these things into account	6	3	1	6

One of the supervisors in 2006 commented positively about an intern.

> *"This intern is an inherently caring person - mature, emotionally intelligent".*

However, another three supervisors in 2006 were critical of the lack of consideration for patients and their families.

> "*Interns generally don't take these things into account. They just think of the disease process and management".*

Three supervisors in 2007 were positive and complimented interns on their caring attitude:

"An aspect of her good patient care"

"Very patient orientated and considerate".

Other 2007 supervisors were critical of the lack of attention paid to the patients and families.

"I have to initiate involvement of patient/family in planning care – the intern doesn't take the initiative"

"Not good at involving the patient and family – to some extent could be a time factor".

B Competence related to the curriculum experience (Objective 4)

Table 4.31b gives a summary of the interns' and supervisors' comments which clearly related to the curriculum experienced. This is followed by selected quotations which expand on the counts in the table.

Table 4.31b Summary of interns' and supervisors' comments in 2006 and 2007 relating the inclusion of patients their families in planning care to curriculum experience

Themes B : Comments on competence related to curriculum experience (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Super-visors	Interns	Super-visors
Positive Curriculum prepared interns to involve patients and their families Additional exposure in this field beyond the curriculum, Good teaching, emphasis on interpersonal communication in the curriculum	7	3	6	0
Personality - Inherently caring interns but not necessarily related to the curriculum		2		2
Negative - Not prepared Does not consider patients/families in planning care Emphasis on disease and not the patient Not taught social aspects	6	3	1	6

The 2006 interns said that they had not been taught about this aspect specifically and had had little opportunity to practise it during their undergraduate years. On the positive side two interns commented:

"I make an effort to involve the patient in planning care. I spent a lot of time at Hospice (much more than 6th year requirement), working with social workers – much of the preparation was possibly a result of my own initiative"

"Good experience at Alex – diabetic clinic etc – there was supervision but had to take some responsibility – responded well to that"

"We were encouraged to follow up patients at Wits".

However, many interns said that they had not had much preparation or practice at this.

"We were not taught social aspects, never dealt with this"

"Not really taught but in any case we are too rushed. It's difficult to find time to talk to patients at Bara"

"We didn't learn much at Medical School and only a minimal amount at Alex clinic".

Supervisors in 2006 commented positively but did not relate this directly to aspects of the curriculum, putting this down to personality and training.

"It's probably a combination of personality and training – difficult to separate".

The positive comments from the GEMP interns in 2007 acknowledged the theoretical exposure that they had received in this area in their curriculum.

"Good patient teaching – we were taught not to use jargon when talking to patients"

"Very much emphasised in the curriculum. It was related to theme sessions and gave good awareness".

However, some of the 2007 interns admitted to having difficulty putting this teaching into practice during internship:

"We were taught how to do it in theory but we didn't have practical experience as a student".

The intern responses reported here indicate that the graduates from the GEMP had a clear understanding of this aspect of their undergraduate curriculum. They could identify where they had learned these skills and what they had been taught, even if they were unable to always practice it. Only one supervisor in 2006 related this competence directly to the undergraduate learning but others considered personality to play more of a role than teaching.

4.3.5.4 Category 4: Community Health

A Comparison of competence (Objective 3)

Category 4 sought to survey the opinions of interns and their supervisors on how well prepared the graduates from the two different curricula were in dealing with South African community health issues.

Table 4.32 and Figures 4.27 and 4.28 give the detailed scores for category 4 as a whole. Table 4.33 shows that the GEMP interns in 2007 reported feeling significantly better prepared in Community Health than the 2006 interns from the traditional curriculum (**p=0.0002**). Three of the four individual items in this category also showed a significant difference in the same direction. These are reported in the subsequent tables and bar charts. There were no significant differences between the supervisors' scores in 2006 and 2007.

Table 4.32 Category 4: Overall scores for Community Health

	2006		2007	
CATEGORY 4	Intern (%)	Supervisor (%)	Intern (%)	Supervisor (%)
1&2=not well prepared	48 (16.0)	12 (4.2)	18 (5.9)	16 (5.6)
3=fairly well prepared	88 (29.2)	78 (27.4)	77 (25.4)	78 (27.1)
4=well prepared	113 (37.5)	139 (48.8)	136 (44.9)	121 (42.0)
5=fully prepared	52 (17.3)	56 (19.7)	72 (23.8)	73 (25.4)
TOTAL: item responses	301 (100)	285(100)	303(100)	288(100)

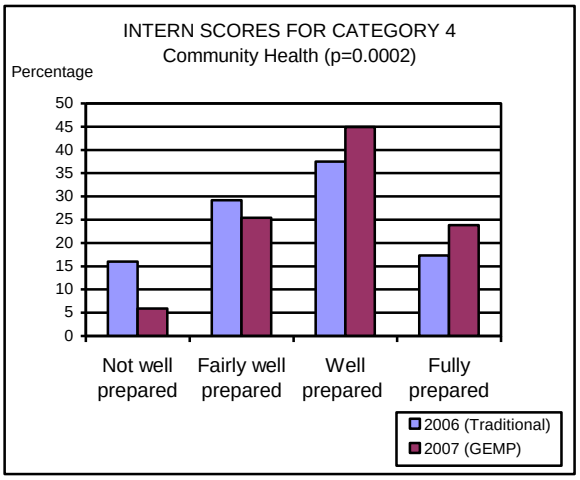

Figure 4.27 Comparison between interns' responses for Category 4: Community Health in 2006 and 2007. (**p=0.0002**)

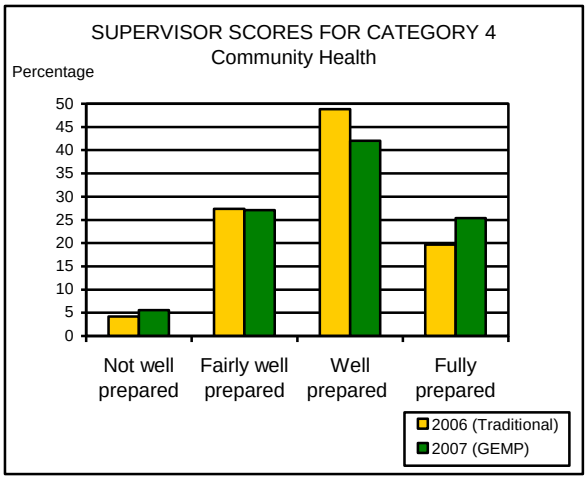

Figure 4.28 Comparison between supervisors' responses for Category 4: Community Health in 2006 and 2007 (n/s

Table 4.33 Results of the intern and supervisor responses to the items under category 4 on "Community Health"

		Significance **Interns** 2006 vs 2007	Significance **Supervisors** 2006 vs 2007
4	**Category 4: Community health How prepared was this intern to:**	$\chi^2_{MH} = 19.68$ **p=0.0002**	$\chi^2_{MH} = 4.04$ p=0.26 n/s
4.1	Item 34: work with ambulatory patients in clinics and outpatient departments	**p = 0.05 2007>2006**	n/s
4.2	Item 35: provide the best possible care for your patients within the delivery constraints of the SA health care system	n/s	n/s
4.3	Item 36: take into account the patients' home circumstances when planning for discharge and aftercare	**p = 0.003 2007>2006**	n/s
4.4	Item 37: incorporate knowledge of SA communities and cultures in caring for your patients	**p = 0.01 2007>2006**	n/s

4.3.5.4.1 Working with ambulatory patients in clinics and outpatient departments

A Comparison of competence (Objective 3)

Table 4.34 and Figure 4.29 show that the 2007 (GEMP) interns felt better prepared to work with ambulatory patients in clinics and outpatient departments than did the 2006 interns from the traditional degree. The difference in scores was just significant (**p = 0.05**). There was no significant difference between the 2006 and 2007 supervisors on this item.

Table 4.34 Item 4.1: Comparison between interns and supervisors in 2006 and 2007 regarding working with ambulatory patients in clinics and outpatient departments

	2006		2007	
Item 4.1	Interns (%) n=73	Supervisors (%) n=64	Interns (%) n=75	Supervisors (%) n=67
1&2=not well prepared	6 (8.2)	1 (1.6)	6 (8.0)	4 (6.0)
3=fairly well prepared	25 (34.3)	13 (20.3)	13 (17.3)	18 (26.9)
4=well prepared	31 (42.5)	39 (60.9)	39 (52.0)	29 (43.3)
5=fully prepared	11 (15.1)	11 (17.2)	17 (22.7)	16 (23.9)

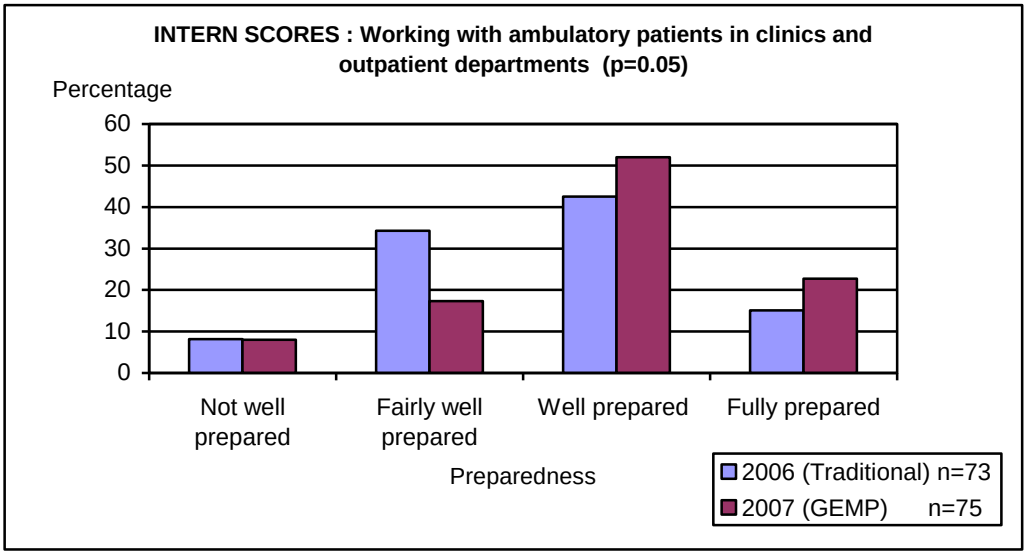

Figure 4.29 Comparison between scores for the 2006 and 2007 interns regarding working with ambulatory patients in clinics and outpatient departments (item 4.1) (**p=0.05**)

Table 4.35a gives a summary of the themes identified during the interviews and this is followed by some quotations in which the interns try to relate their responses to the curriculum which they had experienced.

Table 4.35a Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding working with ambulatory patients

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> Interns 2006: Enjoy outpatients, had a lot of experience 2007: Liked this Supervisors 2006: Works well in outpatients, enjoyed it 2007: Works well in clinics, able to recognise patients needing admission	3	2	1	2
<u>Negative</u> Interns 2006: Lack experience, difficult 2007: Unsure, difficult, insecure Supervisors 2006: No comments 2007: Did not seem confident	4	0	2	1

Two supervisors in each study year commented positively on the interns' abilities in outpatients. The supervisors in 2006 said:

"He works well in out patients" and *"Seems to enjoy working in outpatient clinics"*.

In 2007, supervisors suggested that interns do not often work in outpatient departments and that are not allowed to do much there. This is not true of all hospitals, especially the non-teaching hospitals at the regional and district levels.

"*They are not allowed to do a lot in OPD but from the bit I've seen he didn't seem too confident"*.

Two interns agreed with this saying that it is difficult for them in outpatients and that consultants do most of the work.

"I don't know where I'm going with this or how to review the situation properly"

"Very difficult – usually consultants do this".

Positive comments were also made by supervisors in 2007.

"In the gynaecology clinic this intern is able to recognise patients needing admission"

"Works well in clinics".

B Competence related to the curriculum experienced (Objective 4)

Table 4.35b gives a summary of the comments which relate competence with ambulatory patients to the respective curricula of traditional and GEMP interns. The supervisors did not relate their scores to the undergraduate curricula.

Table 4.35b Summary of interns' comments in 2006 and 2007 relating their questionnaire responses to curriculum experiences in working with ambulatory patients

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: 2006 - none 2007 - clinics in third and fourth years	0	0	2	0
Negative: 2006 - insufficient exposure to clinics - observed but did not work actively 2007 - seen but not much supervision - we lacked preparation - taught mostly complicated conditions and not enough GP work	4	0	4	0

Comments recorded by both groups of interns related mainly to a lack of exposure to ambulatory care in outpatient departments and clinics during their undergraduate years.

The 2006 interns commented on their experiences as students regarding ambulatory care:

> *"It's one thing to see but another to have to make decisions. I'm very insecure when it came to making big calls – not sure how this could be improved. We never find out about long term management as a student. You have to learn this as an intern"*

> *"Not enough exposure to OPD. I was only in outpatients on six occasions – no active management".*

The 2007 interns reported being exposed to mainly hospitalised in-patients in their undergraduate years and felt that more exposure to ambulatory patients should have been included so that they could learn to manage simpler outpatients' complaints:

> *"In med school, we were exposed to the more complicated diseases – need to know more about the GP stuff – sore throat, runny nose"* and *"The greater part of exposure at medical school was to in-patients not out-patients".*

4.3.5.4.2 Taking into account the patients' home circumstances when planning for discharge and aftercare

A <u>Comparison of competence (Objective 3)</u>

Table 4.36 and Figure 4.30 show that the 2007 (GEMP) interns reported feeling significantly better prepared than the interns from the traditional curriculum to take into account the patients' home circumstances when planning for discharge and aftercare (**p=0.003**). There was no significant difference between the supervisors' scores in 2006 and 2007.

Table 4.36 Item 4.3: Intern and supervisor scores in 2006 and 2007 regarding taking into account the patients' home circumstances when planning for discharge and aftercare

	2006		2007	
Item 4.3	Interns (%) n=76	Supervisors (%) n=74	Interns (%) n=76	Supervisors (%) n=71
1&2=not well prepared	19 (25.0)	5 (6.8)	2 (2.6)	4 (5.6)
3=fairly well prepared	21 (27.6)	26 (35.1)	22 (29.0)	24 (33.8)
4=well prepared	21 (27.6)	29 (39.2)	32 (42.1)	26 (36.6)
5=fully prepared	15 (19.7)	14 (18.9)	20 (26.3)	17 (23.9)

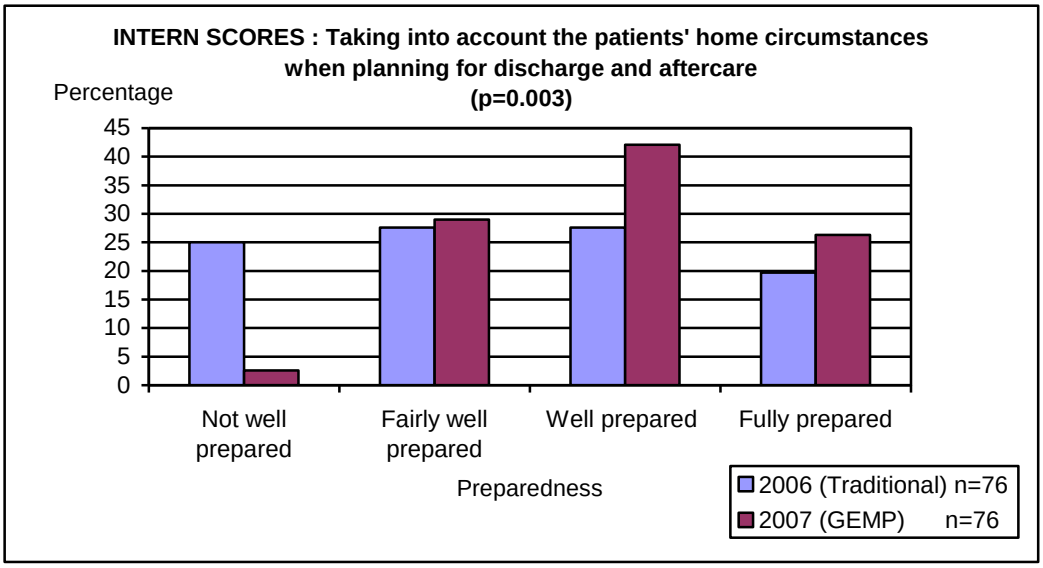

Figure 4.30 Comparison between the preparedness of interns in 2006 and 2007 to take into account patients' home circumstances when planning discharge and aftercare (item 4.3) (**p=0.003**)

Table 4.37a presents a comparison of the numbers of positive and negative comments made during the interviews while Table 4.37b gives the comments which relate the scores for this item to the particular curriculum experienced. Quotations are included to complement the tables.

Table 4.37a Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding taking into account the patients' home circumstances when planning for discharge and aftercare

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> Interns 2006: Continuous contact with patients and their families 2007: Comments all related to GEMP Supervisors 2006 and 2007: General comments about caring for patients, not specific to home circumstances	1	1	0	4
<u>Negative</u> Interns 2006: Not sure this is being done, don't know patients' backgrounds 2007: No time, huge patient load Supervisors 2006: Need for more PHC practice 2007: I have to see this is done, not thinking broadly enough	3	1	1	2

An intern working in an urban hospital but at district level in 2006 commented:

> *"We have to do this here. Communication is very important. We are in continuous contact with patient and patient's family"*.

One of the supervisors in 2006 commented positively on an intern's efforts in this regard and another made a general comment about the need for improved Primary Health Care (PHC) practice.

> *"Works in best interests of patients and considers their situations and backgrounds – probably a combination of personality and training – difficult to separate"*

> *"There is a need for PHC <u>practice</u> that does not rely on specialist investigations but rather on the doctor's ability to elicit signs and come up with a diagnosis"*.

In 2007 the interns reiterated the problems of high patient loads during internship:

"Sometimes it's a problem – the patient numbers are so great. There may be a communication barrier and many patients are not from around here"

"We just don't have time. It's not a knowledge or a willingness issue; it's just difficult with so many patients".

The supervisors in 2007 made both positive and negative comments about the interns' consideration of the patients' home circumstances.

"*Very good with patients and with taking circumstances into account"*

"Cares about her patients and does her best for them"

"I have to see that they take account of the patients' circumstances".

B Competence related to the curriculum experienced (Objective 4)

Table 4.37b Interview comments for interns and supervisors in 2006 and 2007 which relate questionnaire responses to curriculum experience in taking the patients' home circumstances into account when planning for discharge and aftercare

Themes B Comments on competence related to curriculum experience (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: Interns 2006: Well taught in clinical year 2007:Related to GEMP theme sessions, lots of focus on social things, community visits helped. Supervisors: 2006 and 2007: no comments	1	0	4	0
Negative: Interns 2006: Social part is missing from curriculum, not taught enough, more rural health needed 2007: No curriculum comments Supervisors: 2006:no comment on curriculum 2007: insufficient PHC in the curriculum	5	0		1

Table 4.37b gives a summary of the interns' and supervisors' comments which relate the interns' competence in considering the patients' home circumstances to the curriculum. This is followed by quotations to give a sense of the interns' and supervisors' comments which attempt to relate their questionnaire responses to teaching and learning in the undergraduate curricula about the social, cultural and socio-economic implications of discharge planning for patients.

The 2006 interns reflected on their undergraduate training regarding the need to take the patients home circumstances into account when discharging them. One intern commented positively:

"We were encouraged to follow up patients at Wits".

There were a number of comments indicating that this was not well covered in the traditional curriculum.

"Healthcare needs to be seen in a social context. I don't think any teaching can give you this entirely. More rural health would help – you need to have insight into the specific community you are going to practise on"

"Not sure how to do this in the Bara situation"

"We were not encouraged to treat holistically. Students don't know patient backgrounds"

"We were not taught best possible care in different environments at the Johannesburg General Hospital - not like here".

Only supervisor in 2006 commented in general on the relationship of this aspect of the intern's undergraduate training to the undergraduate curriculum.

"There is a general primary health care-related weakness – probably not enough primary health care in the curriculum".

The interns in 2007 were generally more positive about the preparation that they had received and referred to the theme sessions (Community/Doctor theme) as being most beneficial to this aspect of their internship practice.

"This related to GEMP theme sessions. We were made very aware"

"Community site visits were really good".

The supervisors in 2007 referred only to a general weakness in this area and felt that personality also played a role in whether interns take account of the patients' home situation.

"To some extent related to teaching/knowledge, but mainly personality"

"General primary health care-related weakness – probably not enough primary health care in the curriculum".

4.3.5.4.3 The incorporation of knowledge of South African communities and cultures in caring for patients

A Comparison of competence (Objective 3)

Table 4.38 and Figure 4.31 give the responses of the interns and supervisors in 2006 and 2007 to item 4.4 on how prepared the interns were to incorporate their knowledge of South African communities and cultures when caring for their patients. The 2007 (GEMP) interns felt significantly better prepared than the interns from the traditional degree (**p = 0.014**). There was no significant difference in the scores given by the supervisors in 2006 and 2007.

