The Mater Hospital physiotherapy project: evaluation of a direct access service: phase I

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The Mater Hospital Physiotherapy Project

Evaluation of a direct access service

Phase I

July 1998

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Summary

A number of advantages have been claimed for direct access to hospital physiotherapy. The main advantages are significant reductions in waiting times and convenience leading to less physical and psychological distress, improved patient satisfaction, less time off work and increased GP satisfaction, reduced costs for the patient and a lower cost per treated patient.

In April 1996 a direct access physiotherapy service was established in the Mater Hospital on a pilot basis for a two-year period. The service was funded by the Eastern Health Board GP Unit for GMS patients only, subject to an evaluation being carried out. The aim of this evaluation was to test whether any differences in process and outcome including patient satisfaction existed between patients referred to the direct access services and those referred via the consultant hospital clinics.

The method used to obtain the information was a semi-structured interview of each patient at commencement of physiotherapy and again at discharge or within four weeks thereof. Visual analogue scales (VAS) were used to determine degree of pain and restriction of movement.

There was a marked difference in waiting time for the first physiotherapy visit in favour of the direct access group, nine versus 43 days ($p<0.001$). Patients referred to the direct access service were much more likely to be satisfied with their waiting time for the service than their counterparts referred through the clinics. Fifty per cent of those referred via the hospital clinics had made at least one outpatient visit since their physiotherapy commenced. Referrals to the direct access service were made for more acute conditions in keeping with the pre-referral protocol. Direct access referrals had higher median pain scores at first visit and experience a shorter duration of symptoms. Direct access patients were also more likely to believe at the first visit that the physiotherapist would be able to provide relief for their complaint.

Almost three-fifths of patients in either group at first interview stated a preference for a hospital based service; almost three-quarters of patients in either group stated a preference for this model at final interview. Whereas patients in both groups were more likely to report that the GPs surgery is more convenient, patients believed that the hospital has a wider range of facilities and more experienced staff. Almost one in five reported distance to travel as a disadvantage.

The reported satisfaction rates with treatment for both groups were in excess of 90% and suggests that both models of service provide a high technical quality. The duration of treatment did not differ between the two groups. There was a trend towards a reduced number of treatment sessions received by the direct access patients. There was no difference in the proportion of patients who had visited their GP, since physiotherapy had commenced, suggesting that there was no difference in the degree of morbidity between the two groups. There was a tendency for hospital referrals to report taking more time off work.

Both groups recorded a reduction in pain score on the pain VAS at their final interview. Direct access patients whose pain was more acute showed a significantly bigger reduction. A reduction in difficulty in carrying out activities of daily living identified by the patients themselves as causing difficulty was also achieved by both groups. More patients referred to the direct access service reported that their condition had improved or been cured.

The findings suggest that patient disability would have been substantially reduced had a direct service with a shorter waiting time been available for these patients. A reduction in outpatient visits could also have been achieved had physiotherapy been available sooner for these patients with considerable savings in hospital resources and patient time.

It is recommended that the present pilot project be continued as an ongoing service and that consideration be given to extending direct access to physiotherapy for general practitioners in each of the six major Dublin hospitals as resources permit. Waiting times for physiotherapy services should be monitored routinely and procedures put in place to communicate the current waiting time to the GP. Target waiting times need to be set for the service. Any overrun of the targets should be investigated thoroughly.

Introduction

In 1994, the National Health Strategy[1] gave a commitment to the provision of incentives for the improved organisation of general practice so that patients would have easier access to a wide range of services provided by their family doctor. The Health Board GP Units have been the vehicle for the implementation of the strategy and have funded the reimbursement of auxiliary staff salaries to a wider range of professionals on a pilot basis. Physiotherapy is a prime example of one such ancillary service. Estimates of the numbers of patients requiring physiotherapy vary enormously but an approximate annual referral rate for all conditions of 22 per 1000 patients on a group practice list has been reported[2]. The EHB GP Unit has funded a number of models of primary care physiotherapy, from on-site physiotherapy to channelling extra resources into hospital physiotherapy to ensure rapid access to physiotherapy. All such funding is subject to evaluation and demonstration of increased benefit to patients.

A number of advantages have been claimed for direct access to hospital physiotherapy. The main advantages are significant reductions in waiting times and convenience leading to less physical and psychological distress, improved patient satisfaction, less time off work and increased GP satisfaction, reduced costs for the patient and a lower cost per treated patient.