Table 4.38 Item 4.4: Intern and supervisor scores in 2006 and 2007 regarding the incorporation of knowledge of South African communities and cultures in caring for patients

	2006		2007	
Item 4.4	Interns (%) n=76	Supervisors (%) n=72	Interns (%) n=76	Supervisors (%) n=75
1&2=not well prepared	17 (22.4)	5 (6.9)	4 (5.3)	6 (8.0)
3=fairly well prepared	20 (26.3)	26 (36.1)	21 (27.6)	19 (25.3)
4=well prepared	24 (31.6)	28 (38.9)	29 (38.2)	31 (41.3)
5=fully prepared	15 (19.7)	13 (18.1)	22 (28.6)	19 (25.3)

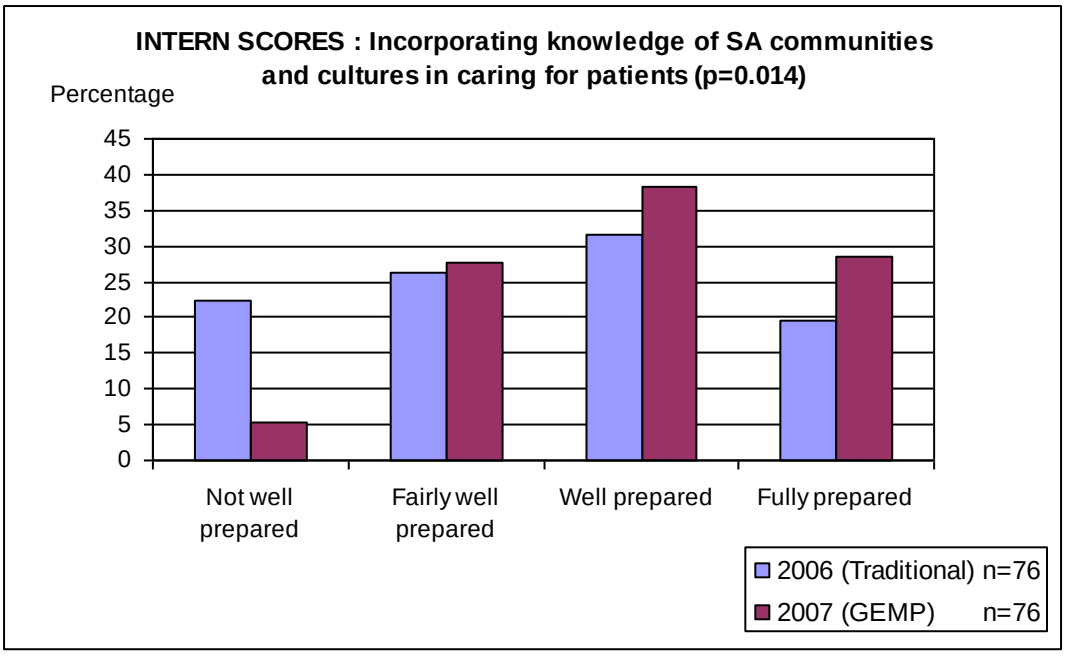

Figure 4.31 Comparison of interns' scores in 2006 and 2007 regarding the incorporation of their knowledge of South African communities and cultures in caring for patients (item 4.4) **(p = 0.014)**

Table 4.39a compares the number of positive and negative comments made by interns and supervisors about the interns' knowledge of communities and culture in South Africa. This table is followed by some direct quotations.

Table 4.39a Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding the incorporation of knowledge of South African communities and cultures into patient care

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> Interns 2006: I always try to do this 2007: No comments Supervisors 2006:Interns were well prepared, knows language, considers situations/backgrounds 2007: Very aware of cultural issues, patient circumstances, socioeconomic problems	2	3	0	5
<u>Negative</u> Interns 2006: Not considered due to workload, not sure of needs of patients, families not present 2007: Not enough practice, new situation in internship Supervisors 2006: Problems understanding cultural beliefs, weak in this area, new situations 2007: General PHC weakness, not aware of resources	6	4	4	2

Comments which expressed how the interns in 2006 managed community and cultural differences in their internship practice included very few statements about how competent the interns felt to do this. The fact that they often moved to other provinces for their internship, meeting other cultural groups and practices meant making readjustments for which the interns sometimes felt unprepared.

> *"The Western Cape is very different from Gauteng, I have to adapt to the change in environment"*.

This was also noted by one of the supervisors in 2006:

> "This intern has not been exposed to this particular population but is starting to handle it better".

The supervisors in 2006 commented:

> *"He always tries to help his patients – knows the language and even helps his supervisor with this"*
>
> *"All interns have problems here. Patients have deep-seated cultural beliefs which need to be taken into account".*

The 2007 interns did not comment at all on their own positive feelings of competence, focusing their comments on the GEMP training that they had received (Table 4.39b). Like the traditional interns, the move to other areas of South Africa brought challenges both in dealing with cultural differences as well bureaucratic issues.

> *"Coming to Cape Town was a completely different culture. I didn't know the Western Province government – there are changes in regulations all the time. It's a totally different environment here"*
>
> *"I am aware of the differences but not how to deal with them".*

Here again, the supervisors in 2007 made several complimentary remarks.

> *"Very good with patients, again part of a caring personality"*
>
> *"Very aware of socioeconomic problems and cultural issues"* .

B Competence related to the curriculum experienced (Objective 4)

Table 4.39b presents a summary of those comments in which the interns and supervisors related their responses to this item to the respective curricula in 2006 and 2007.

Table 4.39b Interview comments for interns and supervisors in 2006 and 2007 which relate questionnaire responses to curriculum experience regarding the incorporation of knowledge about South African communities and cultures into patient care

Themes B: Comments on competence related to curriculum experience (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> Interns 2006: HBS in first year helped, community medicine taught quite well 2007: emphasised strongly in GEMP, well aware Supervisors 2006: Well prepared but also personality 2007: Probably personality	3	2	5	1
<u>Negative</u> Interns 2006 Taught but not enough, very small part of training, social part missing from curriculum 2007: aware of cultural differences but not how to deal with them, environment doesn't allow for this, Supervisors 2006: Medical school needs to do more 2007: Insufficient PHC in curriculum, not well prepare	12	1	2	1

Interns from the traditional curriculum in 2006 commented frequently on the lack of emphasis on social and cultural issues in their undergraduate education. A small number had taken a selective course called Human Behavioural Sciences (HBS) in first year and some continued this into second year. This gave valuable insight into South African culture and health issues.

"I did HBS [Human Behavioural Sciences] in 1st and 2nd year. It really helped".

Other 2006 interns spoke about the lack of emphasis on social and cultural matters in their curriculum and felt that it would have been beneficial to have had more emphasis on this during their undergraduate training.

"Only a small part of training. I am not sure how rehabilitation would be arranged. Not clear how traditional medicine can be incorporated and doubt that it would help"

"They tried to teach us in community medicine but it was always such a short block"

"Not stressed enough. We need to understand why people take herbal medicine – we were taught to criticize people who do this".

Again the supervisors did not comment specifically on the ways that the curriculum prepared interns in this area and comments tend to relate caring behaviours to personality. The 2006 supervisors also commented both positively and negatively:

"Works in best interests of patients and considers their situations and backgrounds – probably a combination of personality and training – difficult to separate"

"Medical schools definitely need to do more – different cultures have different attitudes to disease. A crash course in Zulu could be given but more technique in asking what is important is needed – many things are missed because of approach, clinical info is missed".

The 2007 interns had covered this aspect fairly extensively in the GEMP but some still found it difficult to put this knowledge into practice.

"*Lack of practice but not lack of information in curriculum. I'm aware of differences but not how to deal with them"*

"Biopsychosocial teaching helped, it was emphasised strongly in the GEMP".

One supervisor of a 2007 intern commented:

"*Not well prepared – not aware of resources in the community"*

4.3.5.5 Category 5: Professional attitudes and values/Ethics

A Comparison of competence (Objective 3)

Table 4.40 Category 5: Overall scores for professional attitudes and values / Ethics

	2006		2007	
CATEGORY 5	Intern (%)	Supervisor (%)	Intern (%)	Supervisor (%)
1&2=not well prepared	31 (10.2)	19 (6.5)	22 (7.2)	14 (4.9)
3=fairly well prepared	71 (23.4)	72 (24.6)	61 (20.1)	59 (20.6)
4=well prepared	106 (34.9)	114 (38.9)	117 (38.5)	102 (35.5)
5=fully prepared	96 (3106)	88 (30.0)	104 (34.2)	112 (39.0)
TOTAL: item responses	304(100)	293(100)	304(100)	287(100)

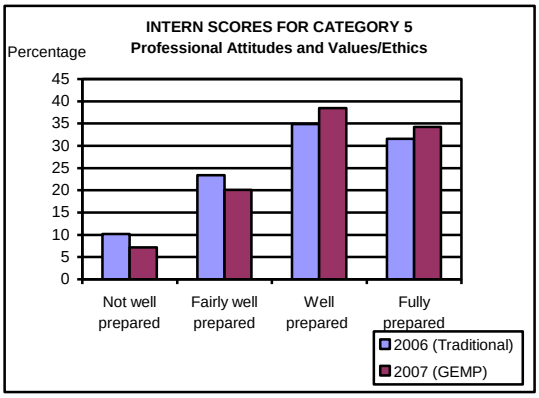

Figure 4.32 Comparison between interns' responses for Category 5 Professional Attitudes and Values/Ethics in 2006 and 2007(n/s)

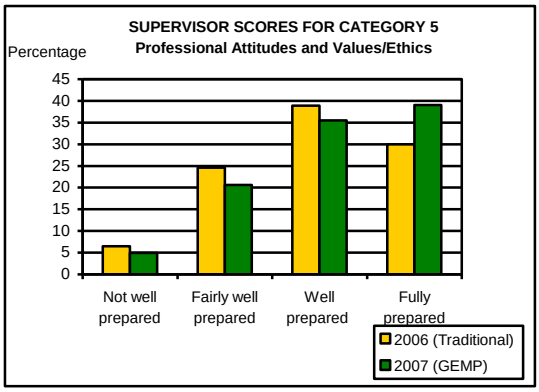

Figure 4.33 Comparison between supervisors' responses for Category 5: Professional Attitudes and Values/Ethics in 2006 and 2007 (n/s)

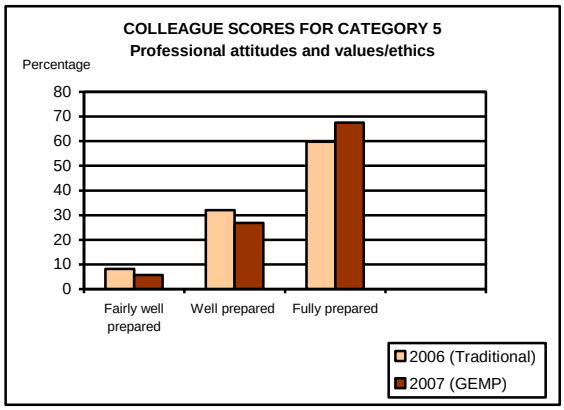

Figure 4.34 Comparison between colleagues' responses for Category 5 Professional Attitudes and Values/Ethics in 2006 and 2007 (n/s)

Table 4.40 and Figures 4.32, 4.33 and 4.3.4 give the interns', supervisors' and colleagues' scores for the item on professional attitudes and values, which incorporate ethical practice. Together with Table 4.41 these results show that there were no significant differences between the 2006 and 2007 interns', supervisors' or colleagues' for the category as a whole or for any of the individual items.

Table 4.41 Intern, supervisor and colleague responses to questionnaire items under category 5 on "Professional values and attitudes, and Ethics"

		Cochran-Mantel-Haenszel Statistics for ordinal data		
		Interns 2006 vs 2007	**Supervisors** 2006 vs 2007	**Colleagues** 2006 vs 2007
Category 5: Professional values and attitudes, and Ethics (overall) **How prepared was this intern to:**		$\chi^2_{MH} = 3.14$ p=0.37 n/s	$\chi^2_{MH} = 5.52$ p=0.14 n/s	$\chi^2_{MH} = 3.71$ p=0.16 n/s
5.1	Item 38: incorporate ethical principles (beneficence, non-maleficence, autonomy and justice) into patient care	n/s	n/s	n/s
5.2	Item 39: deal respectfully with patients and colleagues of all races, cultures, abilities and socioeconomic levels	n/s	n/s	n/s
5.3	Item 40: know the patients' rights and assist them to stand up for their rights	n/s	n/s	n/s
5.4	Item 41: know about medico-legal risks and working within the law	n/s	n/s	n/s

Although none of the quantitative comparisons of competence between the two groups of interns reached significance, it is valuable to look at the qualitative data, especially those comments that relate to Objective 4 so that indications of intern satisfaction, criticisms or suggestions are reported. A composite table of results summarising the non-significant items (Table 4.42) is included to aid interpretation of qualitative data.

For the qualitative data, the comparative table giving the vertical analysis counts of comments relating to intern competences, Table 4.43a, and Table 4.43b which gives counts of comments relating scores to the curricula both include all four of the items in this category. Illustrative quotations are given from interns, supervisors and colleagues.

Table 4.42 Composite table showing the interns' and supervisors responses to the ten non-significant items in Category 5

	2006		**2007**	
Item 5.1: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to incorporate ethical principles (beneficence, non-maleficence, autonomy and justice) into patient care				
	Intern (%) n=76	Supervisor (%) n=75	Intern (%) n=76	Supervisor (%) n=72
1&2=not well prepared	10 (13.2)	2 (2.7)	3 (4.0)	1 (1.4)
3=fairly well prepared	16 (21.1)	20 (26.7)	13 (17.1)	17 (23.6)
4=well prepared	28 (36.8)	34 (45.3)	35 (46.1)	29 (40.3)
5=fully prepared	22 (29.0)	19 (25.3)	25 (32.9)	25 (34.7)
Item 5.2: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to deal respectfully with patients and colleagues of all races, cultures, abilities and socioeconomic levels				
	Intern (%) n=76	Supervisor (%) n=74	Intern (%) n=76	Supervisor (%) n=74
1&2=not well prepared	2 (2.6)	3 (4.1)	0(0.0)	0 (0.0)
3=fairly well prepared	5 (6.6)	6 (8.1)	6 (7.9)	6 (8.1)
4=well prepared	23 (30.3)	21 (28.4)	24 (31.6)	18 (24.3)
5=fully prepared	46 (60.5)	44 (59.5)	46 (60.5)	50 (67.6)
Item 5.3: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' knowledge of their patients' rights and assisting them to stand up for their rights				
	Intern (%) n=76	Supervisor (%) n=72	Intern (%) n=76	Supervisor (%) n=71
1&2=not well prepared	4 (5.3)	5 (6.9)	5 (6.6)	5 (7.0)
3=fairly well prepared	22 (29.0)	20 (27.8)	19 (25.0)	17 (23.9)
4=well prepared	32 (42.1)	34 (47.2)	27 (35.5)	29 (40.9)
5=fully prepared	18 (23.7)	13 (18.1)	25 (32.9)	20 (28.2)
Item 5.4: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' knowledge about medico-legal risks and working within the law				
	Intern (%) n=76	Supervisor (%) n=72	Intern (%) n=76	Supervisor (%) n=70
1&2=not well prepared	15 (19.7)	9 (12.5)	14 (18.4)	8 (11.4)
3=fairly well prepared	28 (36.8)	26 (36.1)	23 (30.3)	19 (27.1)
4=well prepared	23 (30.3)	25 (34.7)	31 (40.8)	26 (37.1)
5=fully prepared	10 (13.2)	12 (16.7)	8 (10.5)	17 (24.3)

A calculation of the combined top two percentages ("well prepared" and "fully prepared") for each item shows that the GEMP interns rated themselves slightly higher in each of the items. The qualitative data will help to explain why this is so.

Table 4.43a gives only the number of comments made for each of the four items regarding competence. The themes and illustrative quotations are discussed thereafter.

Table 4.43a Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding professional attitudes and values/Ethics

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: Incorporate ethical principles	11	5	6	11
Positive: Deal respectfully with patients and colleagues	22	23	17	28
Positive: Know and uphold patients' rights	9	6	6	7
Positive: Know medico-legal risks and work within the law	5	4	3	7
Negative: Incorporate ethical principles	9	1	3	0
Negative: Deal respectfully with patients and colleagues	2	2	0	0
Negative: Know and uphold patients' rights	4	3	4	3
Negative: Know medico-legal risks and work within the law	16	7	14	6

Incorporating ethical principles

In 2006 eleven interns felt positive about their competence to apply ethical principles and all of these comments acknowledged that this was learned as students and will be reported under section B. The supervisors in 2006 made a few comments, five of them positive with only one negative comment. A few examples are:

"Always applies ethical principles" and *"Applies his knowledge of Ethics".*

"Unsure about applying ethical principles".

The interns in 2007 made six positive and three negative comments regarding their ability to incorporate Ethics into their internship practice and one examples of each.

"I could incorporate these areas into ward rounds – difficult to apply in real circumstances"

"We were taught a lot but practically it's difficult to apply – we have to follow instructions from seniors".

The supervisors in 2007 made only positive comments such as:

"Good appreciation of ethical principles" and *"This intern has a good ethical approach"*

"I am impressed with the way she questions decisions, giving consideration to everyday ethical issues".

<u>Dealing respectfully with patients and colleagues</u>

Both groups of interns and their supervisors made many comments about this item and most of them were positive. Three themes emerged:

- Respect is an individual matter and is learned at home and throughout life and not in a formal curriculum. (The supervisors comments all fell into this theme).

"Respect important – taught at home, school, varsity" (2006)

"Respect is something you should have, not need to be taught" (2007).

- Respectful interaction with diverse groups of people was encouraged at Wits and learned during clinical practice and through role models .

"Wits is very diverse and one meets people from all over" (2006)

"You have to be, especially with the sisters" and "Teachers set good examples" (2007)

"Respect was well taught and was learned in the curriculum in Community Health in 2006 and in the PD and CD themes in 2007" (this relates to Objective 4 but is included here as it emerged as one of the themes).

"We learned how to work well with all cultures from an early stage in undergraduate education. Learned to get on with colleagues and recognized the need for good relationships from 4th year onwards" (2006)

"All interpersonal stuff in themes - I like it and was well prepared" (2007).

Knowing patients' rights

Interns in both 2006 and 2007 were introduced as undergraduates to the subject of patients' rights through their respective curricula and the posters listing these rights were on display in the wards. The main thrust of the interns' comments, especially those who felt unprepared in this area was this was something that they had to find out for themselves using common sense and asking the nurses (2006) or that they knew the theory but had not been confronted with the need to advocate for patients as undergraduates, so had little knowledge of application (2007). Some illustrative comments follow.

"Doesn't know own or patients' rights. No medico-legal training" (2006)

"Don't know – wasn't taught – try to use common sense" and *"Find out from nursing staff"* (2006)

"Taught theory – no practical experience. It's different when you have to do it" (2006).

One thought-provoking comment came from an intern in 2007 which might need to be take into account in the curriculum is more emphasis on patient advocacy for just this reason. South Africa now has a constitution which protects individual rights and patients are becoming more aware of these rights and are prepared to defend them.

> *I sort of know about rights and medico-legal things but in this environment you don't expect patients to stand up for their rights or take action against you"* (2007*)*

This is borne out by a supervisor's comment made in 2006.

> *"This is a semi-private hospital so people pay. Here they are literate and may even sue; they understand what is being done and will question. Interns need more knowledge* (2006).

B Competence related to the curriculum experienced (Objective 4)

Table 4.43b Interview comments for interns and supervisors in 2006 and 2007 which relate questionnaire responses on professional attitudes and values/Ethics to curriculum experience

Themes	Frequency 2006		Frequency 2007	
B: Comments on competence related to curriculum experience (Objective 4)	Interns	Supervisors	Interns	Supervisors
Positive: Incorporate ethical principles	11	0	7	0
Positive: Deal respectfully with patients and colleagues	9	0	7	1
Positive: Know and uphold patients' rights	5	1	1	0
Positive: Know medico-legal risks and work within the law	1	0	1	0
Negative: Incorporate ethical principles	4	0	1	0
Negative: Deal respectfully with patients and colleagues	2	2	0	0
Negative: Know and uphold patients' rights	1	1	1	1
Negative: Know medico-legal risks and work within the law	12	3	9	1

Table 4.43b gives the numbers of comments made for the four items in this category with a few selected comments from each item that give information on how the subjects were taught in the respective curricula.

Regarding Ethics teaching, the interns in 2006 made eleven comments all saying that Ethics was well taught but without being specific. The more critical comments, however, did give more explanation.

> *"I did not enjoy Ethics; it was vague and never gave answers. The tutors rubbed me up the wrong way. I have my own principles and can justify my own decisions"*

> *"I have learned about these things and Ethics, but the environment does not allow you to apply your skills as you have been taught".*

In 2007 the interns felt that they had received good teaching and were more specific about what they had appreciated in their Ethics lectures and theme sessions.

> *"We were well taught from all viewpoints. There was lots of Ethics in theme sessions"*

> *"Wits taught us a lot about Ethics and the need to question decisions"*

> *"The lectures and debates were good".*

<u>Dealing respectfully with patients and colleagues</u>

The themes that arose from comments about this item were dealt with in section A of this category and will not be repeated here. However, it became clear that many interns and supervisors felt that this was an area that cannot be taught in a course but is an integral part of individual personality and upbringing. The theories of constructivism which helped to guide the development of the GEMP make it clear that students come to medicine with many learned attitudes, values and beliefs that have evolved under many different influences. This

does not mean, however, that formal teaching and the guidance of good clinical role models cannot help to mould and encourage young doctors in professional behaviours and respect for diversity in the South African situation.

Patients' rights

Comments from supervisors in 2006 and 2007 supported the interns' views that they needed to be made more aware of patients (and their own) rights as undergraduates.

> *"In general, students should be made more aware of patient rights – they rely too much on seniors to deal with such things"* (2006)

> *"Doesn't seem to have been much teaching about patients' rights and things like completing death certificates. The time to learn though may be when they are working in the hospital, rather than as undergrads"* (2007).

Medico-legal risks and working within the law

The interns in 2006 and 2007 felt that this area had not received sufficient attention in the undergraduate curriculum and that they lacked information about Medico-legal risks.

> *"This is a very large field – not many doctors know it – some time during training people practising medico-legal law could be brought in to talk to the students"*

> *A neglected area. I do not know enough regarding protocols, consent, withholding of treatment"* and *"We should have a proper course"*.

One supervisor also stressed the need for more formal teaching in undergraduate medical curricula.

> *"Very important. Interns can be called to court – need more so they can protect themselves"* (2007).

4.3.5.6 Category 6: Effective communication skills

A Comparison of competence (Objective 3)

Table 4.44 Category 6: Overall scores for effective communication skills

	2006			2007		
CATEGORY 6	Interns (%)	Supervisors (%)	Colleagues (%)	Interns (%)	Supervisors (%)	Colleagues (%)
1&2=not well prepared	34 (11.3)	17 (6.1)		16 (5.3)	15 (5.3)	
3=fairly well prepared	58 (19.3)	58 (20.8)	16 (6.5)	47 (15. 5)	61 (21.7)	13 (5.1)
4=well prepared	120 (40.0)	141 (50.5)	75 (30.2)	142 (46.7)	123(43.8)	82 (32.2)
5=fully prepared	88 (29.3)	63 (22.6)	157 (63.3)	99 (32.6)	82 (29.2)	160 (62.8)
TOTAL item responses	300 (100)	279 (100)	248 (100)	304 (100)	281 (100)	255 (100)

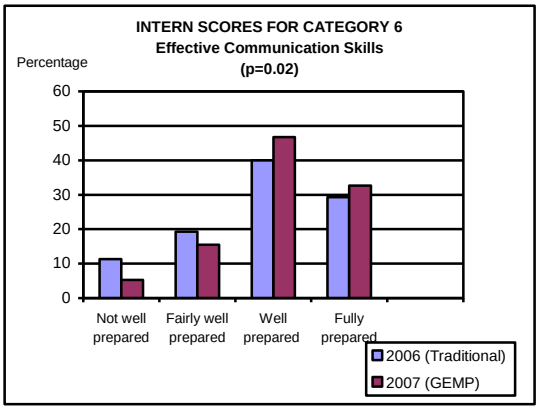

Figure 4.35 Comparison between interns' responses for Category 6 Effective Communication Skills in 2006 and 2007 (**p=0.02**)

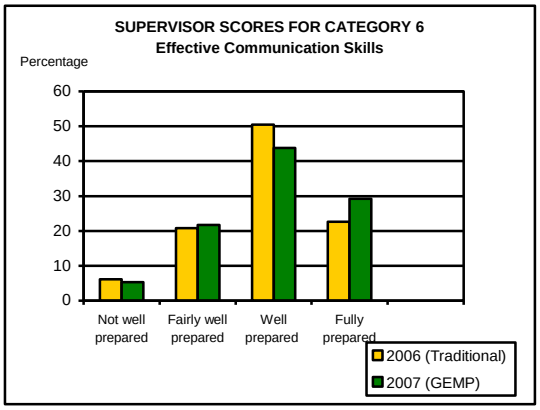

Figure 4.36 Comparison between supervisors' responses for Category 6 Effective Communication Skills in 2006 and 2007 (n/s)

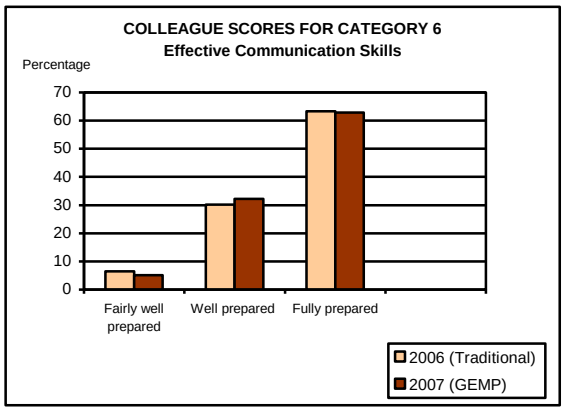

Figure 4.37 Comparison between colleagues' responses for Category 6 Effective Communication Skills in 2006 and 2007 (n/s)

Table 4.44 and Figures 4.35, 4.36 and 4.37 give the overall results for category 6 on effective communication skills. Figure 4.35 and Table 4.45 (below) show a significant difference (**p=0.02**) between intern responses in 2006 and 2007. GEMP interns felt significantly better prepared to communicate effectively. Fewer GEMP interns rated themselves in the lower response categories and more in the higher categories. There was no significant difference for supervisors or colleagues.

Table 4.45 Results of the intern, supervisor and colleague responses to the items under category 6 on "Effective communication skills"

		Cochran-Mantel-Haenszel Statistics for ordinal data		
		Interns 2006 vs 2007	**Supervisors** 2006 vs 2007	**Peers/colleagues** 2006 vs 2007
Category 6: Effective communication skills (overall) **How prepared was this intern to:**		$\chi^2_{MH} = 10.09$ **p=0.02** **2007>2006**	$\chi^2_{MH} = 3.90$ p=0.27 n/s	$\chi^2_{MH} = 0.55$ p=0.76 n/s
6.1	Item 42: ask appropriate questions in a manner which allows the patient time to give full answers	n/s	n/s	n/s
6.2	Item 43: support or counsel a dying patient and his/her relatives	**p = 0.002** **2007>2006**	n/s	n/s
6.3	Item 44: adapt your communication style appropriately when talking to colleagues, or to patients and family members of diverse cultures and educational or socioeconomic backgrounds	n/s	n/s	n/s
6.4	Item 45: present patient cases to seniors and colleagues during ward rounds and teaching sessions	n/s	n/s	n/s

4.3.5.6.1 Support or counsel a dying patient and his/her relatives

A <u>Comparison of competence (Objective 3)</u>

Item 6.2 was the only item to show a significant difference with the GEMP interns feeling better prepared to be able to support or counsel dying patients and their families (to break bad news) (**p = 0.002**). This item is examined in more detail in Table 4.46 and Figure 4.38 below.

Table 4.46 Item 6.2: Intern, supervisor and colleague responses to the item regarding the support or counselling of a dying patient and his/her relatives

Item 6.2	2006			2007		
	Interns (%) n=73	Supervisors (%) n=54	Colleagues (%) n=40	Interns (%) n=76	Supervisors (%) n=56	Colleagues (%) n=46
1&2=not well prepared	25 (34.3)	7 (13.0)		9 (11.8)	9 (16.1)	
3=fairly well prepared	19 (26.0)	20 (37.0)	5 (12.5)	22 (29.0)	18 (32.1)	5 (10.9)
4=well prepared	23 (31.5)	19 (35.2)	14 (35.0)	31 (40.8)	17 (30.4)	16 (34.8)
5=fully prepared	6 (8.2)	8 (14.8)	21 (52.5)	14 (18.4)	12 (21.4)	25 (54.4)

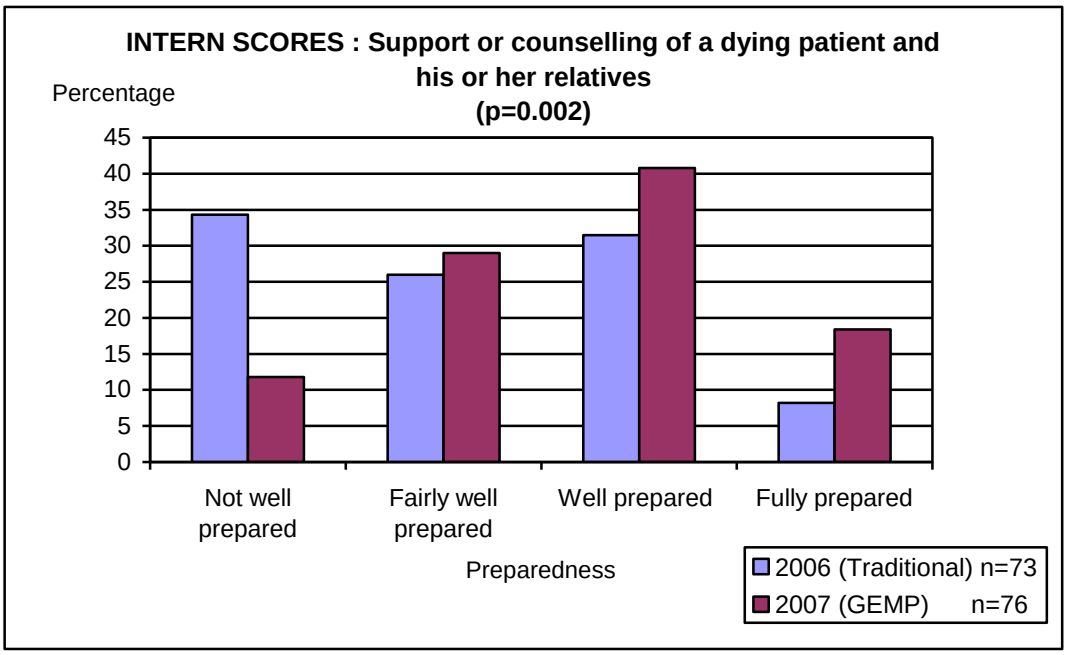

Figure 4.38 Comparison between intern scores in 2006 and 2007 for the item relating to the support or counseling of dying patients and their relatives (item 6.2) (**p=0.002**)

Both groups of interns reported in the interviews that supporting and counselling patients who were dying and their relatives was very difficult for them, however the 2007 (GEMP) interns felt significantly better prepared for this than did the interns from the traditional degree. A count of the comments recorded at the post questionnaire interviews is given in Table 4.47a.

Table 4.47a Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding the support and counselling of dying patients and their relatives

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive Difficult but prepared, do a lot of this	2	2	5	2
Negative insufficiently prepared, have difficulty, traumatic, not covered	25	6	9	7

General comments made by the interns in 2006 tended to focus on the difficulties that they experienced in supporting dying patients or bereaved relatives, occasionally exacerbated by personal circumstances.

"There was a death the other day and I avoided the relatives rather than comfort them"

"I dread giving bad news – more exposure to difficult situations would have helped".

The supervisors in 2006 acknowledged how difficult this is for inexperienced interns.

"A dying patient is always such a stress – get ability to cope only by experience".

The interns in 2007 commented as follows:

"We have to do this a lot. We have lots of HIV deaths and the need for family counselling"

"I have had 2 patients, one a dying patient – I couldn't do it and asked the MO to help me. The second was talking to the relatives – this I handled well".

The supervisors in 2007, like those in 2006, commented on the difficulty that interns experience in counselling dying patients. There was one critical remark about a 2007 intern.

"One is never really prepared until you have to do this"

"Dying patient – he doesn't handle this too well".

This item was one of those included in the colleagues' questionnaire and although there were no significant quantitative differences, a few comments were helpful and are given here.

In 2006 a colleagues' positive comment was:

"His first day on duty we had a death and I felt he knows his calling. The family came before we were ready. He spoke to the patient's relatives so kindly with empathy. He told them everything, so well".

The 2007 colleagues commented:

"She spent an entire evening on one occasion with a patient and his family on his deathbed"

"Coped fine – he has a nice way of softening the blow but does not equivocate and gives full information".

B <u>Competence related to the curriculum experienced (Objective 4)</u>

Table 4.47b gives the number of comments for interns and supervisors which related interns support and counselling abilities to their respective curricula.

Table 4.47b Interview comments for interns and supervisors in 2006 and 2007 which relate questionnaire responses regarding the support or counselling of dying patients and their relatives

Themes B: Comments on competence related to curriculum experience (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
<u>Positive</u> Interns: Taught well (two interns did church counselling and hospice involvement outside medical school), patient -doctor theme and counselling seminar, palliative care block, Copes fine, manages well. In the GEMP the Patient/Doctor theme, palliative care block and HIV counselling were helpful. Supervisors: None	1		3	
<u>Negative</u> Interns: Didn't get enough in the curriculum, felt inadequate, got someone else to do it, avoided relatives, big jump from being a student, Supervisor: Done too early in the curriculum	17		3	1
<u>Personal issues</u> Still unable to deal with this, very hard, comes with experience, gets too involved, gets emotional	2		1	

The only intern in 2006 who felt adequately prepared was someone who had experience outside of their medical education.

> *"I did counselling courses outside medical school – at church - so I have had more experience than others".*

The 2006 interns expressed a need for more preparation and more exposure as students. Accompanying a good role model would assist students in broaching the subject and gaining important experience.

> *"Not prepared to deal with dying patient. I found it very hard. In undergraduate years we had only a superficial talk dealing with this aspect"*

> *"Counseling dying patients: We didn't get enough of this in our undergraduate curriculum. I think we needed more"*

"We don't see dying patients as a student – students are not the ones responsible. We are responsible this year, it's a big jump"

"During Community/Family medicine I went to hospice in Houghton. It's never an easy thing to do. There is the temptation to give the job to someone else"

"This is traumatic – no preparation. Two weeks of hospice and learned from book – the reality of the situation is not apparent".

The interns in 2007 recognised that they had received more teaching on the subject of death and dying in the GEMP curriculum than interns in previous years.

"The patient doctor theme and counselling seminar were good"

"Palliative care block helped – clerking and following patient case reports"

"I didn't do a lot; now I see many terminally ill patients. We didn't see enough previously".

The only comment relating to the curriculum that was made by a supervisor in 2007 was:

"The intern seems to be uncomfortable in how to manage his emotions and thoughts in front of a dying patient. Perhaps it is done too early in the curriculum".

4.3.5.7 Category 7: Working with others in a team

A Comparison of competence (Objective 3)

Table 4.48 Category 7: Overall scores relating to working with others in a team

	2006			2007		
CATEGORY 6	Interns (%)	Supervisors (%)	Colleagues (%)	Interns (%)	Supervisors (%)	Colleagues (%)
1&2=not well prepared	8 (2.6)	10 (3.3)		4 (1.3)	4 (1.3)	
3=fairly well prepared	29 (9.5)	33 (10.9)	23 (8.6)	22 (7.3)	26 (8.6)	20 (7.2)
4=well prepared	119 (39.1)	125 (41.4)	66 (24.6)	112 (37.0)	108 (35.5)	79 (28.4)
5=fully prepared	148 (48.7)	134 (44.4)	170 (66.8)	165 (54.5)	166 (54.6)	179 (64.4)
TOTAL: item responses	304 (100)	302 (100)	268 (100)	303 (100)	304 (100)	278 (100)

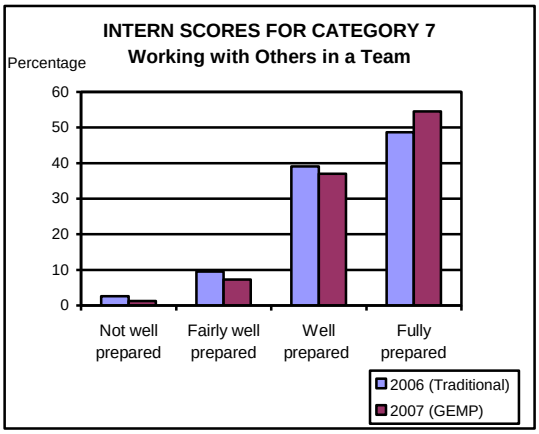

Figure 4.39 Comparison between interns' scores for Category 7: Working with others in a team in 2006 and 2007 (n/s)

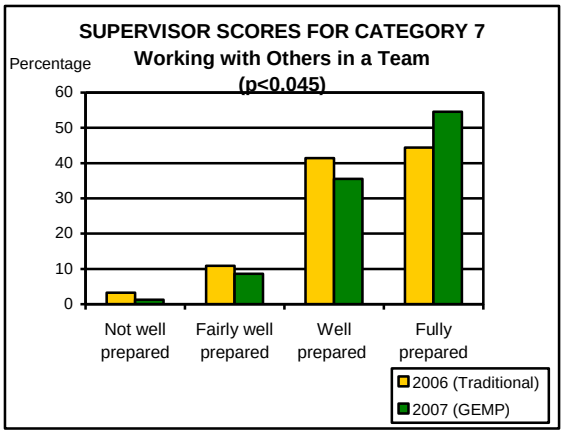

Figure 4.40 Comparison between supervisors' scores for Category 7: Working with others in a team in 2006 and 2007 (**p=0.045**)

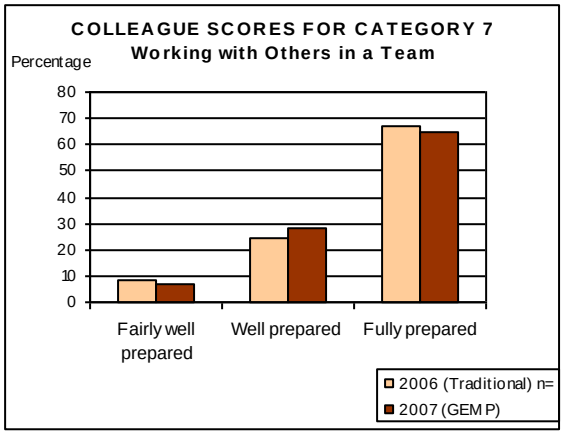

Figure 4.41 Comparison between colleague scores for Category 7 Working with others in a team in 2006 and 2007 (n/s)

Table 4.48 and Figures 4.39, 4.40 and 4.41 give the results for Category 7.

Table 4.49 Results of the intern, supervisor and colleague responses to the items under category 7 on "Working with others in a team"

		Cochran-Mantel-Haenszel Statistics for ordinal data		
		Interns 2006 vs 2007	Supervisors 2006 vs 2007	Peers/colleagues 2006 vs 2007
Category 7: Working with others in a team (overall) **How prepared was this intern to:**		$\chi^2_{MH} = 3.42$ p=0.33 n/s	$\chi^2_{MH} = 8.04$ **p=0.0453 2007>2006**	$\chi^2_{MH} = 1.19$ p=0.55 n/s
7.1	Item 46: develop good professional relationships with others in the health care team (nursing staff, colleagues, therapists, administrators)	n/s	n/s	Fisher's Exact **p = 0.0407 2007>2006**
7.2	Item 47: carry a full share of the routine work load without burdening others with things you should have done	n/s	n/s	n/s
7.3	Item 48: accept constructive feedback positively in order to learn from your mistakes and improve your clinical skills	n/s	n/s	n/s
7.4	Item 49: know the roles and skills of other health professionals so that you can enlist their help or refer patients to them where appropriate	n/s	n/s	n/s

Table 4.49 shows no significant difference in overall result between interns or colleagues in 2006 and 2007 regarding working with others in a team. There was a significant difference (**p=0.045**) between the supervisors. The 2007 supervisors indicated that fewer GEMP interns were "not well prepared" and more were "fully prepared" for this (see Figure 4.40).

4.3.5.7.1 Item 7.1 Development of good professional relationships with others in the health care team (nursing staff, colleagues, therapists, administrators)

A Comparison of competence (Objective 3)

Table 4.50 and Figure 4.42 give the results for Item 7.1 on professional relationships within the health care team.

Table 4.50 Item 7.1: Colleague responses to the item regarding the development of good professional relationships with others in the health care team (nursing staff, colleagues, therapists, administrators)

	2006			2007		
Item 7.1	Interns (%) n=76	Supervisors (%) n=76	Colleagues (%) n=71	Interns (%) n=76	Supervisors (%) n=76	Colleagues (%) n=74
1&2&3 Less well prepared	2 (2.6)	4 (5.3)		1 (1.3)	0 (0.0)	
	5 (6.6)	5 (6.6)	5 (7.04)	2 (2.6)	5 (6.6)	1 (1.4)
4=well prepared	30 (39.5)	30 (39.5)	7 (9.9)	30 (39.5)	27 (35.5)	17 (23.0)
5=fully prepared	39 (51.3)	37 (48.7)	59 (83.1)	43 (56.6)	44 (57.9)	56 (75.7)

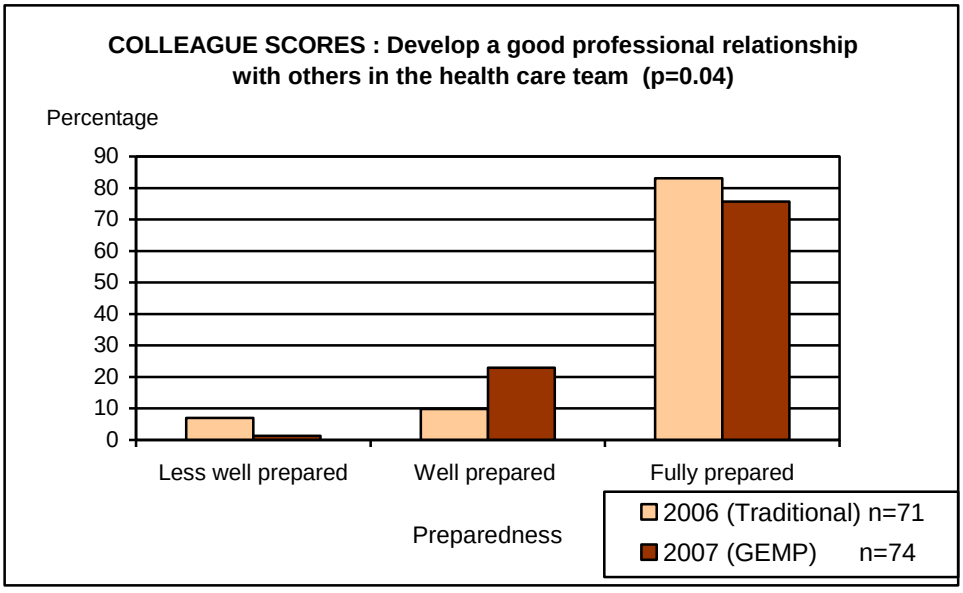

Figure 4.42 Comparison between 2006 and 2007 colleagues' responses to the item on developing good professional relationships with others in the health care team (nursing staff, colleagues, therapists, administrators) (item 7.1)(Fisher, **p=0.04**)

The colleagues recorded a significant difference for Item 7.1 on developing professional relationships (Fisher's Exact Test, **p=0.0407**). Table 4.50 and Figure 4.42 show that only one percent (1%) of the 2007 interns was rated by their colleagues as "not well prepared" compared to seven percent (7%) of the traditional interns and more GEMP interns were considered well prepared (23% compared to 10%). However, more of the 2006 traditional interns (83%) were rated "fully prepared" compared to the GEMP interns (75%), making the direction of difference only moderately in favour of the GEMP interns in 2007. Both groups were considered to have developed good relationships with other members of the health care team.

There were no significant differences in the responses of the interns or supervisors for Item 7.1 although Table 4.50 shows that none of the supervisors in 2007 gave scores of 1, 2 or 3 (less well prepared) and both interns and supervisors gave higher ratings for the 2007 interns in the "fully prepared" category.

Table 4.51a gives a summary of the comments made during the post questionnaire interviews which compare professional relationships between the interns and other members of the health care team. This is followed by selected quotations. Table 4.51b gives a count of the comments which relate the scores to the respective curricula experienced by the interns. Quotes are included which relate specifically to the curricula.