In April 1996 a direct access physiotherapy service was established in the Mater Hospital on a pilot basis for a two-year period. The service was funded by the Eastern Health Board GP Unit for GMS patients only, subject to an evaluation being carried out. This was carried out under the guidance of the Eastern Health Board Department of Public Health. A research assistant funded by the GP Unit was assigned to the project.

The aim of this evaluation was to test whether any differences in process and outcome including patient satisfaction existed between patients referred to the direct access services and those referred via the consultant hospital clinics.

Methodology

Between April 1996 and April 1997 general practitioners from 10 selected practices in the immediate catchment area of the hospital (those within a three mile radius) were invited to directly refer patients requiring physiotherapy to an open access service at the Mater Hospital. One senior physiotherapist was employed to see GP referrals exclusively. A part-time secretary was also employed.

An information meeting was held at the Hospital at which the GPs were provided with guidelines of appropriate referrals to the service. Patients were to be referred only if they would have normally received physiotherapy and did not require consultant assessment. A referral form was requested for each patient. GPs were requested to record what alternative management decision they would have taken in the absence of the direct access service.

A comparative study was undertaken of new referrals to the direct access service and new referrals to the usual physiotherapy service. Patients attending the usual service would have been referred initially by their GP to an out patient department where a referral to the hospital physiotherapy service would be made. Referrals to the usual service comprised GMS and non-GMS patients. The same treatment options were made available for both services e.g. mobilisation and manipulation, ultrasound and interferential therapy. Hydrotherapy was made available only for hospital based referrals.

The physiotherapy department was briefed as to the nature and purpose of the study. Newly referred patients were identified by the researcher using the appointments book. The physiotherapist undertook to inform patients of the study. A reminder note was made on the chart of each newly referred patient to the usual physiotherapy service as there were a number of staff rotations during the research period. Patient consent to take part in the study was obtained.

Newly referred patients to each service were interviewed by the researcher at their first physiotherapy visit or as soon as possible thereafter. Direct access patients were interviewed at their discharge visit. Patients referred via the hospital were interviewed at their discharge visit or within four weeks of discharge.

Patients were interviewed using a semi-structured questionnaire in a private office. Patients who failed to attend subsequent appointments were invited to attend for interview or to complete a postal questionnaire. The research was carried out between May 1996 and February 1997.

First Interview

Information on the following parameters was obtained: registration details, source of referral and reason for referral, OPD attendances, medications waiting time for service, duration of symptoms, impact of condition, previous attendance at physiotherapy, expectations of physiotherapy and preference for location of physiotherapy service. Patients were asked to nominate three activities that caused difficulty as a result of their condition. Visual analogue scales 'absolute'(i.e. numerical) and 'comparative' (i.e. graded) were used to determine limitations of functional assessment based on the three activities which were identified by the patients themselves as causing the most discomfort.[3] A pain visual analogue scale was used to determine intensity of pain. Each scale was completed without having the possibility of comparing with previous estimates.

Final interview

The following were asked at the final interview: number of physiotherapy consultations, time off work, changes in medications, OPD attendances, self-assessment of condition, GP consultations and preference for location of physiotherapy service. Information on the number of consultations was validated from the patient's chart. The nature of the treatment provided was also extracted from the chart. The activity based visual analogue scales and the pain visual analogue scales were again used at the final visit.

GP satisfaction

A GP satisfaction study of Phases I and II combined is reported separately.

Outcome measures

Clinical outcome was assessed based on changes on the activity based visual analogue scales and the pain visual analogue scale between first and final visit. Patient satisfaction with the service was determined at final interview.

Data analysis

Data were analysed using SAS. Non-parametric statistical tests were used for paired data. A p value of <0.05 indicates statistical significance, i.e. any differences between the two groups are likely to be real and not due to chance. A p value of >0.05 indicates a non-significant result (NS).

Results

First Visit

Patient profile

123 patients were interviewed, of these 70 (57%) attended the direct access service and 53(43%) attended the hospital outpatient service.

Age

Table 1 - Age of patients referred

	N	Mean Age	Range	P value
Direct	70	66	21-84	0.06
Hospital	52	56	16-88	

Patients referred to the direct access service were older than those referred via the hospital. However this did not quite reach statistical significance at the 5% level (Table 1).

Sex

Almost three-quarters of those who attended the direct service and two-fifths of those who attended the outpatient's service were female. (p=0.58, NS) (Table 2).