Table 4.51a Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding the development of good professional relationships with others in the health care team

Themes	Frequency 2006		Frequency 2007	
A : Comparison of comments on competence in 2006/2007 (Objective 3)	Interns	Supervisors	Interns	Supervisors
Positive: Good preparation, team spirit, environment conducive to teamwork and good role models	28	15	19	20
Negative: unable to develop good relationships, struggled with nurses	2	3	1	

The interns in 2006 were generally good at working in a team and enjoyed this, making comments such as:

> *"I work well with others and enjoy team work – maybe character".*

Two interns in 2006 reported incidents of poor professional relationships between some of the independent units at one hospital and a complaint that some senior staff did not show respect:

> *"Poor examples – senior staff did not show respect, perhaps because of their frustrations with the system".*

The 2006 supervisors for the most part made positive comments:

> *"Has very good people skills. Shows a lot of respect for everyone – this is something not always very common"*

> *"Flexible. A good team player – the system encourages this".*

There were four critical comments from the 2006 supervisors:

> *"Relationships and team work – both personality and training. This intern is battling, but hasn't been able to communicate that he needs help"*

> *"Doesn't seem to be able to develop good relationships".*

The interns in 2007 also enjoyed good working relationships with others in the team, with one exception:

> *"Not prepared for the difficulties here. Nurses are a problem in this hospital – if you challenge their practices, you don't get very far. You need to challenge them for the sake of the patients".*

There were many positive comments:

"Everyone takes a personal interest here, so you just have to be a bit of a team player and people go out of their way to help"

"I enjoy interacting with other colleagues"

"You have to treat everybody equally and recognise their roles".

The supervisors in 2007 made many positive comments and there were no critical remarks.

"Highly rated in all these areas but difficult to know whether it is result of education or personality – perhaps both"

"*Exceptional in the team. All the professional skills are just excellent".*

Input from colleagues' in 2006 and 2007

This was an important question for health team colleagues and they were invited to comment specifically on this aspect. The nurses in particular commented frequently on interpersonal relationships with the interns, while the intern peers were rather more reticent.

In 2006 the comments from the colleagues (27 in all) were generally very positive, for example:

"Polite to all and definitely to patients"

"She has the ability to talk and interact with everyone – with clerks too – and works well with registrars"

"She greets clearly and calls us 'mamma'".

2006 Relationships which were not optimal (3 comments) tended to be linked to personality, such as:

> *"He's a very withdrawn person - shy, seems a bit afraid to ask and has a lack of confidence"*

> *"Not a good chain of communication - she's very quiet".*

The colleagues of the GEMP interns in 2007 also commented on good relationships (16 comments). Some examples are:

> *"Very sweet, very polite - approachable and friendly"*

> *"With the physio she's good, very professional"*

> *"He developed great relationships with all members of the hospital on a professional basis"*

> *"Very good, excellent relationships built with us".*

In 2007 there were also a few individual interns who did not have optimal relationships with the other health care staff (3 comments):

> *"Sometimes she tends to block us out"*

> *"He doesn't realise the value of the knowledge and experience of sisters"*

> *"There are sometimes problems but he is a quiet person".*

B Competence related to the curriculum experienced (Objective 4)

Table 4.51b gives a summary of the different themes that emerged when interns and supervisors were asked to relate their responses to the curriculum experienced.

Table 4.51b Interview comments for interns and supervisors in 2006 and 2007 which relate questionnaire responses regarding the development of good professional relationships with others in the health care team

Themes B: Comments on competence related to curriculum experience (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive Interns ・Teamwork encouraged in both curricula ・Well prepared in clinical years ・GEMP themes and allied health block ・Student diversity ・Good role models and team environment in wards Supervisors ・Relationships/interactions with others taught well, system encourages flexibility	15	1	9	0
Negative Interns ・Poor examples in the wards during clinical blocks ・Poor relationships in certain units at CHB hospital Supervisors ・Curriculum – may be lack of training in how to work well in groups, or lack of experience	3	1	1	0
Relationships depend upon personality, not taught	4	5	7	8

It is interesting that a number of interns and supervisors thought that good professional relationships were a matter of personality and were not something which could be taught.

The following are some quotes from the comments made during the interviews held with interns and supervisors after they had completed the questionnaire. The interns in 2006 commented particularly on the ethos at Wits which encouraged good relationships and teamwork throughout the undergraduate years. Students generally enjoyed this and were willing to work in teams and also to enjoy the support of these teams. One intern commented on some poor role models for good professional behaviour in the wards.

"Nice to work as part of the 'real' team instead of standing back in ward rounds as I did when I was a student"

"Well prepared in all these areas during clinical years – teachers good role models".

"There were some poor examples where senior staff did not show respect. Perhaps it was because of their frustrations with the system".

One supervisor in 2006 identified a lack of training in the curriculum

"Curriculum - there is a lack of training in how to work well in groups, or a lack of experience. Not prepared for the pressures of internship".

The 2007 interns commented particularly on the GEMP curriculum and how this had assisted them to form good professional relationships.

"The curriculum brought colleagues together well and fostered good relationships and knowledge of others' skills"

"Encouraged in GEMP. It was well covered and came out in theme sessions"

"Relationships and interactions with others were taught well"

"Well covered and came out in theme sessions".

4.3.5.8 Category 8: Self Directed Learning

A Comparison of competence (Objective 3)

Interns generally do not have much formal teaching and would be expected to keep up to date and to learn about their patients' conditions by attending ward rounds and reading up about the diseases on their own. Table 4.52 and Figures 4.43 and 4.44 give the results of the interns' and supervisors' responses regarding self directed learning.

Table 4.52 Category 8: Overall scores for interns and supervisors regarding self directed learning

	2006		2007	
CATEGORY 8	Intern (%)	Supervisor (%)	Intern (%)	Supervisor (%)
1&2=not well prepared	53 (17.7)	28 (9.9)	11 (3.7)	32 (11.4)
3=fairly well prepared	57 (19.0)	50 (17.7)	44 (14.8)	66 (23.6)
4=well prepared	79 (26.3)	123 (43.5)	121 (40.6)	100 (35.7)
5=fully prepared	111 (37.0)	82 (29.0)	122 (40.9)	82 (29.3)
TOTAL: item responses	300 (100)	283 (100)	298 (100)	280 (100)

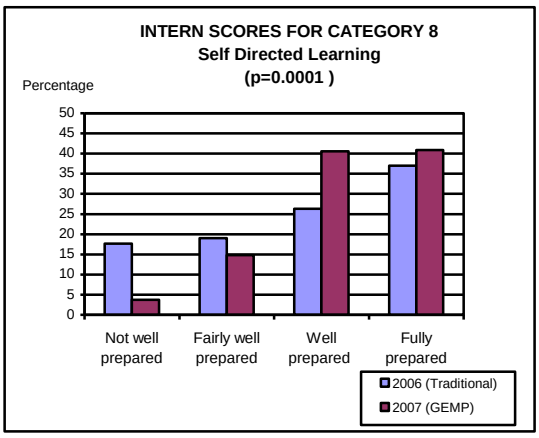

Figure 4.43 Comparison between interns' responses for Category 8: Self Directed Learning in 2006 and 2007(**p=0.0001**)

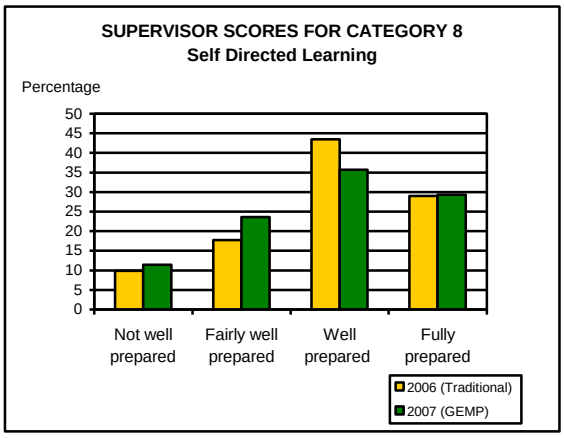

Figure 4.44 Comparison between supervisors' responses for Category 8: Self Directed Learning in 2006 and 2007 (n/s)

Table 4.53 shows a highly significant overall difference (**p=<0.0001**) between the 2006 traditional interns and the 2007 GEMP interns regarding self directed learning. The GEMP graduates regarded themselves as better prepared. There is no significant difference between

the supervisors' scores for the category but the interns rated two items (item 8.1 and item 8.4) as significantly different.

Table 4.53 Results of the intern and supervisor responses to the items under category 8 on "Self Directed Learning"

		Interns 2006 vs 2007	**Supervisor**s 2006 vs 2007
Category 8: Self-directed learning (overall) **How prepared was this intern to:**		χ^2_{MH} = 38.50 **p<0.0001** **2007>2006**	χ^2_{MH} = 4.82 p=0.19 n/s
8.1	Item 50: find up-to-date information to improve your knowledge about the conditions with which your patients present	**p <0.0001** **2007>2006**	n/s
8.2	Item 51: recognise when your knowledge is not sufficient to proceed safely	n/s	n/s
8.3	Item 52: ask the right person for help when you don't know something	n/s	n/s
8.4	Item 53: use research articles and evidence based medicine (eg. Cochrane) searches to reflect on, or make sense of, complex patient management problems	**p <0.0001** **2007>2006**	n/s

4.3.5.8.1 Finding up-to-date information to improve knowledge about the conditions with which patients present

A Comparison of competence (Objective 3)

Item 8.1 relates to the interns' competence in finding up-to-date information. Table 4.54 and Figure 4.45 show that the 2007 interns felt significantly better prepared.(**p=<0.0001**).

Table 4.54 Item 8.1: Intern and supervisor responses to the item regarding finding up-to-date information to improve knowledge about the conditions with which patients present

	2006		2007	
Item 8.1	Interns (%) n=75	Supervisors (%) n=74	Interns (%) n=74	Supervisors (%) n=73
1&2=not well prepared	15 (20.0)	8 (10.8)	2 (2.7)	10 (13.7)
3=fairly well prepared	25 (33.3)	20 (27.0)	14 (18.9)	27 (37.0)
4=well prepared	22 (29.3)	34 (46.0)	32 (43.2)	27 (37.0)
5=fully prepared	13 (17.3)	12 (16.2)	26 (35.1)	9 (12.3)

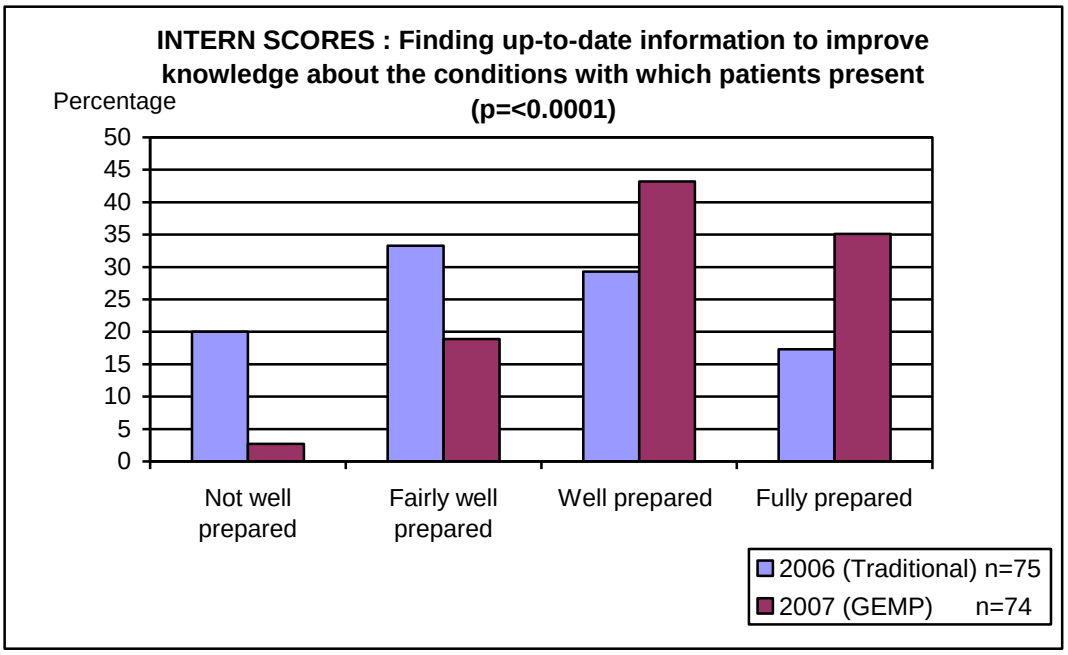

Figure 4.45 Comparison between the interns' scores in 2006 and 2007 relating to the finding of up-to-date information to improve knowledge about the conditions with which patients present (item 8.1) (p=**0.0001**)

Table 4.55a presents a summary of the interns' and supervisors' interview comments comparing the competence of interns in the two study years. Table 4.55b gives a count of the comments which relate the questionnaire responses to the curriculum experienced. Selected quotations are given after each table to augment the data presented and to hear the "voices" of the interns and supervisors.

Table 4.55a Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding the finding of up-to-date information to improve knowledge about the conditions with which patients present

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: 2006 and 2007 ▪ These aspects encouraged ▪ Try to keep up to date,	6	3	7	3
Negative: 2006 and 2007 ▪ Time constraints ▪ Lack of resources or computer literacy	13	5	4	7

Interns in 2006 commented on the lack of resources for interns to do both library and online reading to keep up to date.

> *"Keeping up to date – there is no good library and no computer rooms to check information. The library closes at 12md. But I would do online searches if computers were available"*

> "*My fault – I am not computer literate – now working in hospital so no time to further my computer knowledge".*

The supervisors in 2006 recognised attempts to find new information but agreed that few interns actually do this.

> "*Tries to find out more"* and *"Always tries to improve knowledge"*

> "*They are all bad at finding information"* and "*Not many interns do this".*

The 2007 interns appeared better prepared and also more keen to update their knowledge

> *"We have time for this – surgery is not that busy – we have to do presentations – one in each block"*

> *"Try to keep up to date with EBM"* and *"Do this all the time – wish I had more time to look for information"*

> *"No time as an intern but confident about doing it – we don't have facilities here and tired when I get home".*

The supervisors in 2007 also noted that some interns really try but that time constraints and the nature of internship environment, with many menial tasks to complete, is not conducive to stimulating a search for knowledge.

"*Always likes to find out more"* and *"Eager to find information if there is time"*

"*Pressure of time, work overload, not stimulated to read – the interns just do menial tasks"*

"Too busy - the environment prevents this".

B Competence related to the curriculum experience (Objective 4)

Table 4.55b Interview comments for interns and supervisors in 2006 and 2007 which relate questionnaire responses regarding the finding of up-to-date information to improve knowledge about the conditions with which patients present

Themes B: Comments on competence related to curriculum experience (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive Interns ・Well taught, well prepared ・prior degree studies helped with this Supervisors ・capable	3		9	3
Negative Interns ・Not encouraged to find new information ・as a student not put in a position to do research on patients ・insufficient exposure in the curriculum ・lack of resources, work pressure of internship Supervisor ・not usually required of interns	7		3	6

Table 4.55b and the quotations that follow show how the comments made during the interview allowed the interns to relate their responses to the curriculum that they had experienced. None of the supervisors made reference to the preparation of medical students in the undergraduate curricula to seek new information independently.

2006 interns did not comment much on the curriculum or how it had prepared them for information searches, except to say:

"I never had time as an undergrad" and "Just never did as student – now we do"

"As students we were not put in position to do research on patients"

"There is a big problem relating to the attitude of teachers. My year was told they were pathetic and it was not worth teaching them Evidence Based Medicine. There was so much negativity towards this class, probably because people were only interested in the new curriculum".

One intern had done a BSc prior to medicine:

"I have done a BSc so I am very used to finding information"

The 2007 interns referred to aspects of the GEMP curriculum that had prepared them to seek out information for themselves, although they did not necessarily put it into practice during their internship due to time and workload constraints.

"I was taught to look for information and to find out about cases"

"This is basically what the course was aimed at – couldn't <u>not</u> be able to do it, GEMP emphasises this".

There were no supervisor comments which related the finding of information to the curriculum which the interns had followed.

4.3.5.8.2 The use of research articles and evidence based medicine (e.g. Cochrane) searches to reflect on, or make sense of, complex patient management problems

A Comparison of competence (Objective 3)

Table 4.56 Item 8.4: Intern and supervisor responses to the item regarding the use of research articles and evidence based medicine (e.g. Cochrane) searches to reflect on, or make sense of, complex patient management problems

	2006		2007	
Item 8.4	Interns (%) n=75	Supervisors (%) n=58	Interns (%) n=73	Supervisors (%) n=55
1&2=not well prepared	38 (50.7)	15 (25.9)	7 (9.6)	20 (36.4)
3=fairly well prepared	20 (26.7)	22 (37.9)	19 (26.0)	23 (41.8)
4=well prepared	9 (12.0)	17 (29.3)	33 (45.2)	10 (18.2)
5=fully prepared	8 (10.7)	4 (6.90)	14 (19.2)	2 (3.6)

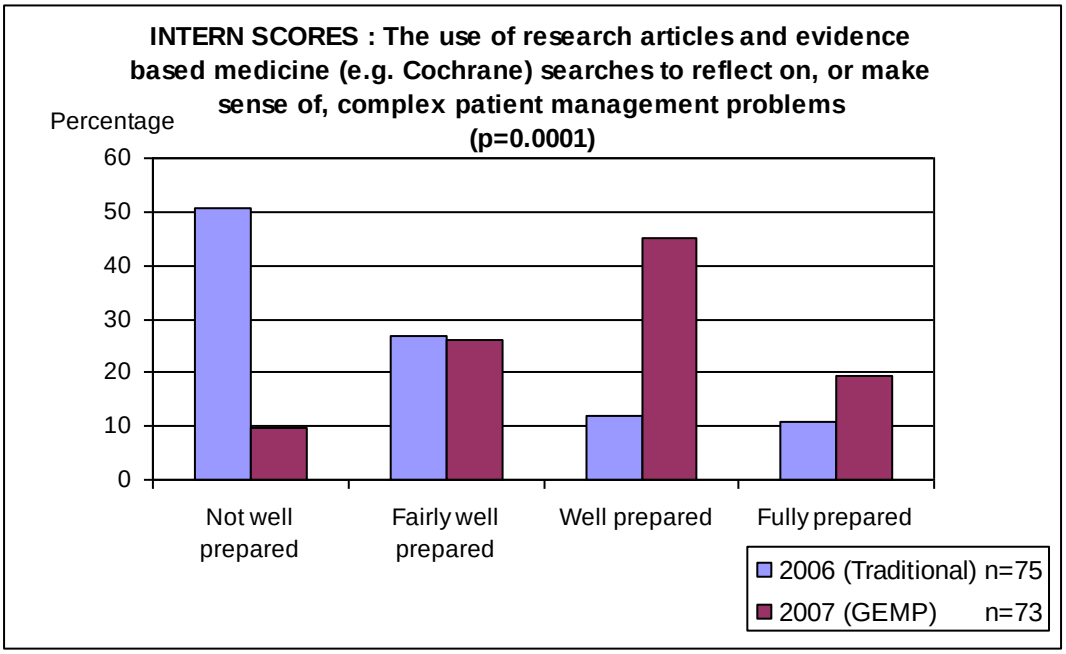

Figure 4.46 Comparison between the interns' scores in 2006 and 2007 for the item relating to the use of research articles and evidence based medicine (e.g. Cochrane) searches to reflect on, or make sense of, complex patient management problems (item 8.4) (**p=0.0001**)

The second item which showed a significant difference (**p = <0.0001**) was Item 8.4. This item explored the use research articles and evidence based medicine collections such as Cochrane searches to keep abreast of developments in patient management. Table 4.56 and Figure 4.46 present the details of these scores.

The 2007 interns reported having a better knowledge of literature searches than the 2006 interns. Almost fifty one percent (51%) of the 2006 interns responded that they were "not well prepared" for this type of information searching.

Table 4.57a gives a count of the positive and negative comment made by both interns and supervisors, while Table 4.57b summarises those comments that relate to the curriculum experienced. Selected quotations follow the tables to expand on the themes presented.

Table 4.57a Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding the use of research articles and evidence based medicine (e.g. Cochrane) searches to reflect on, or make sense of, complex patient management problems

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: 2006 and 2007 • knowledge and resources although not always practised due to lack of time	2	3	5	3
Negative: 2006 and 2007 • Time constraints • Lack of resources and/or interest	33	4	9	3

With the exception of one intern, the 2006 group commented that they had little knowledge about, and not much desire for, any additional literature searches or reading. There were also the usual time constraints of internship.

"I have access to journals and the internet and can do this"

"I didn't do this at all. I prefer to use text books – I think I'm just old fashioned"

"Evidence based medicine – there is no access here. I didn't do much anyway but probably should have done more"

"While studying there was little time and now it is more rewarding to do other things".

In 2006 supervisors mostly spoke of attending clinical meetings rather than answering the actual question which related to research articles and online searches for Evidence Based Medicine (EBM) materials. Only one supervisor said that an intern read research articles.

"Does not always attend when required"

"Tends to stay away from meetings – maybe his character"

The 2007 interns' comments included:

"I have internet but not a very good one. I simply don't have time"

"Are we supposed to do research as interns?" and *"No time for EBM"*.

The 2007 supervisors suggested that there was not sufficient time, nor expectation of interns, to be doing research. This study was conducted early in the internship so many interns were still finding their feet and were not focused on additional reading or information searches.

"It's expecting too much of them in this environment – they are just happy when the day ends"

"Purely because no time because of workload – they don't make presentations during internship, so not forced into reading. We try as much as we can to get them involved in how to do research from an early stage though".