Table 2 - Gender of patients referred

	Direct		Hospital		Total	
Gender	**No.**	**%**	**No.**	**%**	**No.**	**%**
Males	18	26	16	30	**34**	**27**
Females	52	74	37	70	**89**	**73**
Total	**70**	**100**	**53**	**100**	**123**	**100**

Eligibility

Eighty–seven percent of those who attended the direct service were GMS compared to 64% of those attending the existing service (Table 3). This difference was statistically significant (p=0.003)

Table 3 - Patient Eligibility

	Direct		Hospital		Total	
Eligibility	**No.**	**%**	**No.**	**%**	**No.**	**%**
GMS	60	87	34	64	**94**	**77**
Private	9	13	19	36	**28**	**23**
Total	**69**	**100**	**53**	**100**	**122**	**100**

Referral source, reason for referral and waiting time

Source of referral

Table 4 - Source of Referral (n=117)

	Direct		Hospital		Total	
Source	**No.**	**%**	**No.**	**%**	**No.**	**%**
OPD	0	0	38	81	38	33
A&E	0	0	4	8.5	4	3
GP	70	100	4	8.5	74	63
Other	0	0	1	2	1	1
Total	**70**	**100**	**47**	**100**	**117**	**100.0**

As expected, the general practitioner was the source of referral for all patients who attended the direct access service whereas he/she was recorded as the source of referral in only four of the 47 non-direct access cases, a highly significant difference (p=0.001) (Table 4). An additional four of these 47 cases were referred from A&E. A breakdown of referrals to the direct access service is shown in Table 5.

Table 5 - Breakdown of referrals to Direct Access service by GP

	Direct Access	
Referring GP	**No.**	**%**
P Mc Vey	10	14
M Kearney	9	13
D Frawley	7	10
O Carey	7	10
Michael Brennan	6	9
M Hayes	5	7
D Fitzpatrick	5	7
Maurice Brennan	5	7
D Maguire	4	6
L Power	3	4
S Gately	3	4
A Clarke	2	3
P Kelly	2	3
J Murphy	1	1
M Maguire	1	1
D Caulfield		0
Total	**70**	**100**

Presumed alternative referral pattern

The general practitioners with access to the direct service were asked what course of action they would have undertaken had the direct service not been available (Table 6).

Table - 6 Presumed referral pattern had direct service not been available

	Direct	
	No.	%
Rheumatology Mater	21	36
Orthopaedics Mater	14	24
Physiotherapy via other hospital	10	17
Private physiotherapy	8	14
Rheumatology other hospital	2	3
A&E Mater	1	2
Community physiotherapy	1	2
GP management	1	2
Total	**58**	**100**

A response was received for 58/70 cases referred to the direct service (83%). In three-fifths of cases (63%), rheumatology or orthopaedic clinics at the Mater would have been the chosen option. One in five patients would have been referred to another hospital for physiotherapy. Referral to private physiotherapy would have been an option for only one in seven cases.

Visits to OPD

Table 7 - Outpatient department from which referral to physiotherapy was made (hospital referrals only)

	Hospital	
OPD	No	%
Rheumatology	23	46
Orthopaedics	21	42
A&E	2	4
Cardiac	2	4
Gerontology	1	2
Dermatology	1	2
Total	**50**	**100**

As one might expect, referrals via Rheumatology and Orthopaedics accounted for the majority (88%) of all non-direct referrals for physiotherapy.

Table 8 - Number of OPD visits (Hospital referrals only)

Visits	Hospital No.	Hospital %
1-3	37	77.1
4-6	8	16.7
7+	3	6.2
Total	**48**	**100**

Patients were asked how many visits they had had to outpatients for this episode. Over three-quarters of patients referred via the hospital outpatient clinics had made up to three visits at the time of their first physiotherapy visit. Three patients were recorded as having made seven or more outpatient visits (Table 8).

Reason for referral

Table 9 - Principal reason for referral

	Direct		Hospital		Total	
	No	%	No	%	No	%
Soft tissue injury	39	56	16	30	55	45
Low back pain /back pain	16	23	14	26	30	24
Osteoarthritis	10	14	15	28	25	20
Other	5	7	8	15	13	11
Total	**70**	**100**	**53**	**100**	**123**	**100**

Over one-half of all referrals to the direct service were for soft tissue injuries. Osteoarthritis and other more specialised referrals accounted for a higher proportion of referrals via the hospital outpatients. Referrals for low back pain or unspecified back pain were almost equal (Table 9). Thirteen patients had more than one reason for referral recorded, three direct GP referrals and 10 via the hospitals. In five of these cases, osteoarthritis was stated as the additional reason for referral.