B Competence related to the curriculum experienced (Objective 4)

Table 4.57b Interview comments for interns and supervisors in 2006 and 2007 which relate questionnaire responses regarding the use of research articles and evidence based medicine (e.g. Cochrane) searches to reflect on, or make sense of, complex patient management problems

Themes B: Comments on competence related to curriculum experience (Objective 4)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: Interns: ・access to journals and internet - can do this ・learnt in family medicine ・GEMP: Know EBM, confident, learned in Paeds Supervisors: ・No comments related to the curriculum	2		4	
Negative: Interns: ・only one brief opportunity in Community Paeds ・very little in curriculum, should be more ・no idea about EBM ・no time, facilities, access ・used textbooks only at medical school ・Teacher centred education at medical school in 2006 Supervisor: ・Not done routinely at medical school	40		8	1

Table 4.57b relates the interns' comments on using research articles in evidence based medical care the curriculum experienced by the two groups of interns. There were no supervisors' comments which linked this competence to undergraduate training.

The interns in 2006 commented on the small amount of evidence based medicine and searches in their undergraduate curriculum and a number of interns felt that they should have had more:

> *"Use of EBM not stressed as much as it should be - one project in 6 years inadequate. Should be done – definitely a place for this"*

"There is no academic structure here. You need to know how to look for things yourself and are not fully aware of resources available. There is a feeling of just passing down knowledge from teachers to students at medical school"

"Only done once in Paeds – more might have been good but anyway no one has time or resources".

The interns in 2007 commented that they had learned about EBM but most did not use it at the time of the survey.

"I know all about EBM" and *"Definitely know how to do this"*

"Don't do much here, but am confident because we were well taught on the wards and when dealing with patients" and *"We learned this, especially during Paeds"*.

One GEMP intern made a comment which raises some concern as this was taught very specifically in the curriculum and was an important aspect of the GEMP.

"I have never done it – never researched on internet. I only use textbooks"..

There was only one general comment from a supervisor in 2007 that related to the curriculum.

"There is no time – but even so they are not geared up to this as routine practice when they are at medical school – they only do it when they have to do specific projects".

4.3.5.9 Category 9: Confidence and personal attributes

Table 4.58 Category 9: Overall scores for confidence and personal attributes

	2006			2007		
CATEGORY 9	Interns (%)	Supervisors (%)	Colleagues (%)	Interns (%)	Supervisors (%)	Colleagues (%)
1&2=not well prepared	57 (18.8)	27 (9.4)		41 (13.5)	12 (4.3)	
3=fairly well prepared	71 (23.4)	37 (12.9)	35 (13.8)	80 (26.3)	50 (17.8)	30 (11.5)
4=well prepared	109 (36.0)	113 (39.5)	72 (28.4)	112 (36.8)	118 (42.0)	67 (25.8)
5=fully prepared	66 (21.8)	109 (38.1)	147 (57.9)	71 (23.4)	101 (35.9)	163 (62.7)
TOTAL item responses	303	286	254	304	281	260

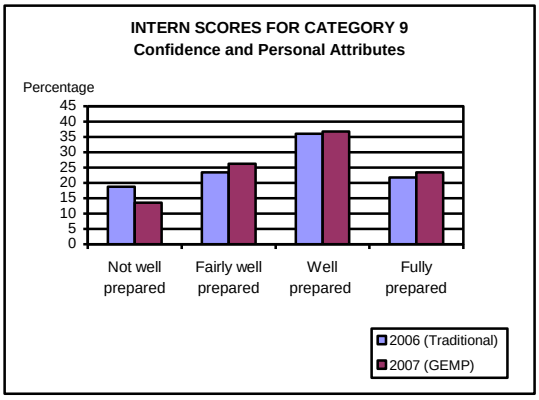

Figure 4.47 Comparison between interns' responses for Category 9: Confidence and Personal Attributes in 2006 and 2007 (n/s)

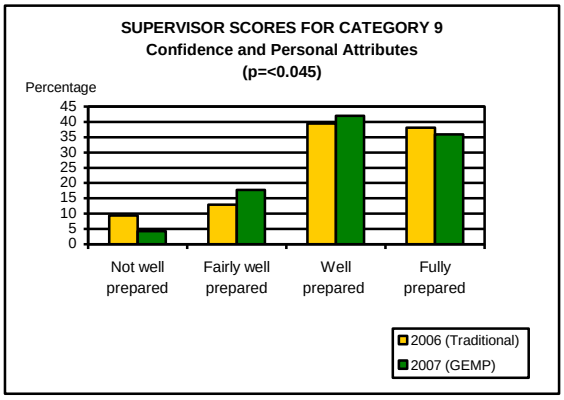

Figure 4.48 Comparison between supervisors' responses for Category 9: Confidence and Personal Attributes in 2006 and 2007 (**p=0.045**)

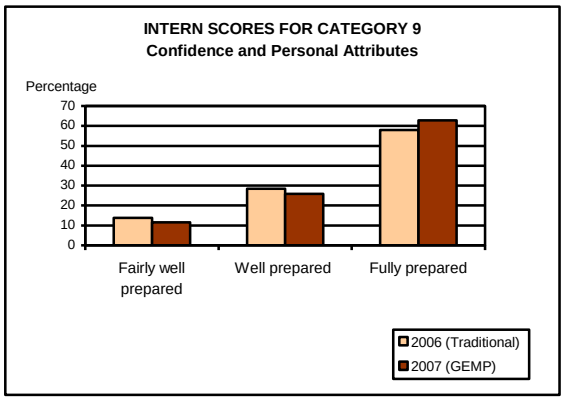

Figure 4.49 Comparison between colleagues' responses for Category 9: Confidence and Personal Attributes in 2006 and 2007 (n/s)

Category 9 deals with the interns' confidence and the personal attributes and resources that allow them to cope with the responsibilities, long hours and uncertainties of internship. Table 4.58 gives the overall scores for interns, supervisors and colleagues and Figures 4.47, 4.48 and 4.49 show the results graphically. The difference in the supervisors scores reached significance (**p=0.045**).

Although the difference between the supervisors' overall scores for this category reached significance (**p=0.05**), the direction was unclear. Table 4.57 shows that half as many GEMP interns were rated by their supervisors as "Not well prepared" (4% in 2007 compared to 9% in 2006) but there were also fewer GEMP interns rated "Fully prepared" (36% in 2007 compared to 38% in 2006).

Table 4.59 shows that none of the individual item scores showed significant differences.

Table 4.59 Results of the intern, supervisor and colleague responses to the questionnaires regarding confidence and person attributes

		Cochran-Mantel-Haenszel Statistics for ordinal data		
		Interns 2006 vs 2007	**Supervisors** 2006 vs 2007	**Peers/colleagues** 2006 vs 2007
Category 9: Confidence and personal attributes (intangible personal resources) How prepared was this intern to:		$\chi^2_{MH} = 3.37$ p=0.34 n/s	$\chi^2_{MH} = 8.07$ **p=0.05**	$\chi^2_{MH} = 1.32$ p=0.52 n/s
9.1	Item 54: take responsibility and be accountable for your part in your patients' care	n/s	n/s	n/s
9.2	Item 55: cope with the long hours and demands of internship	n/s	n/s	n/s
9.3	Item 56: manage your time so as to maintain a balance between work demands and personal life	n/s	n/s	n/s
9.4	Item 57: cope with the uncertainty that doctors sometimes feel (ie. having to start management of patients' conditions without always knowing the final diagnosis)	n/s	n/s	n/s

As explained in the introduction to this section on questionnaire results (4.3.5) a composite table of the non-significant items (Table 4.60) is included. This is intended to be used in

conjunction with the qualitative data to try and clarify the direction of the differences, particularly the supervisors' scores, which reached significance for the overall category.

Table 4.60 Composite table showing the interns' and supervisors responses to the ten items in Category 9. No individual item results reached significance but the overall category score for the interns was significant (**p=0.0093**)

	2006		**2007**	
Item 9.1: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to take responsibility and be accountable for your part in their patients' care				
	Intern (%) n=76	Supervisor (%) n=76	Intern (%) n=76	Supervisor (%) n=75
1&2=not well prepared	1 (1.3)	7 (9.2)	1 (1.3)	2 (2.7)
3=fairly well prepared	11 (14.5)	7 (9.2)	12 (15.8)	13 (17.3)
4=well prepared	37 (48.7)	32 (42.1)	38 (50.0)	29 (38.7)
5=fully prepared	27 (35.5)	30 (39.5)	25 (32.9)	31 (41.3)
Item 9.2: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to cope with the long hours and demands of internship				
	Intern (%) n=75	Supervisor (%) n=76	Intern (%) n=76	Supervisor (%) n=74
1&2=not well prepared	18 (24.0)	6 (7.9)	14 (18.4)	1 (1.3)
3=fairly well prepared	17 (22.7)	8 (10.5)	20 (26.3)	8 (10.8)
4=well prepared	20 (26.7)	25 (32.9)	22 (29.0)	31 (41.9)
5=fully prepared	20 (26.7)	37 (48.7)	20 (26.3)	34 (46.0)
Item 9.3: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to manage their time so as to maintain a balance between work demands and personal life				
	Intern (%) n=76	Supervisor (%) n=61	Intern (%) n=76	Supervisor (%) n=59
1&2=not well prepared	23 (30.3)	6 (9.8)	16 (21.1)	4 (6.8)
3=fairly well prepared	18 (23.7)	8 (13.1)	21 (27.6)	10 (17.0)
4=well prepared	23 (30.3)	22 (36.1)	22 (29.0)	24 (40.7)
5=fully prepared	12 (15.8)	25 (41.0)	17 (22.4)	21 (35.6)
Item 9.4: Comparison between interns and supervisors in 2006 and 2007 regarding the interns' ability to cope with the uncertainty that doctors sometimes feel (ie. having to start management of patients' conditions without always knowing the final diagnosis)				
	Intern (%) n=76	Supervisor (%) n=73	Intern (%) n=76	Supervisor (%) n=73
1&2=not well prepared	15 (19.7)	8 (11.0)	10 (13.2)	5 (6.9)
3=fairly well prepared	25 (32.9)	14 (19.2)	27 (35.5)	19 (26.0)
4=well prepared	29 (38.2)	34 (46.6)	30 (39.5)	34 (46.6)
5=fully prepared	7 (9.2)	17 (23.3)	9 (11.8)	15 (20.6)

During the interviews, the interns and supervisors tended to consider all four items together so that the comments were somewhat general. The qualitative data are discussed for each item in the category (items 9.1 to 9.4) and the tables for comparison between 2006 and 2007 intern competence (A tables) and those giving numbers of comments relating to the curriculum (B tables) have included counts of only those intern and supervisor comments which could be allocated to that particular item, followed by illustrative quotes. Colleagues comments are also included where appropriate.

Item 9.1 Responsibility and accountability

A Comparison of competence (Objective 3)

Table 4.61 presents a count of the comments made by interns and supervisors in 2006 and 2009 regarding the interns' willingness and ability to take responsibility and be accountable for their actions.

Table 4.61 Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding responsibility and accountability

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: Interns 2006: Likes taking responsibility Emphasised in the undergraduate years Taught to accept responsibility Used to responsibility as a student 2007: I like taking responsibility Encourage to take responsibility for patients Positive: Supervisors 2006: Takes full share of responsibility Very responsible Prepared to take responsibility 2007: A very responsible person Responsible and caring Always accepts responsibility Strong sense of responsibility	12	6	9	13
Negative: Does not always take responsibility, evades issues	0	2	0	0

Interns from both study groups recognised that they had a great responsibility but all felt positive about this. Three interns in each of the years but this down to their own personalities but mostly the interns were grateful for the extensive clinical experience that they had received in their 6th year where they had been taught to accept responsibility for their work and for their patients. Some of the comments made by the interns were:

"I'm accepting responsibility and coping very well" (2006)

"I think this is a character issue – I like to take responsibility (2007).

The supervisors in 2007 made more positive comments (thirteen as opposed to six in 2006) although both years were generally satisfied with the level of accountability shown by the interns. There were no supervisor comments that related responsibility and accountability directly to the undergraduate curriculum, except to mention that felt this was often related to personality rather than training.

"Strong sense of responsibility towards patients"

"This relates to character and personality more than anything else".

There were two supervisors who made critical comments about individual interns in 2006:

"Does not always take the responsibility he should"

"It's not clear whether he is evading issues – he doesn't seem to realize that being accountable is part of his job as an intern".

Colleagues in the health team were generally more than satisfied with the interns from both years. There were fifteen comments in 2006 and eleven in 2007. They used phrases like:

"She comes for rounds even on weekends when she is not on call" (2006)

"He has a sense of responsibility and accountability - always available when wanted" (2007).

One nurse colleague in 2007 gave an example of an intern's sense of responsibility:

"She's very serious. She requested that a patient be isolated. We only had one isolation ward with two beds but she wouldn't let me put the two together because they had different conditions. She insisted on the correct isolation".

There were very few negative comments in each year.

"Needs a registrar" (2006)

"Sometimes he didn't wear gloves and this would concern me" (2007)

B Competence related to the curriculum experienced (Objective 4)

Interns from both years were comfortable with the responsibility and said that this was learned during the clinical years. Some related this to personality as well.

"We were taught to accept responsibility in the clinical years" (2006)

"Interns have to take full responsibility. Students just have to clerk and don't have a feeling of responsibility. I don't think much can be done about this curriculum wise" (2007)

"We managed patients in 6th year – learned accountability" (2007).

Item 9.2: The ability to cope with the long hours and demands of internship

A Comparison of competence (Objective 3)

Table 4.62 compares the number of comments from interns and supervisors regarding the interns' ability to cope with the long hours and demands made on them during internship.

Table 4.62 Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding the ability to cope with the long hours and demands of internship

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: Interns 2006: Able to cope but hard at first Coping fine Managed to cope well 2007: Not too difficult in Surgery Anyone trained at Bara will be able to cope No problem Positive: Supervisors 2006:Coped extremely well Has been able to cope well 2007:Has learned to cope very well No problem coping Coping – great maturity	12	6	9	16
Negative: Interns 2006: Stressful, demands are high Long night, hours, loads Dealing with stress and workload difficult 2007:A very big challenge Overworked because of staff shortages Environment adds to the stress Rough but we get used to it Negative: Supervisors 2006: Difficulty coping with the hours and workload with a small child One intern needed support 2007:Personal problems	16	2	16	1

The supervisors made six (6) positive comments about the coping ability of the 2006 interns and sixteen (16) about the 2007 interns. This may assist in understanding the direction of the difference in the significant quantitative rating. Some examples are:

> *"Coped extremely well - it's very overpowering for the interns at first"* (2006)

> *"She's coping – she shows great maturity"* (2007).

The colleagues in both years gave some more personal accounts with examples to help understand the nature of the coping skills required of new interns.

> *"He doesn't complain – gets on with it; I think he's coping well. When he's on call he accepts the hours. Says he has to soldier on"* (2006)

> *"As with all interns we shared our frustrations but he deals with issues and lets them go. The female interns seem to take things to heart"* (2007).

B Competence related to the curriculum experienced (Objective 4)

The interns in 2006 and 2007 showed a similar ability to cope with the long hours and workloads during internship and both seemed to experience similar difficulties. They found the situation stressful and both groups felt that their clinical experience had prepared them to some extent but that they were not fore-warned of the enormous change in patient loads. It would have been helpful if they had been given more patients to manage in the sixth year.

> *"What could varsity have done? I can't think of anything. Even calls didn't prepare us. If it wasn't busy we went home. O&G were stricter and we had to stay over at the hospital"* (2006)

> *"The time spent in hospitals/wards in GEMP 3 and 4 should be increased so that there is more exposure to clinical work. Here you are expected to see a lot of patients on*

your own and adjustment is difficult. As students we were only meant to see 2 patients in a session – here I may have to see 44 in a night – it's a big shock" (2007)

"*In GEMP 1 and 2, we had a lot of free time and then in GEMP 3 and 4, it got crazy. We had to be like junior interns. This didn't encourage good time management. We should have had a better balance with more clinic/hospital exposure in GEMP 1 &2"* (2007).

There were no comments from the supervisors or colleagues that related time management skills to the undergraduate curricula.

Item 9.3: The ability to manage time so as to maintain a balance between work demands and personal life

A Comparison of competence (Objective 3)

Table 4.63 gives counts of the numbers of comments from interns and supervisors regarding the interns' ability to find a balance between the demands of internship and personal life.

There were a number of comments in both years that dealt specifically with the balance between the demands of internship and personal life. There were more interns that indicated difficulty in finding a balance, but a few were managing to do so successfully. Examples of a positive comment from each year follow:

"Coping fine and able to manage time effectively" (2006)

"I spend far too much time at the hospital because I want to become a surgeon and I love the environment" (2007*).*

Table 4.63 Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding the ability manage time so as to maintain a balance between work demands and personal life

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: Interns 2006: Able to manage time effectively 2007: No problem, good at planning time Coping with work and home life not a problem so far Positive: Supervisors 2006: Manages time well Good balance between hospital and social life 2007: Seems to have a good balance Sets priorities, Has managed to get married and deal with everything else as well	3	2	4	7
Negative: Interns 2006: No social time, no balance Time management is a problem No personal social life Just sleep when at home No balance 2007: No balance because of staff problem There is no time for family life Negative: Supervisors 2006: Does not manage time well Doesn't cope well, small child at home 2007: Has difficulty managing time Time management is not a strong point	8	1	6	2

Many interns had difficulty finding a balance between their work and private lives.

> *"It's stressful, demands are high. I have to take things one day at a time. Long hours and I'm not equipped to cope with the responsibility. I have to adjust but social life is nonexistent"* and *"No social life so no balance"* (2006)

> *"This is related to the environment and the excessively long hours – there is no time for family life"* and *"This is a big problem – not much personal life"* (2007).

The supervisors made six (6) positive comments about the coping ability of the 2006 interns and sixteen (16) about the 2007 interns.

"*Has been able to cope well – character and training"* and *"Coped extremely well - it's very overpowering for the interns at first"* (2006)

"She's coping – she shows great maturity" and *"He settled down easily and coped well"* (2007).

The colleagues in both years gave some more personal accounts with examples to help understand the nature of the coping skills required of new interns.

"He doesn't complain – gets on with it; I think he's coping well. When he's on call he accepts the hours. Says he has to soldier on" (2006)

"She's coping well. I stay in the same house. Even after a long shift she is not irritable" (2007)

The supervisors in 2007 made more positive comments than in 2006. Some of the comments were:

"*Doesn't stress too much and has a good balance between hospital and social life – a well-balanced person"* (2006)

"Seems to have a good balance" (2007)

"He has managed to get married as well as deal with everything else!" (2007)

Some of the 2007 supervisors had noted that interns were not coping well and they were generally very understanding of the difficulties that the interns experienced.

"She finds it very difficult to cope as she has a 3 year old child" (2006)

"His time management is not a strong point. It's his personality. He's so sweet, he always stops to chat and help others and then gets behind with what he has to do" (2007).

The colleagues in 2007 were able to give a more personal view of the interns' ability to find a balance:

"He told me his family is in Estcourt. He's staying with a family here. He's balancing that – decided not to stay in doctor's quarters. Exercises at the New Active Gym" (2006)

"Fine – she discusses her other interests e.g. cycling" (2006)

"Sound balance – newly married with lots of demands" (2007)

"He has time to go out as well and seems to be able to fit in so much. He's married too, to a teacher" (2007).

B Competence related to the curriculum experienced (Objective 4)

Very few respondents from any of the respondent groups related this item to the curriculum.

"Time management is mainly my own problem – but the curriculum didn't help to fix it" (2007).

Item 9.4: The ability to cope with the uncertainty that doctors sometimes feel

A Comparison of competence (Objective 3)

Table 4.64 gives a count of the comments made by interns and supervisors about the interns' ability to cope with the uncertainties that are inevitable when starting out in a profession as complex as medical practice in a busy hospital setting with many responsibilities and many individuals depending on them for care.

Table 4.64 Comparison of the number of comments made by interns and supervisors in 2006 and 2007 regarding the ability to cope with the uncertainty that doctors sometimes feel

Themes A : Comparison of comments on competence in 2006/2007 (Objective 3)	Frequency 2006		Frequency 2007	
	Interns	Supervisors	Interns	Supervisors
Positive: Interns 2006: None 2007: Can cope with this Positive: Supervisors 2006: Doesn't stress too much 2007: Handles this Doesn't complain	0	1	1	2
Negative: Interns 2006: Nothing can prepare one for this 2007: Uncertainty at first but overcome with experience and practice Negative: Supervisors 2006: None 2007: None	2	0	2	0

There were very few intern comments on feelings of uncertainty and no specific comments by the supervisors.

> *"I had feelings of uncertainty at first when on call. Now I've done 2 ectopics and about 25 Caesarian sections. At Wits I only know of one student who actually did a*

Caesar as an undergraduate. At the JHB Gen even some interns don't get the chance" (2006)

"There's just that element of wanting to know exactly the diagnosis – we are not given much assurance – but I'm coming to terms with this" (2007).

B Competence related to the curriculum experienced (Objective 4)

There were no comments relating the interns' feelings of uncertainty to the respective curricula experienced by the interns in 2006 and 2007 but a few general comments were made by the interns such as:

"No university in the world can prepare one for this" (2006)

"You are told what to do as students – you are never placed in this kind of situation" (2007).

The colleagues were also able to make some comments related to feelings of uncertainty.

"She doesn't panic. She didn't know what to do but even the senior didn't know it" (2006)

"She actually asked the consultant (initiated) for some sort of debriefing" (2007)

"Doesn't stall when unsure. Stays flexible enough to see the bigger picture" (2007).

4.3.6 Interviews with patients

The data collected during the patient interviews are treated separately from the interns', supervisors' and colleagues' data. This is because the patients did not complete a questionnaire themselves but were interviewed by the researcher using a semi-structured interview schedule. The questions asked related to the categories of the intern model but they did not always fit under a particular questionnaire item.

The same researcher interviewed each patient in 2006 and 2007 and wrote down the patient's answers verbatim. A rubric was designed to match the questionnaire response categories of the other respondent groups. A global score was allocated to each patient using the rubric.

Score = 1 or 2: the patient did not answer fully or seemed unsure of what to say
Score = 3: the patient answered all questions but did not elaborate
Score = 4: the patient answered all questions fully giving some examples
Score = 5: the patient answered all questions fully, volunteered additional information to clarify and supported comments with anecdotal evidence

Table 4.65 shows the number of patients who were interviewed in 2006 and 2007 together with the researcher allocated scores. Figure 4.55 represents these figures graphically.