Waiting time for physiotherapy

Table 10 - Waiting time from referral to obtaining physiotherapy

	N	Median Waiting time (days)	Range	P value
Direct	65	9	1-31	0.0001
Hospital	53	43	1-274	

There was a highly significant difference in the waiting time for physiotherapy between the two groups. Patients referred directly by the GP waited on average nine days for an appointment, whereas those referred from hospital outpatient clinics waited an average of 43 days (Table 10). The maximum waiting time for those referred from outpatients was nine months compared to one month for those referred directly by the general practitioner.

Patient condition

Duration of symptoms

Table 11 - Duration of symptoms

Duration	Direct		Hospital		Total	
	No.	%	No.	%	No.	%
1 - 2 weeks	5	7	0	0	5	4
3 - 4 weeks	13	19	1	2	14	12
5 - 6 weeks	8	12	3	6	11	10
7 - 12 weeks	6	9	4	8	10	9
3 - 6 months	21	31	12	24	33	28
6 months - 1 year	9	13	16	33	25	21
> 1 year	6	9	13	27	19	16
Total	**68**	**100**	**49**	**100**	**117**	**100**

Eighty-four percent of cases referred via the hospital experienced their symptoms for greater than three months prior to referral compared to only 53% of direct referrals. Over a quarter of non-direct referrals experienced symptoms for longer than a year.

Amount of pain experienced

Patients were asked about the amount of pain they had experienced in the two weeks prior to the first physiotherapy visit (Table 12).

Table 12 - Amount of pain

	Direct		Hospital		Total	
Pain	No	%	No	%	No	%
As much pain as patient could bear	14	22	7	13	21	18
Very bad pain	14	22	9	17	23	19
Quite a lot of pain	24	36	18	34	42	36
A little pain	12	19	16	30	28	24
No pain	1	1	3	6	4	3
Total	**65**	**100**	**53**	**100**	**118**	**100**

Whereas almost equal proportions of both groups experienced ‘quite a lot of pain’, more patients referred to the direct access services (44%) reported ‘very bad pain’ or ‘as much pain as they could bear’ compared to 30%, of referrals via the hospital.

When the first three categories were combined i.e. those who experienced significant pain and combined with the remaining two categories i.e. those with little or no pain, direct access patients experienced significantly more pain ($p = 0.048$).

Medications
Where medication was recorded, there was no difference in the proportion of those in either group taking anti-inflammatory drugs, analgesics, muscle relaxants or other non-steroidal anti-inflammatory (NSAID) drugs at their first visit ($p>0.05$, NS) (Table 13).

Table 13 - Medications (n=91)

	Direct		Hospital		Total	
Medications	**No**	**%**	**No**	**%**	**No**	**%**
Anti-inflamm.	20	47	22	46	42	46
Analgesics	16	37	16	33	32	35
Muscle relaxants	5	12	9	19	14	15
Other meds.	2	5	1	2	3	3
Total	**43**	**100**	**48**	**100**	**91**	**100**

Ability of physiotherapist to give relief to complaint

Patients were asked their opinion on the ability of the physiotherapist to provide relief for their complaint. A higher proportion of those referred directly agreed or strongly agreed that the physiotherapist would be able to provide relief for their complaint (81%) compared with 61% of those referred via the hospital (Table 14).

Table 14 - Ability of physiotherapist to give relief to complaint

	Direct		Hospital		Total	
	No	**%**	**No**	**%**	**No**	**%**
Strongly agree	21	31	8	16	29	**24**
Agree	34	50	23	45	57	**48**
Unsure	12	18	19	37	31	**26**
Disagree	1	1	1	2	2	**2**
Strongly disagree	0	0	0	0	**0**	**0**
Total	**68**	**100**	**51**	**100**	**119**	**100**

Previous attendance at physiotherapy

Because previous experiences can colour a person's perception of a service patients were asked whether they had previously attended physiotherapy in a hospital setting, whether this was at a public or private hospital or whether they had attended a private physiotherapist in the community.

Hospital physiotherapy

Table 15 - Previous attendance at hospital physiotherapy

	Direct		Hospital		Total	
	No.	%	No.	%	No.	%
Yes	38	54	27	52	65	53
No	32	46	25	48	57	47
Total	**70**	**100**	**52**	**100**	**122**	**100**

More than one-half of the patients in each group had previously attended hospital physiotherapy (p=0.08, NS) (Table 15). Almost all previous attendees in both groups had attended a public hospital (Table 16).