Table 4.65 Overall scores for the patient interviews allocated by the interviewer during the 2006 and 2007 patient interviews

Patient's perception of intern preparedness (score allocated by interviewer)	2006 (n=53)		2007 (n=44)	
	pt score	%	pt score	%
1&2=not fully answered	3	5.66	0	0
3=answered but did not elaborate	11	20.75	11	25.00
4=answered fully with some examples	18	33.96	16	36.36
5=answered fully, additional information and/or anecdotal evidence	21	39.62	17	38.64

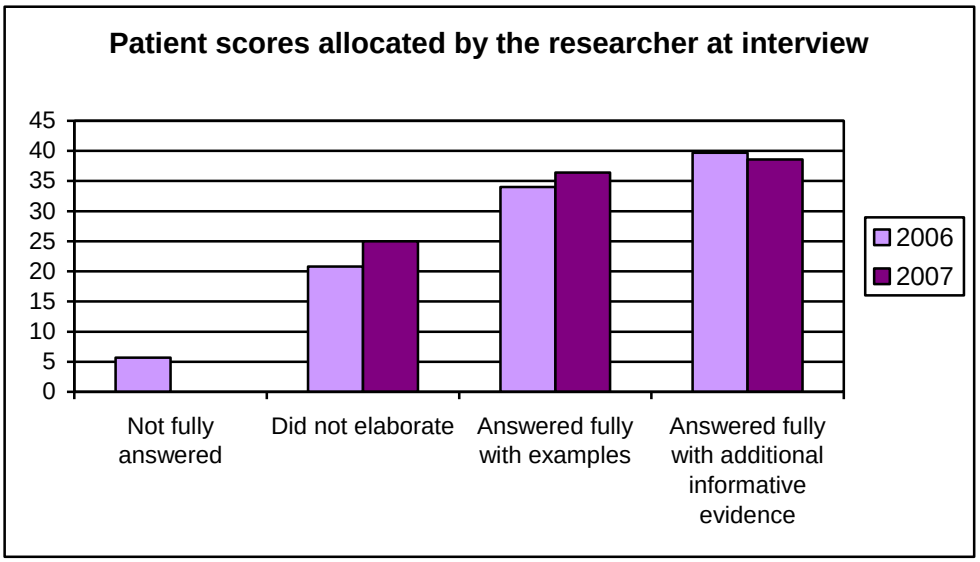

Figure 4.50 Overall patients' scores allocated by the researcher during each patient interview in 2006 (n=53) and 2007 (n=44) (n/s)

There was no significant difference in the allocated scores in 2006 and 2007 (Fisher's Exact test, $p = 0.55$). The patients in both years were pleased with the interns' interpersonal skills and the care given.

The interviews with the patients were aimed at collecting information about the interns' communication skills (Category 6). Figure 4.51 depicts the central theme of communication and how these communications also included aspects of the other categories of the model.

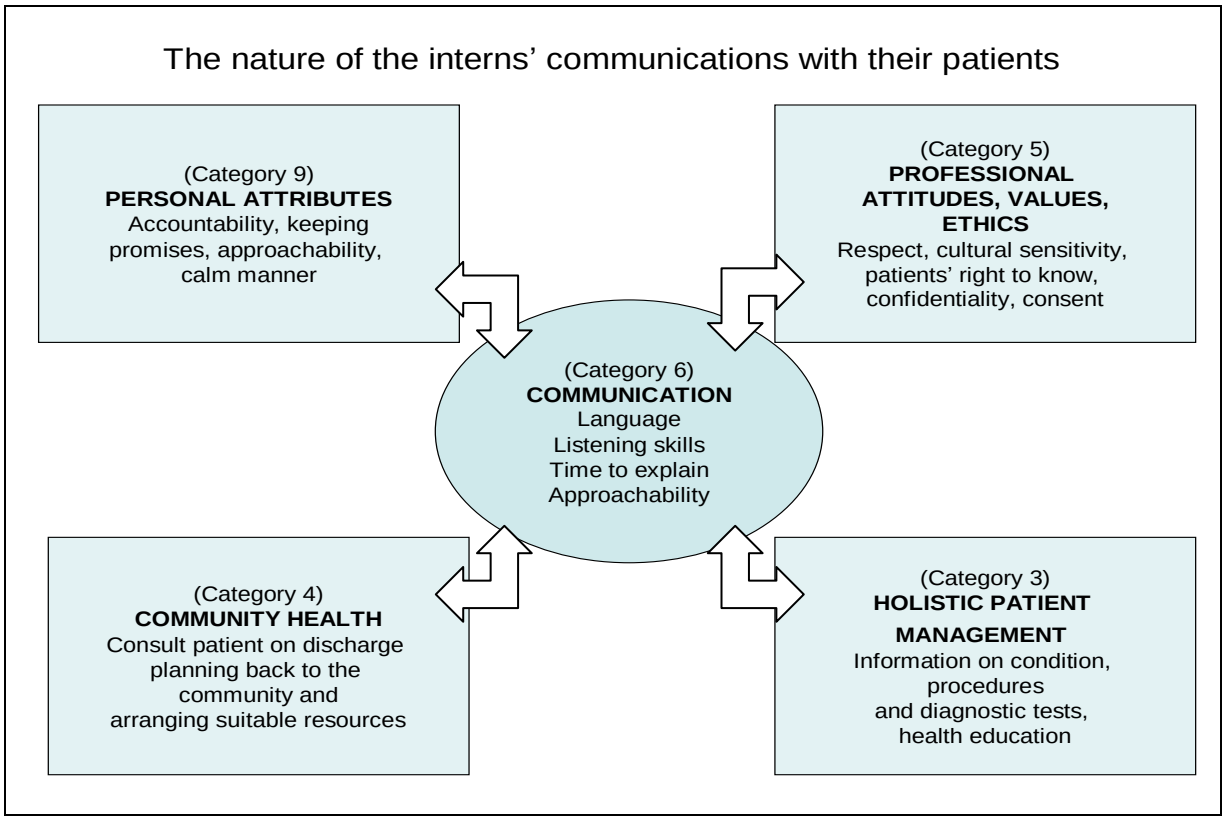

Figure 4.51 Diagram to illustrate the nature of the interns' communications with their patients and the relationship of the questions to the categories of the model

4.3.6.1 Thematic analysis of the patients' comments

The results of the qualitative analysis of the patients' responses to a selection of the interview questions are presented here and include the identification of themes and patterns, vertical analysis counts and a summary of the differences, if any, between the two intern groups and some illustrative quotes. The questions correspond to those sections of the interview schedule (Appendix B5) that are uniquely suited to patients rather than the other groups of respondents. The information relates only to Objective 3 because it compares competence in communication skills of the traditional interns in 2006 and the GEMP interns in 2007. The patients were not able to speak to the issue of medical curricula.

Professional Attitudes and Values

Did the doctor tell you his or her name?

This question addressed professionalism and patients' rights as well cultural sensitivity. In 2006, 68% of the patients answered "yes" and 32% answered "no". In 2007, 57% answered "yes" and 43% answered "no". However these answers were complex and it was difficult to determine whether the interns had in fact introduced themselves to the patient or not. The following quotes illustrate the difficulty in counting these responses.

> *"No I learned her name the second time I was admitted. I was unconscious the first time"*
>
> *"No but my neighbour in the ward explained as she knows well who she is"*
>
> *"Yes – the doctor introduced us but I was stressed at the time and didn't remember".*

Similarly in 2007 there were comments such as:

> *"Yes I think she did, but I didn't get her name. It was foreign sounding"*
>
> *"No, I called him Dr H…because my daughter read his name badge"*
>
> *"She did tell me but I forgot. Afterwards I read her name on her badge"*

Are you happy with the way that the doctor addresses you? Tell me why you say this

This question included aspects of the interns' personal attributes such as approachability as well as the professional values and attitudes of respect, understanding of cultural differences and the use of language. In 2006, 66% of patients answered "yes" and 34% said "no". The patients' responses in 2007 were 57% "yes" and 43% "no".

Table 4.66 illustrates the words and expressions used by the patients to explain why they felt happy about the way the doctor addressed them. There were no negative comments. The table counts indicate that more patients in 2007 made comments using expressions that valued respect, communication skills, explanations and knowledge, while the patients in 2006 used more words denoting a caring attitude.

Table 4.66 The themes identified for the question "Are you happy with the way that the doctor addresses you?"

Themes based upon the patients' words and expressions	2006	2007
Respect Polite, Always greets, gentleman, good mannered, shows respect, asked which language I prefer, open. honest decent trustworthy, fair flexible	7	14
Communication skills Speaks nicely, knows how to talk, easy to talk to, encouraging, Takes time , not hasty, listens, answers questions	22	27
Explaining Explains things well, explains what (s)he is going to do, Asks permission, checks understanding, Doesn't talk down	7	13
Caring attitude Kind, caring, patient, humble helpful, understanding, good relationship, not too formal, shows concern, always there for me, interested, gave cell phone no to help me, loves me so much, treats me well, comforts and calms Fantastic, sweet, a star, a jewel, the best, goes the extra mile, excellent attitude. cooperates Cheerful, always smiling, lively	26	24
Knowledge Impresses, knows her story, confident	1	2
TOTAL number of words and phrases used	63	80

All descriptive words and phrases used by the 2006 and 2007 patients who responded to this question were listed and then grouped under five themes (respect, communication skills, explaining, caring attitude and knowledge). Although there were fewer patients in the 2007

group (n=44) compared to the 2006 group (n=53) they used these words and phrases more often in four of the five themes. This was particularly noticeable in the "respect" and "explaining" themes. The patients in 2006 used more terms related to "caring".

Holistic Patient management

Has your doctor told you what is wrong with you? What did he or she say?

Table 4.67 The themes identified for the question "Has your doctor told you what is wrong with you? What did he or she say?"

Themes based upon the patients' words and expressions with examples		2006	2007
1&2	Yes : no further comment or explanation *"Not quite"* (2006) Patient went on to another topic *"Yes"* (2007)	1	2
3	Yes: names symptom or condition with no understanding *"Not the actual name but it is a woman's problem"* (2006) *"Yes, it's infection of my lungs"* (2007)	22	17
4	Yes: names problem and indicates at least partial understanding *"Yes, she told me about drug poison that damaged my liver"* (2006) *"She explained I had a problem from my bladder to my lung. I have been diabetic from 1988"* (2007)	3	12
5	Yes: names condition and indicates understanding it *"My labour is induced with pills. The water has broken"* (2006) *"Yes. She said I have a thyroid gland and it's hyperactive"* (2007)	11	8
1&2	No: with no further comments *"Ek weet eintlik nie"* (I don't really know) 2006	2	0
3	No: with an excuse *"No, I haven't asked her"* (2006) *" No he didn't have to, I know about my condition"* (2007)	2	2
4	No: tries to explain why no *"No, they don't know. Blood tests have been done but they are dressing the wound"* (2006)	1	0
5	No: no with a valid reason for not receiving information *"No he said they will scan my brain then make a decision"* (2006) *"No, another doctor explained and I understood"* (2007)	3	3
	Inappropriate response : Described a doctor's behaviour that does not answer the question e.g. caring attitude, treatment, advice, writing notes	5	2
	Total number of patients' answers	53	44

In analyzing this question each patient's reply was categorized within one of four positive or negative levels based on an adapted version of the rubric given in Table 4.65. A frequency

count was made within each level of the rubric. Table 4.67 gives these results with some examples of comments in each category.

Table 4.67 suggests that the majority of patients receive information about their medical conditions and many are able to describe them reasonably accurately even if they cannot use the correct medical terminology. The patient's educational level, language ability and cultural understanding of health, illness and disease all play a role in how they interpret the information given to them. Some of these aspects are discussed further in Chapter 5.

Has your doctor asked you if you know about the treatment and what is best for you? Did you understand everything?

Table 4.68 The themes identified for the question "Has your doctor asked you if you know about the treatment and what is best for you?

Themes based upon the patients' words and expressions with examples		2006	2007
1&2	1&2 Yes : no further comment or explanation *"I have not been told about the treatment* (2006) *"No but I got medicine"* (2007)	5	1
3	3 Yes: mentions pills, injections but not what they are for *"Yes treatment is OK – tablets and injections"* (2006) *"Yes she tells me what they are going to do"* (2007)	22	7
4	4 Yes: mentions treatment and why *"The drip is in the tissues so I drink pills, Brufen and Panado"* (2006) *"He told me they will x-ray my legs to judge the seriousness"* (2007)	11	17
5	5 Yes: describes treatment plan and gives explanations *"On Monday I had an amputation under epidural and general anaesthetic"* (2006) *"I'm on oxygen and a drip to breathe well. I'm short of breath – it's combined heart and lungs"* (2007)	5	12
1&2	No: *"No, I wasn't told anything"* (2006) *"No, but I got medicine"* (2007)	4	1
3	No: with an excuse *"No, I haven't asked her"* (2006) *" No I just assume I will be in for three days"* (2007)	3	2
4	No: tries to explain why no *"No, I have three doctors and Prof K drew a picture of the op"*(2006)	0	1
5	No: no with a valid reason for not receiving information *"No, I don't have any treatment now"* (2007)	0	2
	Inappropriate response :Describes something other than that asked for	4	1
	Total number of patients' answers	53	44

Table 4.68 provides a summary if the themes identified in the patients' comments in 2006 and 2007 regarding the information that they had received about their medical conditions from the interns. Again, this is discussed in more detail in Chapter 5.

Has your doctor explained how you can change the things that you do to stay healthy?

Table 4.69 The themes identified for the question "Has your doctor explained how you can change the things that you do to stay healthy?

Themes based upon the patients' comments		2006	2007
1	No preventive or promotive health education received thus far Some patients suggested that this might happen nearer to discharge	22	21
2	Smoking - *"She asked me if I smoke. I mustn't smoke while on the medication. I stopped smoking when I started feeling sick up to now. I want to use the money I save not smoking to buy fruits – oranges and bananas"*(2007)	5	6
3	Diet Generally diabetic diet, low salt, increased protein and more fruit and vegetables. *"He said I must leave food with more salt and fat. Every food must get a vegetable so my blood comes right"* (2006) *"I have to cancel food with oils, like chips, and also salt"* (2007)	6	7
4	Exercise Encouragement to continue physiotherapy exercises at home and to take walks post operatively. - *"Yes, he encourages me to exercise. I take walks around the ward"* (2006) - *"Post op (C/S) I must walk around, not sleep too much – to prevent clots in my legs"* (2007)	4	3
5	Baby care and feeding Comments included breast feeding, formula from a cup, oral rehydration and advice not to give babies over the counter medicines. - *"She says I must be clean whilst working with my baby. I must eat well so that my breast milk will satisfy my baby. Also if I eat fruits her tummy will work well.*(2007)	3	2
3	Taking medications - *"Yes, I applied Lennon "druppels" to the baby's head and she told me that's not OK because it's like drugging the baby. He is small and absorbs too much"* (2006) - *"I mustn't drink medicine from traditional healer – one could take many drugs for the same thing and that causes problems"*(2007)	1	2
4	Rest and relaxation *"I have to relax more and not work hard. If I feel tired I must sit down and rest" (2007)* *"Yes. I must have bed rest. No heavy work, no sex"* (2006)	3	2
5	Miscellaneous Other topics with only one patient response each include, alcohol use, weight reduction, hygiene, attend clinic, wound care, sharing syringes	4	4
	Total number of patients' answers	53	44

Table 4.69 identifies six main themes for health education and gives some patients' responses.

Five patients in 2006 and three in 2007 said that they might receive some health education just prior to discharge. Two of the patients in 2006 mentioned that they were advised by the interns not to smoke but that they are not smokers. This could mean that the interns were giving general advice without taking the patients' unique circumstances into account.

Effective Communication Skills

Do you and your doctor understand each others' language? How do you know that your doctor understands what you are saying?

South Africa has eleven official languages and communication can be problematic for health professionals and patients. The following quotes related to the language differences between patients and interns and gives an idea of the complexities of language and communication in the health services.

> *"She speaks Sotho and English, I speak Xhosa. She tries to understand Xhosa. Sometimes she tries to speak Zulu to make me understand. I do understand Sotho when she speaks"* (2006)

> *"Sy praat Engels. Ek hoor alles maar ek kan nie antwoord nie. Ek het nie getry om Afrikaans te praat met haar" (She speaks English. I hear* (understand) *everything but I cannot answer. I didn't try to speak Afrikaans with her)* (2006)

> *"I speak Xhosa and doctor speaks another African language but we speak English to each other. There is no problem understanding English* (2007)

> *"I speak Tswana (North West province). We use English to communicate. Yes I do listen carefully"* (2007)

> *"We can both speak English. I never felt that we miscommunicated. She would explore until she understood what I wanted"* (2007).

In this study all the patients could understand some English or Afrikaans and were able to answer the questions adequately.

Does your doctor give you time to say all the things that you want to say?

Forty five (85%) of the patients in 2006 agreed that the intern had given them sufficient time to speak and listened to and answered their questions. Some examples of their comments are:

> *"He's never in a hurry. He makes eye contact when I'm talking so I know he's listening to me, concentrating on what I'm saying. Other doctors fidget and look away, but he looks into my eyes"*

> *"He listens and waits for me to answer, doesn't rush me"*

> *"Yes she takes her time and she speaks slowly so I understand what she is saying".*

There were eight patients (15%) in 2006 who claimed that the intern was always in a rush.

> *"She was in a big hurry, but when you call her she always gives you time, does what you need and goes again. She never gave me enough time".*

In 2007, forty patients (91%) were extremely satisfied with the amount of time that the interns spent with them and their communication skills.

> *"He does give me plenty of time and always asks if there is something I would like to add. Sometimes I feel very sick and I asked to go home. He sat down and talked to me – eventually I laugh. He brings me a snack"*

> *"Yes – she always comes when we need her and gives us plenty of time. I have also noticed that she can work under pressure and still remains polite"*

> *"Yes, he's very patient. He weighs his words, doesn't say anything untoward. Soft spoken – this is appreciated when one is in pain".*

There were four patients (9%) in 2007 who said that the interns did not give them sufficient time.

"She's very busy so she doesn't talk to each patient a lot"

"She doesn't have time. She's helping a lot of people in the ward".

Community Health

Has you doctor discussed what will happen when you go home?

The purpose of this question was to enquire whether the interns had taken into account the patients' individual home circumstances when planning to discharge them from the hospital. The patients interviewed were not able to give much information as they were mostly still undergoing treatment and discharge planning had not commenced. Table 4.70 gives counts of patients who reported receiving discharge advice and a summary of the types of advice given.

Table 4.70 The themes identified for the question "Has you doctor discussed what will happen when you go home?

Themes based upon the patients' comments	2006	2007
Not yet ready for discharge, no advice given In one cases the family had prepared the house with handrails etc. In another the Road Accident Fund was financing a wheelchair, ramp and alterations to the house	38	33
Discharge advice given. Some examples are: 2006: "To take out" medicines were arranged Sick leave papers signed Follow up arranged at clinic Psychologist appointment made Discussed changes to way of doing things after an amputation A social worker is trying to find accommodation for a paraplegic patient whose aunt can no longer look after him. 2007: Return dates for clinic "To take out" medicines Oral rehydration for the baby at home Referral to a cardiologist	12	11
Total number of patients' answers	53	44

One long-term patient in 2007 explained the advice that the intern gave him when he was allowed home for a visit.

> *"Doctor has allowed me to go home for a weekend to be with my family in Heidelberg. Doctor said I had to promise not to take any traditional medicines while I was away and to make sure that my surrounding was clean because of the chemotherapy I am getting. I must also not drink alcohol".*

In summary, the results of the patients' responses to the selected interview questions that have been presented show that the patients in both years were generally very satisfied with the care that they had received from the interns and the differences between the two years were not great. Chapter 5 will discuss some of the more nuanced differences in the ways that patients described their interactions with the interns.

4.4 RESPONSES TO ADDITIONAL INTERVIEW QUESTIONS

4.4.1 Skills, attitudes or knowledge learned in the curriculum which were stifled during internship

Internship is not necessarily the best time to test some of the categories of the model. This question provided data related to Objective 4 about how some of the learning in the undergraduate curricula might not be adequately expressed during internship. Although some interns run wards and make many decisions, others in large teaching hospitals, where there are medical officers and registrars, are given less management responsibility, decision making or research. Interns were asked to respond Yes or No to the question: "Were any skills, attitudes or knowledge that you had learned in the curriculum stifled during internship – please explain?" Table 4.71 and Figure 4.52 show the results.

Table 4.71 Intern responses to the question "Were any skills, attitudes or knowledge that you had learned in the curriculum stifled during internship?"

Year of internship	Stifled No (%)	Stifled Yes (%)	No response	No of comments made regarding feeling stifled	Total
2006	48 (63.16)	21 (27.63)	7 (9.21)	20 (26.32)	76
2007	48 (63.16)	28 (36.84)	0 (0.00)	25 (32.89)	76

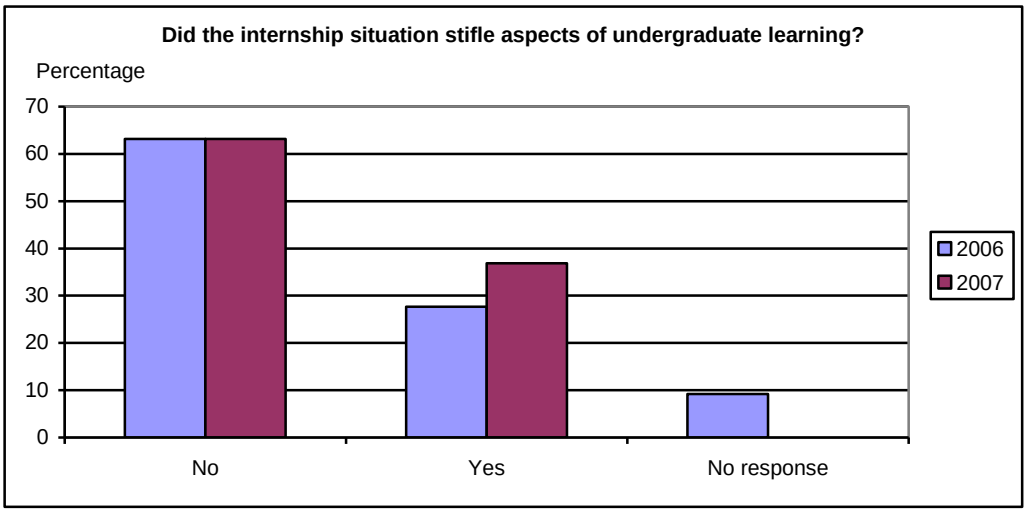

Figure 4.52 Intern responses to the question **"**"Were any skills, attitudes or knowledge that you had learned in the curriculum stifled during internship?"