Table 16 - Previous attendance at physiotherapy - public/ private?

	Direct		Hospital		Total	
	No.	%	No.	%	No.	%
Public	35	97	26	96	61	95
Private	1	3	1	4	3	5
Total	**36**	**100**	**27**	**100**	**64**	**100**

Similarly there was no difference in the proportion who had attended a private physiotherapist in the community (p=0.62).

Patient satisfaction and location preferences

Satisfaction with waiting time

Patients were asked if they were satisfied with the waiting time between referral to the service and their first appointment (Table 17).

Table 17 - Satisfaction with waiting time

	Direct		Hospital		Total	
Satisfied	No.	%	No.	%	No.	%
Yes	65	96	29	56	68	78.3
No.	3	4	23	44	52	21.7
Total	**68**	**100**	**52**	**100**	**120**	**100**

Whereas almost all of those referred to the direct access service reported satisfaction, over two-fifths of the non-direct referrals reported dissatisfaction. This difference was highly significant, (p=0.001).

Comments on waiting time

Table 18 - Comments on waiting time (n=37)

	Direct		Hospital		Total	
Comments	**No.**	**%**	**No.**	**%**	**No.**	**%**
Delighted	11	65	7	35	18	49
Shorter wait preferred	2	12	6	30	8	22
Priority for serious cases preferred	1	5	1	5	2	5
Other	3	18	6	30	9	24
Total	**17**	**100**	**20**	**100**	**37**	**100**

Comments on waiting time were made by 37 patients. 11/17 (65%) of direct referrals who made comment were delighted with the waiting time compared to 7/20 (35%) of the hospital referrals. One third of hospital referrals declared they would prefer a shorter wait for the service compared with 18% of direct access referrals (Table 18).

Location preference for physiotherapy

Patients were asked where they would rather attend for physiotherapy: the hospital or the GP surgery or if they had no particular preference.

Table 19 - Location preference for physiotherapy

	Direct		Hospital		Total	
Preference	**No.**	**%**	**No.**	**%**	**No.**	**%**
Hospital	39	57	31	60	70	58
GP	23	34	15	29	38	32
No Preference	6	9	6	11	12	10
Total	**68**	**100**	**52**	**100**	**120**	**100**

A higher proportion of patients in both groups stated a preference for a hospital based service, almost three-fifths, compared to one-third whose stated preference was for a practice-based service. Approximately 1 in 10 in both groups had no particular preference. Stated preferences within both groups were remarkably consistent with no differences noted (p=0.8, NS), (Table 19). The reasons for stated location preference are shown in table 20. Thirty-two patients offered more than one reason.

Table 20 - Reason for location preference

Reason	Direct No.	Hospital No.	Total No.
GP surgery is more convenient	24	15	**39**
Hospital has more/better facilities, equipment, x-rays and professionals more experiences	9	18	**27**
Hospital is more convenient	12	8	**20**
Prefer Hospital	8	12	**20**
Unsure / No preference	9	2	**11**
Hospital more helpful/ better attention/ more time	5	6	**11**
Could be waiting too long in GP surgery/ No waiting involved in Hospital	6	2	**8**
Prefer GP surgery if the treatment is the same	2	4	**6**
Hospital is more secure	4	1	**5**
GP surgery is very/ too small	3	1	**4**
Prefer woman physiotherapist	3	0	**3**
No waiting involved in GP surgery	1	0	**1**
Total	**86**	**69**	**155**

Comments on physiotherapy service

At the end of the first interview, patients were asked if they wished to make any comments on the service. Fifteen patients made comments, 11 of which referred to the direct service (16%) and four to the hospital based referrals (8%) (Table 21).

Table 21- Comments on physiotherapy

	Direct No.	Hospital No.	Total No.
I have great faith in physiotherapy / it's very good	4	1	**5**
I feel something is being done / I get great relief	2	0	**2**
There's no long waiting list	3	0	**3**
I'm not sure if she'll be able to do anything	2	0	**2**
Waiting too long for appointment	0	1	**1**
Other	0	2	**2**
Total	**11**	**4**	**15**

Final interview

Treatment

Treatments given

A wide range of physiotherapy treatments was provided. Manipulation and or electrotherapy were more likely to be given to direct referrals, whereas exercise programmes or mobilisation was more likely to be offered to referrals from the hospital clinics. One hundred and seventeen patients received more than one treatment (Table 22).