Interns who answered in the affirmative were asked to elaborate with open ended comments. In 2006 twenty interns (26.32%) and in 2007 twenty five interns (32.89%) explained the reasons for their "yes" answers. Many of the themes and frustrations that emerged were common to both groups.

Time and resource constraints

Nine (9) interns in 2006 remarked that their efforts to be "good doctors" were stifled by time and resource constraints. These related mainly to the time spent with patients rather than the resources to perform clinical procedures. They included a lack of time to take a good history and to listen to patients and talk to them about their illnesses, treatment and prognosis.

> "*Patient care is not encouraged by the environment ie. Taking an interest in the person you are dealing with instead of the disease they have"*

"Time restraints and staffing shortages make it difficult to practice the rigorous medicine practiced and taught at Wits".

The 2007 interns made similar comments although this group of interns spoke more in terms of the biopsychosocial approach which was a major feature of the new GEMP curriculum. Fifteen (15) interns commented that the holistic approach that they had learned was often frustrated by the system and was not possible to implement because of the high patient loads and the "tone" set by other doctors. Interns had developed many doctor-patient relationship skills such as listening, counselling and involving patients and their families in the care plan but it was it was not always possible to do this and they were forced to cut corners. Lack of time and access to the internet also prevented research from being pursued.

"*Managing patients in a holistic/Biopsychosocial manner is compromised on due to the workload"*

"At times the holistic approach to patients is frustrated by the system in which we work. But I am still grateful for the awareness of it and problem solving abilities gained in the curriculum. I think care is better than it would have been if I had not learnt these aspects"

"Absolutely. The 'constraints' of the public health sector and the tone set by other doctors in the wards seriously undermines the interpersonal skills the GEMP pushes so much. The workload makes interns cut corners so much that teamwork, empathy, listening etc become irrelevant".

Hospital levels and protocols

In 2006 there were six (6) comments relating to the differences between undergraduate teaching and intern practice when working in hospital levels other than the academic teaching hospitals. They also spoke of the need to adapt to local protocols and the individual management preferences at intern training institutions.

"Most teaching was at tertiary hospitals with good facilities and investigations – now I'm working in district level with very few resources. Also, in hospital, we see sicker patients as med students. As an intern there are a lot more day to day complaints"

"We were trained at tertiary institutions where almost all forms of medication and investigation procedures are accessible, yet we practice at secondary hospitals where protocols are attenuated to ensure that best level of care is delivered with the few resources available"

"Individuals have a big say in management of patients i.e. outside protocols taught to us at Wits".

The 2007 interns had similar experiences. Interns in tertiary institutions found that their workloads included so much clerical and paper work that this prevented opportunities to hone skills through practicing procedures and developing management plans.

"+++ paperwork prevents a lot of clinical opportunities in terms of procedures"

"I feel at times that the interns here are given very clerical jobs and not much chance to learn/practise our clinical skills and own management plans".

Internship in regional and district level hospitals presented somewhat different challenges.

"Few, if any, full time consultants and little academic teaching"

"In house protocols are not consistent with the way I have been taught".

The teaching-learning environment

Three interns in 2006 commented that they found the learning environments outside of Wits to be less satisfactory than those to which they were accustomed during their undergraduate MBBCh training.

> *"Wits had a teaching and learning environment where communication and Ethics were standard. Very often at* [Hospital X], *patients are not handled correctly and interpersonal skills between doctors are scarce. I can't wait to come back to Wits".*

Only one intern commented on this aspect in 2007.

> *"There is a lack of academic training at this hospital* [Level I] *as we are under-staffed and don't have any full time consultants. I do get enough opportunity to further my skills here though, which would not have been possible at a tertiary institution".*

Evidence Based Medical Practice (EBM)

One intern in 2006 commented that:

> *"Superiors are resistant to change. They do not understand evidence based medicine. They belittle you if you tell them about EBM. Maybe it should also be introduced to them".*

There was also only one comment in this regard in 2007.

> ***"****No access to internet therefore I was unable to do research as I have been taught".*

Two additional areas were mentioned by the 2007 interns. The first was the lack of language courses in the GEMP which prevented full communication with many patients while the use of interpreters affected the doctor patient relationship. Two interns also commented that the economic management of patients is not always considered, especially in investigation-intense units.

4.4.2 Analysis of invited additional comments on the curriculum

The question about the aspects of learning that interns thought were stifled in the internship environment was followed by an open ended invitation to all interns to note any points in relation to their undergraduate (MBBCh) education which they thought may have affected their level of preparedness. This question related specifically to the research question 3.2.4 "Is there a clear link between the findings of the survey on the interns' performance and the curriculum which they had experienced"? In 2006, forty interns (52.63%) from the traditional curriculum made comments regarding their curriculum while in 2007 sixty nine GEMP interns (90.79%) commented. This difference in response may have been partly due to the fact that the open ended question in 2007 was more clearly divided into positive and negative aspects of the curriculum while in 2006 the question was more open. This change was made to assist in the qualitative analysis of the comments

4.4.2.1 Traditional Curriculum (2006 Interns)

Positive comments

Most of the positive comments related to the vast clinical experience gained during the three clinical years (MBBCh IV, V and VI), the excellent teaching received and the value of a good theoretical grounding.

Twenty two interns felt that the clinical years afforded them excellent opportunities to learn and practice their clinical skills through clerking and examining patients, attending ward rounds, being part of the team and especially the MBBCh VI year when they were given the responsibility of managing their own patients with the supervision of seniors. Five interns particularly valued attending intakes and being on call which were considered crucial in developing clinical skills and learning patient management.

> *"The intake calls and post-intake ward rounds done at the respective hospitals we were trained at gave me an in-depth knowledge and guidance of what to expect in my*

internship year. Nothing can replace or prepare you better than clerking patients frequently and getting exposed to all possible procedures needing to be done".

Five interns commented specifically on the benefits of their rotations at the Chris Hani-Baragwanath Hospital in preparing them for internship.

"Having worked at Bara mostly during my undergraduate degree allows one to manage patients and see a variety of cases early on. I'm glad I had that opportunity. Seeing actual patients with complex disease is the best teaching tool, in my opinion".

Several interns mentioned that the theoretical knowledge (lectures and tutorials) gained during the undergraduate years was good and the level of teaching high. This was adequate to prepare them for internship. Subjects mentioned specifically as valuable were Anatomy (1), Physiology (2), Pathophysiology/Pathology (2), Chemical Pathology (1), Microbiology (1), Radiology (1) and the teaching at the Alexandra Clinic (1).

"A thorough base in Pathophysiology and Chemical Pathology has helped me enormously in patient management and decision making re appropriate investigations and interpretations".

Eight interns praised the teaching received, especially the willingness of the senior doctors to teach during lectures, tutorials and ward rounds

"The attitude and willingness to teach of the doctors at the hospitals"

"Clinical teaching was of a very high level at Wits and old fashioned bedside tuts gave us a distinct advantage over other universities"

"Teaching hospitals at Wits have fantastic patient variety and great exposure with good teaching that has allowed good clinical and theory to prepare us for internship".

Negative comments

There was little consensus in the comments pertaining to gaps in the undergraduate preparation of medical students. These were mostly limited to a range of individual needs or lack of confidence.

Three interns felt unprepared in aspects of practical experience An example of one such comment was:

> *"Trauma block at Wits was a bit short (only 2 weeks) which didn't prepare me sufficiently for emergency resuscitations in trauma"*.

Two interns commented on the workload during internship:

> *"Nothing prepares one for the long hours and endless flow of patients"*.

Regarding the theoretical knowledge gained during their undergraduate education, one intern mentioned that:

> *"1st year Chemistry, Physics, Maths etc. not as useful"*

while another said that:

> *"Pharmacology [was] not taught clinically enough. Very much up to the student. Opportunities are there and it's up to the student".*

A third intern wrote that he:

> *"I had a concern with Orthopaedics, needed a more practical approach - not enough discipline and practical teaching"*.

There were two comments regarding a need for management and administrative skills in the workplace as well as learning about diseases.

> *"I think medical school prepared us to deal with diseases, first and foremost. There wasn't much taught about 'doctoring' and our work environment. Nothing about health law, conflict resolution procedures in the workplace, etc"*

> *"Skills are required to run a ward effectively as I did battle somewhat initially in this regard"*

This particular group of interns were the last group to have completed the traditional undergraduate medical curriculum at Wits and one intern felt:

> *"We were a little neglected because staff were concentrating on GEMP development"*.

There was little compulsion in the traditional curriculum to attend lectures and clinical activities. One intern admitted to a "*lack of attendance at most theory and practical lessons*".

4.4.2.2 GEMP curriculum (2007 Interns)

Positive comments

The teaching in the GEMP was very different from the traditional curriculum, as described in Chapter 1. The comments from the GEMP graduates differed considerably from those given above for the 2006 interns and centred mostly around the changed approach to learning medicine and the new teaching and learning methods experienced. A biopsychosocial approach was adopted throughout the curriculum, with four vertical themes which included the Patient-Doctor, the Community-Doctor and the Personal and Professional Development themes in addition to the basic science theme. These interns now seem able to recognise the importance of the patients' family, community and society and the themes have also helped them to get on with colleagues and function well in team. In many respects this has made it easier to cope with the pressures of internship.

Twenty-three interns specifically commented on the value of the biopsychosocial approach and integrated learning.

> *"The Biopsychosocial approach coupled with integrated practice has made it easier to cope with all the pressures as well as to interact with the entire health care team"*

> *"Besides learning about a disease it has helped me to look at the patient as a person as a whole belonging to a certain family, community or society"*

> *"Despite all the psychosocial lectures being irritating at the time, they have proved invaluable as an intern"*

> *"Theme sessions - much better Patient-Doctor and Doctor-Doctor relationships"*

> *"Socio-economic profile of patient is important to their care and the community site visits helped gain perspective on our country"*

> *"Made me aware that what the doctor thinks is best is not necessarily what the patient him or herself needs or wants".*

There were eight comments made about problem based learning in small groups and the group presentations that had to be made, and how this had been helpful.

> *"Problem based learning allows a more focused approach. Large amounts of self-study required by the programme sets the tone for life-long learning"*

> *"Wits (GEMP) was comprehensive and all the cases we did in PBLs were relevant to what we see at the hospitals"*

"Enjoyed PBLs and the presentations we did in small groups".

There were eight positive comments about the interns gratitude for the theoretical knowledge gained in the curriculum.

"As I am working in a hospital which offers minimal supervision I am very grateful for the excellent theoretical knowledge that was taught to me by consultants and registrars at JHB and Bara"

"Great theoretical background, sufficient to deal with patients. In addition a background that allows one to focus on the academic aspects of patient care for facilitating an easier transfer to further studying later on"

"I do believe as a Wits undergraduate in Medicine, our theoretical knowledge is sound"

"Excellent theoretical background regarding diseases and the management thereof was provided".

The few comments about specific subjects related to the importance of Anatomy and Physiology in the second year of medicine and some good lectures and tutorials in Chemical Pathology, Cardiology, Molecular Medicine and Haematology during the GEMP 1 and 2 years.

Some of the GEMP interns also expressed their satisfaction with their preparation for Evidence Based Medical Practice EBM) and the experience gained through independent study.

"Our previous experience of Evidence Based Medicine has helped put together presentations for the department I'm in"

"EBM orientation, professionalism encouraged, independence of mind, recognise limits of knowledge, ask for help when out of depth, look up info when needed"

"Taught me to formulate hypotheses and ideas for myself and gave me a chance to ask my own questions. Much freedom of thought was allowed"

"Being expected to work independently with our studies"

"The amount of 'self-study' required as a GEMP student helped me develop good study techniques and encouraged me to read beyond what was expected.
Wits has equipped me with the skills and knowledge to cope with most situations here at (X) hospital".

The GEMP interns had experienced early but graded clinical exposure from the third year of medicine in many hospital and community settings. They also had the benefit of a newly introduced clinical skills laboratory for initial learning and practice, as well as Objective Structured Clinical Examinations. Four interns found the early clinical exposure beneficial.

"Early introduction of clinical skills teaching and application"

"In GEMP I and II – clinical skills sessions were helpful".

The earlier patient exposure, even to rare disorders, in the large teaching hospitals made the transition to internship fairly easy and helped enable interns to deal with a diversity of problems and procedures encountered during internship and their clinical management.

Fifteen interns commented on the clinical experience as undergraduate students and how this had prepared them for the long hours and tribulations of internship. They were grateful for the involvement in the ward activities and the encouragement to play an active role in patient care as this enabled them to develop their skills in eliciting clinical signs under close supervision.

"Long stressful intakes as a student (particularly at CHB Hospital) has definitely enabled me to cope with the demands of intern calls"

"Vast exposure and clerking practice during the 5th and 6th years of study (GEMP 3 & 4) equipped us well to deal with the scenarios of internship and helped a lot in terms of patient management" (6 similar comments)

"In the clinical years I tried to do as many procedures as possible – this assisted greatly, especially the increased responsibilities given to students i.e. involving students in the team"

"I definitely learned how to work hard and cope in stressful situations.
Having exposure during my training to many of the hospitals and the way they function helped me in terms of coping as an intern".

There were four comments about specific clinical rotations that were beneficial in preparing for internship.

"The three week medicine block (internship 3 week block after medicine) really helped me improve my basic clinical procedures, made me more confident about attempting more difficult procedures eg. CVP, taught us more on how to be an intern than more medicine"

"Emergency medicine block was fantastic – really prepared me for this hospital. I felt I was a safe doctor"

"Paeds at Bara GEMP 4: hectic but learnt a lot and became responsible"

"Rural block in Mpumalanga– taking responsibility helped a lot in terms of patient management" (3 similar comments).

One aspect which the interns appreciated greatly was the opportunity to work with good role models during their undergraduate training and the introduction of a logbook to ensure that they had gained the requisite experience before entering internship. This was another new innovation in the GEMP, as were the examinations at the end of each clinical rotation.

"Very good doctors who provided very good teaching, especially those who let you do procedures in the ward and are not intimidating. Bedside tuts were very good"

"Skills were superb and the teaching was and is world class"

"Log books forced us to perform procedures - because of that I can handle myself in the ward"

"Rigorous exam schedule through GEMP 3 and 4"

"I appreciate the GEMP curriculum I feel that it has prepared me or my internship. I especially liked the clinical skills that I was exposed to at the hospital and at CHSE".

<u>Negative comments</u>

Most of the deficiencies identified in the GEMP curriculum seemed to be directed towards the lack of basic sciences. There were 43 comments made although many have been dealt with in considerable detail under the individual items.

"Would have been better to have a good grounding in Physiology again in GEMP 3 & 4"

"Not enough Anatomy grounding"

"Not enough focus on Pharmacology, more emphasis needed - needs more coverage and more teaching time and less self study. Could also be more patient based. Many interns found their knowledge in this area deficient, I feel there

were, and still are, gaps in my Pharmacology knowledge to be able to safely prescribe drugs, especially in unusual circumstances e.g. pregnancy" (26 similar comments)

"Don't think we got sufficiently prepared for Microbiology" (11 similar comments)

"Pathology was cut down which does have an effect on my current knowledge" (4 similar comments).

Only one comment was directed to the theme sessions by an intern who though that they tended to be repetitive.

Intern comments about aspects of their clinical training that needed improvement mainly expressed a need for more clinical time or for more concentrated time in the wards from the outset. In the final year interns requested more practice in managing patients. Opportunities to practice procedures appeared to be dependent upon the rotation, the senior staff in the unit or firm and the interns' own interest and willingness to spend time in the hospitals and to make use of the advantages offered and persist in requesting more chances to practice with help.

"Time spent in the hospital should begin in fourth year (GEMP 2) to a greater extent and not just be on a weekly basis"

"Weekly hospital visits in GEMP 1 & 2 – don't think was adequate"

"Not enough lectures on clinical subjects in final year"

"Little time allocated for management of patient especially during final year level", "Needed more time spend in management of patients" including *"long term management of chronic patients"* (5 similar comments)

"Although adequate clinical knowledge was attained, more exposure to basic procedures such as CVP insertion would be helpful", "More freedom and opportunities to do skills i.e. paediatric procedures, insertion of CVP's and IC drains", "Not enough teaching with respect to central lines, chest drains, intubation" (8 similar comments)

"We need more on emergency medicine. When called to resuscitate a patient - what to do? E.g. PPH and pre-eclampsia/ status epilepticus/ CPR with adrenaline in the ward. In the trauma block and surgery at JHB Hospital you don't get to do much clinical skills", "Not enough exposure in OPD setting e.g. stitches" (2 similar comments)

"More experience in triage situation. Resuscitation refresher may be useful in6th year again"

"Primary care block in GEMP 4 was not very helpful for gaining competence in primary care".

The difference in the workload and level of responsibility between undergraduate clinical practice and internship was somewhat of a shock for many interns.

"Would have liked to be more prepared for all night calls and long working hours of an intern"

"Students should stay longer during calls to get used to the lengthy hours spend on duty" (3 similar comments)

"Not much responsibility expected from students which may have led to neglect of certain skills"

"Perhaps need to put a bit more emphasis on responsibility in patient case as it then won't be such a jump from student to doctor".

A few diverse comments were made about the GEMP. One intern commented on his outrage at what he perceived to be a

"General arrogance of GEMP students toward seniors"

while another found the self discipline in learning required in the GEMP difficult.

"Not being 'forced' to do more, it was left up to us how much we wanted to learn because many students were lazy and only did the bare minimum to pass".

One intern was frustrated by the *"slow pace of learning"* while another felt that there were *"weaknesses in knowledge of asthma, EBM (quickly and easily forgotten) and IT".*

In summary, the interns' open-ended comments regarding their respective curricula reported in section 4.4.2 had similarities and differences which relate to Objective 3 of this research study.

The traditional curriculum interns' positive comments in 2006 were concentrated around the vast clinical experience that they had received, especially at the Chris Hani-Baragwanath hospital the excellent theoretical grounding and good teaching in lectures and tutorials. Similarly, the GEMP interns spoke of their theoretical and clinical experience but tended to be more specific, using different terminology unique to the GEMP. They referred to the early exposure to clinical practice as well as the quality of the clinical experience and mentioned specific rotation that were of value to them. Positive comments were made about the biopsychosocial emphasis in lectures and theme sessions while good teaching in the sciences highlighted subjects such as Anatomy, Physiology, Chemical Pathology, Cardiology, Molecular Medicine and Haematology. Additional positive comments from the GEMP interns included problem based learning, Evidence Based Medicine, good role models and the

use of logbooks in clinical practice. Some also spoke of the immense value of being encouraged to think independently.

Negative comments also identified few similarities and a greater number of differences. Both groups of interns commented on the lack of preparation for the enormous workload during internship. Regarding theoretical knowledge, the 2006 interns felt that the first year of medicine was not useful and suggested a need for more, or better, teaching in Pharmacology and Orthopaedics. The 2007 interns considered that they had received insufficient teaching in the basic sciences. Considering clinical experience, the 2006 interns mentioned the need for more practice in patient management and more on holistic patient care while the 2007 interns wanted more time in the wards generally. A unique complaint of the 2006 group that they felt somewhat neglected due to the Faculty's concentration on developing the new GEMP while the 2007 interns had a few comments about disrespectful and arrogant behaviour of some of the students in the class.

4.4.3 Additional questions to supervisors

Supervisors were asked to provide information regarding their years of experience in supervising interns. Table 4.72 presents this information for each of the study years.

Table 4.72 Supervisors' years of experience in supervising interns

Intern year	2006	2007
Range of years of experience	0.5- 36 yrs	0.25 – 27 yrs
Average experience	6.1 yrs	4.52 yrs
Standard Deviation	4.00	4.06
Median	4	3

Supervisors in 2007 had an average of one and a half years less experience in supervising interns than those in 2006. It is not known whether this would have made a difference to the scores that they gave. The types of comments made do not differ to any great extent so the two cohorts are probably sufficiently similar to be comparable.

The supervisors in 2006 and 2007 were requested to complete two questions at the end of the questionnaire. Firstly they had to compare the preparedness of the sampled interns to other Wits interns that they had supervised over the past five years on a three point ordinal scale (weaker, similar and superior). This relates to Objective 3, drawing comparisons between the competence of traditional and GEMP interns. Secondly, they were asked to compare the study interns with those from other universities. Table 4.73 and Figure 4.53 show that there were fewer GEMP interns who were weaker than past Wits interns and more of them were rated similar. However, there were more 2006 interns rated superior to past interns. This difference was not statistically significant ($\chi^2 = 3.61$; df = 2; p=0.17).

Table 4.73 Supervisor responses to the question "How would you rate the competence of this intern compared to other Wits interns supervised in the past five years?"