Table 22 - Treatments given

	Direct	Hospital	Total
	No.	No.	No.
Exercise programme	29	35	64
Electrotherapy	40	17	57
Therapist manipulation technique	39	1	40
Education	14	7	21
Therapist mobilisation	2	15	17
Traction	6	4	10
Hydrotherapy	0	7	7
Advice	4	4	8
Interferential / Ultra sound / Short wave diathermy	4	1	5
Heat treatment	2	3	5
Other	2	1	3
Total	**142**	**95**	**237**

No. of physiotherapy treatments

Table 23 - Median number of treatments

	N	Median no. of treatments	Range	P value
Direct	70	6	1-16	0.6
Hospital	45	7	1-19	

Hospital referrals received on average seven treatments during their course of therapy compared to direct access patients who received an average of six. However this difference was not statistically significant (Table 23).

Duration of treatment

Table 24 - Median duration of treatment

	N	Median length of treatment (days)	Range	P value
Direct	63	34	5-134	0.4
Hospital	47	35	0-165	

The average length of treatment did not differ for patients referred to either service (Table 24).

Change in medications

Table 25 - Change in medications

	Direct		OPD		Total	
	No	%	No	%	No	%
Yes	14	21	8	17	**22**	**19**
No	54	79	38	81	**92**	**80**
Unsure	0	0	1	2	**1**	**1**
Total	**68**	**100**	**47**	**100**	**115**	**100**

There was no difference in the proportion of cases in either group, approximately one-fifth, who had their medication changed between the first and discharge visits (p=0.4, NS, Table 25).

Visits to professionals and time off work

Visits to GP since commencement of physiotherapy

There was no difference in the proportion of patients who had seen their GP since they had commenced physiotherapy (p=0.5, NS) (Table 26), or in the number of visits made (Table 27).

Table 26 - Seen GP since physiotherapy commenced

	Direct		Hospital		Total	
	No.	%	No.	%	No.	%
Yes	29	42	21	48	50	**44**
No	40	58	23	52	63	**56**
Total	**69**	**100**	**44**	**100**	**113**	**100**

Table 27 Number of visits to GP since discharge

	Direct	Hospital	Total
Visits	**No.**	**No.**	**No.**
1	3	3	**6**
2	1	2	**3**
3	0	3	**3**
4	2	0	**2**
5	6	1	**1**
Total	**8**	**9**	**15**

Visits to other professionals

Patients were also asked about visits to other professionals since physiotherapy commenced. Although a small proportion had visited others, 12% in each group, this difference was not significant (p=0.9, NS), (Table 28).

Table 28 - Visits to other professionals since commencement of physiotherapy

	Direct		Hospital		Total	
	No.	**%**	**No.**	**%**	**No.**	**%**
Yes	5	12	3	12	**8**	**12**
No	37	88	21	88	**58**	**88**
Total	**42**	**100**	**24**	**100**	**66**	**100**

Outpatient visits

Patients referred via the hospital were asked if they were still attending the outpatient clinic from which they had been referred. Over two-thirds of people referred via the hospital service (70%), were still attending outpatients (Table 29). 13/32 hospital referrals had made one outpatient visit since commencement of their physiotherapy and three cases had made two or more visits (Table 30).

Table 29 - Still attending OPD (hospital referrals only)

	Hospital		Total	
	No.	**%**	**No.**	**%**
Yes	32	70	**34**	**64**
No	14	30	**19**	**36**
Total	**46**	**100**	**53**	**100**

Table 30 - Number of OPD visits since commencement of physiotherapy (hospital referrals only)

	Hospital	
	No.	%
None	16	50
1	13	41
2	2	6
4	1	3
Total	**32**	**100**

Time off work

Relatively few patients reported missing time off work. Although a larger proportion of patients referred via the hospital reported missing time off work (34%) than direct referrals (22%), this difference was not statistically significant (p=0.2, NS) (Table 31). However, the data are incomplete especially for hospital referred patients.

Table 31 - Time missed from work

	Direct		Hospital		Total	
	No.	%	No.	%	No	%
Yes	11	22	10	34	**21**	**27**
No	39	78	19	66	**58**	**73**
Total	**50**	**100**	**29**	**100**	**79**	**100**

Patient satisfaction, perceptions and preferences

Satisfaction with help received

With regard to satisfaction with help received from the physiotherapist, 93% of direct access patients and 91% of hospital based referrals reported that they were either 'mostly satisfied' or 'very satisfied', (p=0.7, NS) (Table 32).

Table 32 - Satisfaction with help received

	Direct		Hospital		Total	
	No.	%	No.	%	No.	%
Quite dissatisfied	3	4	0	0	3	3
Mildly satisfied	2	3	4	9	6	5
Mostly satisfied	6	9	7	15	13	11
Very satisfied	60	84	35	76	95	81
Total	**71**	**100**	**46**	**100**	**117**	**100**

Location preference for physiotherapy

Patients were again asked at discharge about their preferred location for receiving physiotherapy. Proportions opting for hospital based physiotherapy had increased from almost 60% in both groups to 73% in both, ($p=0.9$, NS), (Table 33).

Table 33 - Location preference for physiotherapy

	Direct		OPD		Total	
	No	%	No	%	No	%
Hospital	49	73	32	73	81	73
GP	18	27	12	27	30	27
Total	67	100	44	100	111	100

Advantages of Hospital physiotherapy

Patients were asked what advantages there were in attending a physiotherapist based in a hospital. Patients could list more than one advantage. The major perceptions of both groups appeared to be that the hospital physiotherapist has more experience and that there are better facilities provided at the hospital (Table 34).

Table 34 - Advantages of Hospital physiotherapy

	Direct	Hospital	Total
	No.	No.	No.
Hospital physiotherapist more experienced	18	12	30
None	15	9	24
Hospital has more facilities, more space	14	8	22
No waiting	4	6	10
Individual treatment / helpful - nice physiotherapist / more time	6	3	9
Hospital more convenient/ Bus is near	5	3	8
Trust and confidence in treatment	3	2	5
Physiotherapist can refer you to consultant if something is wrong	4	1	5
Familiar with Hospital / attends here already	3	0	3
Don't know	2	1	3
Other	3	6	9
Total	77	51	128

Disadvantages of hospital physiotherapy

Table 35 - Disadvantages of hospital physiotherapy (n=103)

	Direct		OPD		Total	
	No.	%	No.	%	No.	%
None	42	75	33	70	75	73
Travel / transport / distance	10	17	9	19	19	18
Had to take time off work	2	4	2	4	4	4
Other	2	4	3	7	5	5
Total	56	100	47	100	103	100

A substantial majority of both groups believed there were no disadvantages. Approximately equal numbers in both groups cited distance as the most important disadvantage (Table 35).

Patient condition at discharge

Patient condition

Patients were asked how their condition affected them in their daily lives. Fifty-nine patients reported more than one impediment to their lifestyle and 23 reported more than two. Restricted movement and/or pain and discomfort caused by the affected part were the most commonly listed impediments for both groups (Table 36).

Table 36 - How did condition affect patient?

	Direct		Hospital		Total	
	No.	%	No.	%	No.	%
Restricted movement	32	26	21	29	53	27
Pain / discomfort	32	26	16	22	48	25
Cannot work / lift things / gardening / washing / sport	21	17	10	14	31	16
Sleeping difficulties	8	7	7	10	15	8
Irritable / depressed	4	3	5	7	9	5
Running / walking difficulties	11	9	6	8	17	9
Tiredness	2	2	2	3	4	2
Confined to house / cannot drive/ socialise	9	7	5	7	14	7
Dressing / undressing	2	2	0	0	2	1
Total	121	100	72	100	193	100

Changes in pain and activity scores

Pain score

Table 37 - Median pain score 0-100 before and after physiotherapy and change in score					
	Med. Score before (P_1)	**Med. Score after (P_2)**	**Med. Change in score (P_1- P_2)**	**Range**	**p value**
Direct (n=54)	63	12	40	(-39 -+100)	0.007
Hospital (n=40)	53	26	14	(-78 - +92)	

Both groups recorded a reduction in pain on completion of their physiotherapy course; direct access referrals achieved an 85% reduction, hospital referrals a 51% reduction. Direct access patients had a higher pain score i.e. more pain at commencement of treatment than hospital referrals. Notwithstanding this, the size of the reduction was significantly more for the direct access referrals.