Intern year	1 Weaker	2 Similar	3 Superior	Total no of Observations
2006	10 (13.9%)	36 (50.00%)	26 (36.11%)	72 (4 missing)
2007	4 (5.9%)	43 (63.24%)	21 (30.9%)	68 (8 missing)

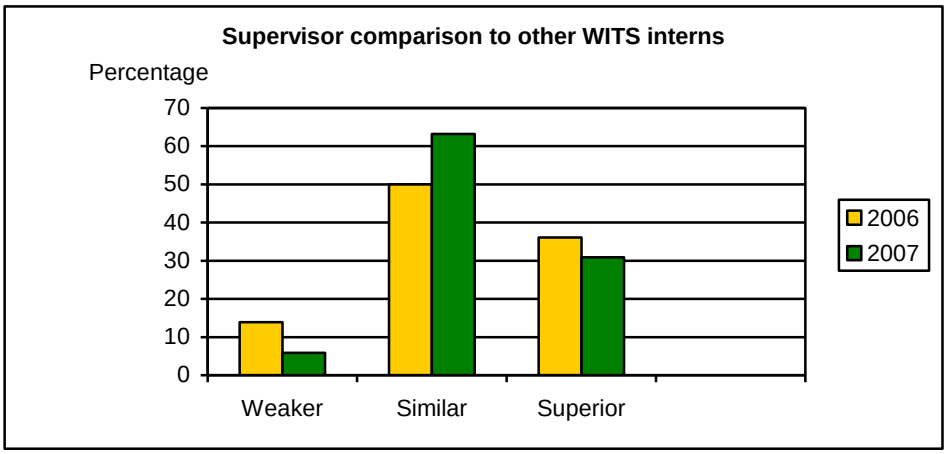

Figure 4.53 Supervisors' responses to the item comparing this intern to other Wits Interns supervised over the past few years

Table 4.74 and Figure 4.54 show that a similar percentage of 2007 interns were rated superior to interns from other universities but no GEMP interns were rated weaker than others. The difference is not statistically significant ($\chi^2 = 3.75$; df = 2; p = 0.15).

Table 4.74 Supervisor responses to the question "How would you rate the competence of this intern compared to interns from other universities?"

Intern year	1 Weaker	2 Similar	3 Superior	Total number of observations
2006	3 (4.76%)	28 (44.44%)	32 (50.79%)	63 (13 missing)
2007	0 (0.00%)	37 (49.33%)	38 (50.67%)	75 (1 missing)

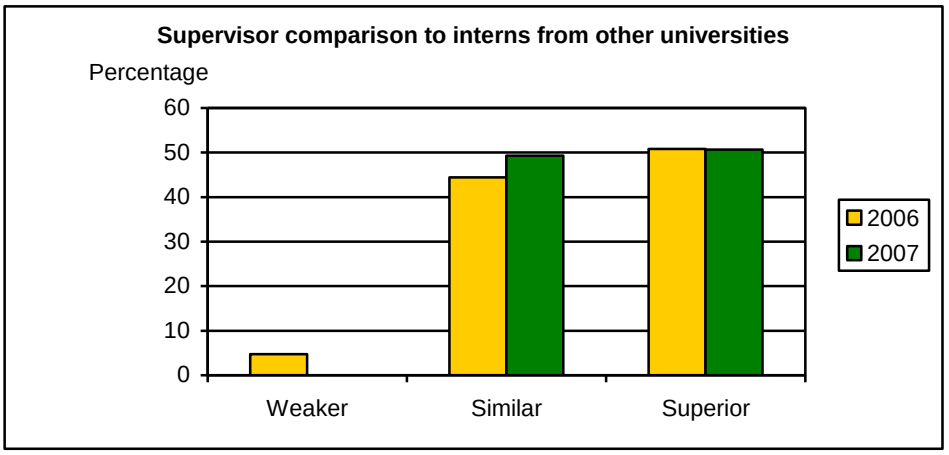

Figure 4.54 Supervisors' responses to the item comparing this intern to interns from other universities

4.4.4 General comments

Both interns and supervisors were given the opportunity to make general comments during the post questionnaire interviews and these raised interesting issues, clarifed the interpretation of some of the quantitative data and offered suggestions for future changes to the curriculum. Thematic content analysis (van Zyl and Bowman, 2007; Gillham, 2000) was employed to identify recurring themes relevant to the research as well as novel concepts and ideas that differed noticeably from the rest. Vertical analysis included identifying the relevant points made and listing these while the horizontal analysis involved drawing comparisons between the themes raised in each of the internship years and exploring the similarities and differences. evident in the patients' comments and also in some of the supervisors' comments.

The post-questionnaire interviews explored those item responses at the extremes of the scale ("not well prepared" and "fully prepared") and tried to related these scores to the curriculum.

Thereafter, all respondents were given the opportunity to raise any other matters in response to the question "Are there any other comments that you would like to make". These comments were not directed by the interviewer but merely recorded *verbatim*.

Some of the major themes presented here will be discussed in more detail in the following chapter, Chapter 5, on discussion of results.

4.4.4.1 Interns' "general" comments

This general question allowed the intern respondents to note issues that came to mind after discussing the individual items with the interviewer. The comments were listed, grouped and reduced to a matrix format from which a pie chart was constructed.

Table 4.75 and Figure 4.55 display the general areas which were commented upon by the 2006 interns and Table 4.76 and Figure 4.57 do the same for the 2007 group. A visual comparison of the two charts shows how they differ proportionately.

The detailed comments relating to particular theoretical subject areas or clinical skills were dealt with under the qualitative analysis for those specific items and will be addressed again in Chapter 5 on the discussion of the results.

Table 4.75 Matrix of interns' general comments in 2006

Theme	2006 Interns positive	2006 Interns negative	2006 TOTAL (%)
Theoretical content, complexity and exams	20	73	93(43%)
Clinical teaching, organisation, skills and EBM	15	25	40(19%)
Interpersonal skills/relationships	2		2(1%)
Confidence and coping	18	28	46(21%)
Internship (learning, support and workload)	10	15	25(12%)
GEMP (curriculum approach, PBL)	1	6	7(3%)
Other (Personal initiative, language, life skills)	3		3(1%)
TOTAL			216(100%)

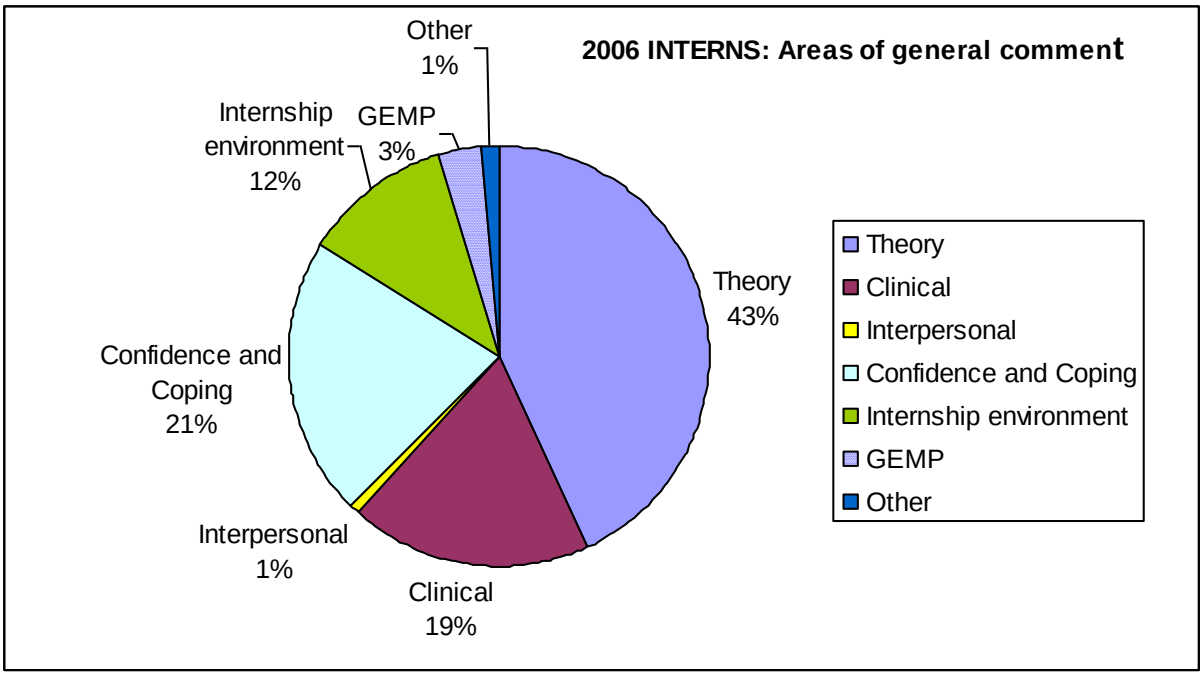

Figure 4.55 The main areas of the general comments given by the 2006 (traditional curriculum) interns during the post-questionnaire interview

Table 4.76 Matrix of interns' general comments in 2007

Theme	2007 Interns positive	2007 Interns negative	2007 TOTAL
Theoretical content, complexity and exams	8	32	40(25%)
Clinical teaching, organisation, skills and EBM	28	23	51(32%)
Interpersonal skills/relationships	3	1	4(2%)
Confidence and coping	15	8	23(14%)
Internship (learning, support and workload)	1	2	3(2%)
GEMP (curriculum approach, PBL)	30	10	40(25%)
Other (Personal initiative, language, life skills)			0
TOTAL			161 (100%)

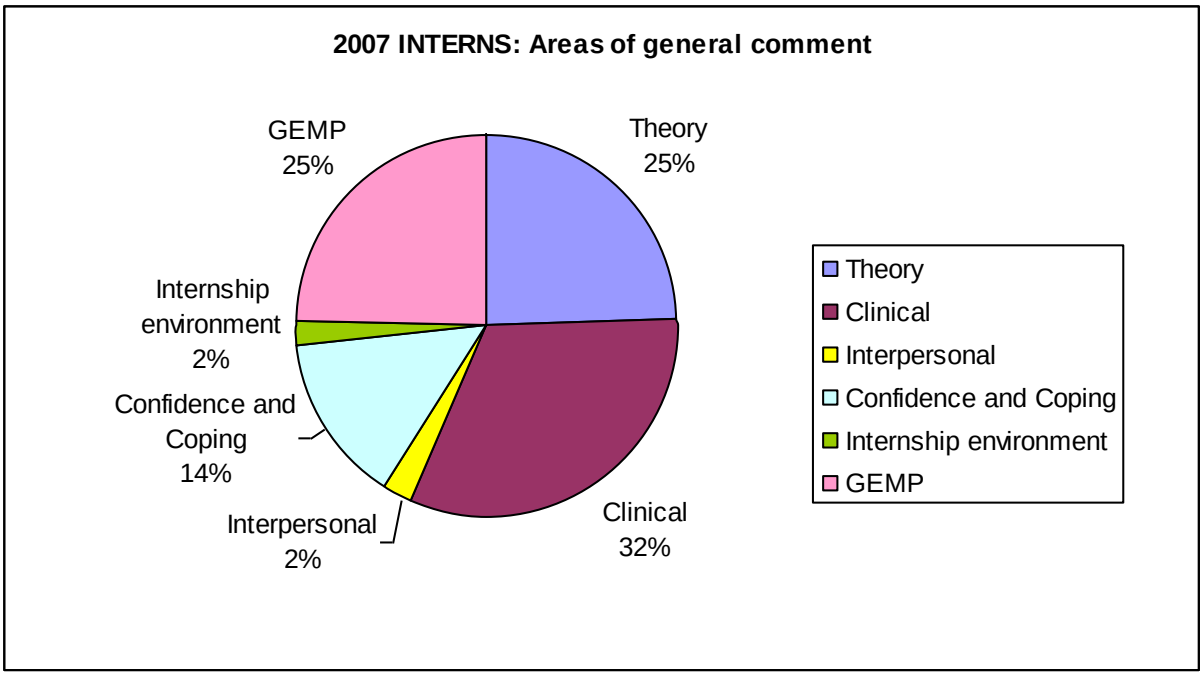

Figure 4.56 The main areas of the general comments given by the 2007 (GEMP) interns during the post-questionnaire interview

4.4.4.2 Supervisors' "general" comments

The supervisors of the 2006 and 2007 interns were similarly invited to make "any further comments" after completing the post-questionnaire interview. Their comments differed from those of the interns, with many generalized statements and unsolicited references to interns from other medical schools. Tables 4.77, 4.79 and 4.80 give a summary of the themes that presented.

Table 4.77 Summary of positive comments by supervisors in response to the question "Any further comments"? Examples of comments in each year are given

Theme	2006	2007
Praise for interns supervised: (2006) Pleasure to have her, best of the bunch, excellent, of high standard, above and beyond expectations, pick of the interns, top intern, above average. (2007) exceptional out of a good group, superior overall, absolutely excellent, almost like an MO, really superb, an exceptional working cog in the unit, clearly above average,	34	26
Theoretical knowledge & education (2006) overall well educated, well prepared, well trained, solid base, education has stood them in good stead, theoretical knowledge sound (2007) good grasp of theory, excellent, impressive, uses her knowledge effectively, applies knowledge extremely well, good at integrating knowledge, able to integrate knowledge exceptionally well and come to logical conclusions	25	15
Clinical competence (2006) good clinical judgment and assessment, works out doses accurately (2007) good examination skills, can identify problems in undifferentiated patients, picks up problems and knows how to deal with them	15	5
Interpersonal skills/relationships (2006) with peers and patients, very diplomatic (2007) good at social aspects and at applying these, good leadership qualities, develops good working relationships, I wish I could put a 6 for some of the interpersonal/professional qualities, good communicator with families and staff, good with dying patients	5	16
Personal attributes, confidence and coping (2006) positive attitude, maturity, tenacious, not put off by rude consultants, coping well with pressures, highly motivated, confident, shows initiative, enthusiastic. (2007) polite and helpful, very dedicated, capable, good manners, doesn't shy away from difficult things, confident without being overconfident, good moral values, enthusiasm makes one want to help her to learn, competent above normal status	18	14
Responsibility and trustworthiness (2006) takes responsibility, doesn't shirk responsibility, diligent in casework, can be relied on to cope alone, ensures everything is done, reliable (2007) really cares, will never leave a sick patient, she has stood out because she has a sense of duty that no other interns have, duty conscious, extremely accountable, trusted completely to do things, safe, sad he left, we would have liked to keep him, would have liked to have him permanently in obstetrics, for some of these items I would even give a 6, can be trusted with procedures	16	12
Willingness to learn (2006) open to learning, keen to help, offers to assist, learns quickly, eager to learn (2007) an academic sponge, appreciates help and learns quickly, quick to learn,	12	7
Work ethic (2006) willing to work (2007) hard working, plans work effectively, gets on and does things, reads guidelines and prepares well beforehand, fun to work with, nice to work with	4	9

Theme	2006	2007
Patient care and history taking – (2006) spends time with patients, knows how to counsel, considers patients' wellbeing, patient orientated, history taking good. (2007) good approach to patients, compassionate, really cares, fights for patients rights, pro-equity, speaks to the families, assumes 'ownership' of the patient, takes extensive histories, covers prior conditions, all systems, even habits, I have never come across anyone who is so good at histories - she is excellent, spends time with patients and counsels them, good with dying patients	6	10
Management (2007) Impressive management, almost doing the work of an MO, keen to sort out problems	0	3
Administrative functions (2007)good at administration and record keeping, notes clear and detailed, good organiser	0	2
Ethics (2007) Aware of ethical issues	0	1
Total number of comments	135	120

The supervisors made fewer negative comments testifying to a general satisfaction with Wits interns in both 2006 and particularly in 2007. Table 4.78 gives a summary of these comments.

Table 4.78 Summary of negative general comments by supervisors in response to the question "Any further comments"? Examples of comments in each year given

Theme	2006	2007
Not one of Wits's best (2006) A disappointment, takes long to get to the crux of the matter, (2007) Laid back, slow worker, needs to be more adaptable,	5	1
Clinical competence (2006) skills (paediatric bloods, bone marrows, central lines) not good on arrival, not fully prepared, could have been better, knew theory but couldn't put it into practice (eg. pelvimetry), panic in emergencies at first, don't give complete prescriptions, gap between basic sciences and clinical practice (2007) Need to see more patients during training, lacked confidence initially, not as strong as other universities, patient management sometimes a problem - needs to be prompted to go on to the next step, good theory knowledge in basic sciences but have difficulty translating this into clinical practice. Often doesn't see the whole picture – looks at specific signs and symptoms and results in isolation	14	7
Interpersonal skills/relationships (2006) interpersonal relationships and communication skills are a problem	1	0
Personal attributes, confidence and coping (2006) complains about long hours, attitude problems, questions everything - even other doctors, has spirit but this is seen as threatening (2007) Must learn to manage time	5	1
Responsibility and trustworthiness (2006) Didn't know how to take responsibility, not sure what is expected of him, role of observer, social life interfered, unreliable, lacks commitment,	7	0
Willingness to learn (2006) Unwilling to learn, avoids opportunities, does not accept guidance or criticism	2	0
Patient care and history taking - (2006) Needs to focus on issues around patient	3	0
Total number of comments	37	9

The 2006 and 2007 supervisors had some suggestions for improving intern education. These are given in Table 4.79. It is clear that the 2006 supervisors suggested improvements than their 2007 counterparts (Objective 4). In fact, some of the suggested learning issues in 2007 had already been introduced into the new curriculum prior to the survey and this may have been known to some of the supervisors.

Table 4.79 Suggestions for future curriculum improvement given by intern supervisors in 2006 and 2007 in responses to the general question "Any further comments?"

Themes	2006	2007
Theoretical subjects which need more time in the curriculum:		
Ethical principles – needs more and a stringent Ethics exam	3	2
Medico-legal issues	1	0
Orthopaedics	1	0
Trauma and emergency medicine, Advanced cardiac life support	2	2
Anaesthetics	1	0
Obstetrics and gynaecology	1	0
Financial management / business management	2	0
Clinical		
More basic "doctoring" for common South African needs	1	0
Continuity of care in patient management	1	0
Clinical examination skills and physical signs	1	1
Interpersonal skills and communication:	2	0
Cultural differences and attitudes to illness	2	0
More responsibility for patients (where students are held accountable for their results they learn faster)	1	1
Patient involvement in management decisions	1	0
Should take a full history but be selective in presenting	1	1
More advanced procedures eg. bone marrows, central lines	1	1
Personal growth		
Conflict resolution	1	0
Coping mechanisms for stress, long hours and workload	3	0
Dealing with death	1	0
Emphasis on duty rather than rights/discipline	1	1
Orientation to internship, junior intern rotation in MBBCh VI - Wits graduates are very well prepared for specific conditions but tend to be unsure of themselves on a general day to day basis	1	2
TOTAL	28	9

Some comments about the Wits curricula in general are given below:

"There don't seem to be any problems with the curriculum" (2006)

"Wits graduates are very well prepared for specific conditions but tend to be unsure of themselves on a general day to day basis" (2007).

A number of unsolicited comments regarding the GEMP were also recorded among the general comments made by the supervisors. As with all quotations, it should be remembered that these are individual opinions, offered spontaneously. However, they do capture some of thinking that was "out there" during the time of major curriculum change at the Wits Medical School.

In the 2006 survey comments about the GEMP tended to relate to the undergraduate students from the GEMP who were in their clinical years (MBBCh V and VI / GEMP III and IV). They were considered by certain clinicians to be lacking in patient management skills, somewhat unfocused and tended to present everything ("spout out like a textbook") and were afraid to try things on their own. It was felt that they needed more patient contact time in the wards. On the positive side they were felt to be "more clued up on Ethics and medico-legal risks".

In 2007, once the first graduates were actually interns, the nature of the comments changed. The following were some of the positive comments made regarding graduates of the new curriculum:

"The new system gives a self-learning ethos and interns are very confident on ward rounds, but they still have to learn the clinical skills when they come in. They seem more open to exchange of ideas and are confident at settling in. They become an integral part of the team – comfortable, engaging in discussions and offering opinions. The new system is more controlled, structured and more manageable"

"From what I know of it and from the interns we have, I think the new curriculum is good – the theory hasn't slipped and practical skills are good"

"The new GEMP curriculum is systems based – [I] had concerns about this, but the experience with the current Wits interns has annihilated these concerns"

"The GEMP interns in general are very knowledgeable, competent, coping very well and have a good attitude"

"Wits are better than most with respect to skills. The new curriculum doesn't seem to have made much difference".

On the more critical side, the following opinions were expressed by supervisors in 2007 that had had experience of the GEMP students in the wards during their undergraduate years.

"The programme is not sufficiently structured in 5th and 6th years – the students come and go as they please – they are not forced to be present so they don't learn as much practical as they possibly should (but they do catch up when working)"

"The old curriculum forced one to acquire knowledge. The new one depends on personality of the student and motivation. New curriculum is systems based – perspective not sufficiently broad"

"GEMP system very much theory based- clinical signs and symptoms a problem – not putting things together. GEMP 4 – only a three week block for managing patients – not enough – they would learn more by being in an environment with patients for longer. As interns they are sometimes left unsupervised – they don't have enough clinical practice to deal with this".

There were a few comments regarding the research project which were all very positive:

" This is a fantastic research project"

"It's great that you are following up interns like this"

"The questionnaire is a fair reflection of what is required as an intern – students should be given the list on day one of the final year and told that this is what will be required of them".

4.5 SUMMARY

This chapter has presented the biographical distribution of the respondents, the quantitative results of the survey questionnaires and qualitative results of the post-questionnaire interview comments in the following sequence:

- the biographical details of the two samples of respondents
- a comparison of the overall results of the questionnaires for 2006 and 2007
- a comparison of results in 2006 and 20007 by hospital level and population group as these were the stratification criteria in the original stratified random sampling process
- a comparison of the results in 2006 and 2007 for each of the nine categories of the Model of Intern Competence
- a comparative analysis of the ratings for each individual item in the questionnaire which showed a significant difference between the 2006 and 2007 ratings for the intern, supervisor or colleague scores (Objective 3)
- a qualitative thematic analysis of the interview data for each of the significant questionnaire items from interns, supervisors and colleagues in the two study years, comparing these and relating them to the curricula (Objectives 3 and 4)
- a qualitative thematic analysis of the general comments given in the post-questionnaire interviews with the interns and their supervisors.
- the scores allocated by the researcher for the patient interviews in 2006 and 2007.

Chapter 4 presented the research findings in relation to the study objectives and clarified how these were achieved. Not all qualitative data were presented, nor should they have been. The more important research findings will be discusses in Chapter 5 and examined and interpreted in relation to current debates in the literature. It was considered reasonable to bring a small number of additional pieces of qualitative data into Chapter 5, which are used for a different purpose.