Activity Score (0-100)

Table 38 – Median activity score 0 –100 before and after physiotherapy and change in score								
Abilities		**Med. Score before (S_1)**	**(Range (0-100)**	**Med. Score after (S_2)**	**(Range) (0-100)**	**Med. Change in score (S_1- S_2)**	**(Range)**	**p value**
Walking	**Direct** (n=11	73	(36-93)	30	(3-98)	27	(-45 - +90)	0.9
	Hospital(n=9)	63	(22-95)	44	(14-97)	10	(-24 - +49)	
Housework	**Direct** (n=14)	65	(27-100)	46	(1-96)	30	(-11 - +71)	0.2
	Hospital(n=10)	56	(39-99)	25	(1-97)	22	(-21 - +92)	
Sleeping	**Direct** (n=7)	92	(51-97)	14	(0-52)	61	(-1 - +91)	0.8
	Hospital(n=3)	79	(46-95)	65	(24-73)	6	(-19 - +71)	
Lifting	**Direct** (n=14)	62	(47-100)	37	(3-100)	21	(-3 -+65)	0.02
	Hospital(n=6)	79	(32-100)	47	(31-93)	6	(-28 - +34)	
Bending	**Direct** (n=8)	61	(18-100)	54	(1-97)	21	(-20 - +62)	0.9
	Hospital(n=8)	84	(6-97)	44	(15-92)	6	(-13 - +59)	
Sitting	**Direct** (n=10	74	(40-92)	12	(4-100)	17	(-34 - +81)	0.8
	Hospital(n=6)	84	(20-98)	71	(1-96)	20	(-11 - +53)	

For each of the six principal activities identified by the patients themselves as causing difficulty, the median score before and after physiotherapy and the median change in score was determined. A positive value was recorded for change in median score, for each activity, in both groups, hence a reduction in difficulty carrying out each activity was achieved. Bigger reductions were achieved for the direct access patients for all activities except sitting, however, the numbers of patients, particularly in the hospital group are small in each category. A statistically significant difference in reduction of pain between the two groups was found for only for lifting. All other differences in the two groups were not significant. (Table 38).

Activity Score (Grade 1-5)

Table 39 - Median graded *activity score 1-5 before and after physiotherapy and change in score

Abilities		Med. Grade before (S_1)	(Range (1-5))	Med. Grade after (S2)	(Range) (1-5))	Median Change in score (S_1 - S_2)	(Range)	p value
Walking	**Direct** (n=17)	3	(2-5)	2	(1-5)	1	(-2 - +3)	0.9
	Hospital(n=14)	3	(2-4)	2	(1-5)	1	(-1 - +3)	
Housework	**Direct** (n=21)	3	(2-5)	2	(1-5)	1	(-2 - +4)	0.2
	Hospital(n=12)	2	(2-5)	2	(1-5)	0.5	(-1 - +3)	
Sleeping	**Direct** (n=9)	3	(2-5)	2	(1-3)	1	(0 - +4)	0.6
	Hospital(n=4)	3	(2-4)	3	(2-3)	0	(-1 - +2)	
Lifting	**Direct** (n=23)	3	(2-5)	2	(1-5)	0	(-2 - +3)	0.6
	Hospital(n=9)	3	(2-5)	3	(1-5)	1	(-2 - +2)	
Bending	**Direct** (n=11)	3	(2-5)	2	(1-4)	1	(-1 - +3)	0.8
	Hospital(n=9)	4	(1-5)	3	(1-4)	1	(-1 - +2	
Sitting	**Direct** (n=12)	3	(2-5)	2	(1-4)	1	(-1 - +4)	0.8
	Hospital(n=8)	4	(2-5)	3	(1-5)	0.5	(-1 - +2	

*Activity score	Grade
Easy	1
A little difficult	2
Quite difficult	3
Very difficult	4
Impossible	5

The same exercise was repeated using the graded activity visual analogue score. On average, there seemed to be a small improvement in grade, ranging from 0 to +1. There was no significant difference in the degree of improvement between those referred directly by their GP and those referred by the hospital for each separate activity (Table 39).

All activities were then combined to determine if any overall difference in improvement occurred. Overall, those referred to the direct access service improved their activity level by one grade after treatment whereas no overall change was noted for the hospital-based referrals. However, the difference between the two groups was not statistically significant (Table 40).

Table 40-Overall change in Activity Grade before and after physiotherapy (all six activities combined)

	N	Median overall change in Grade	Range	P value
Direct	70	1	-3 - +10	0.6
Hospital	52	0	-3 - +4	

Outcome

Amount of pain at discharge

There were major changes noted in the amount of pain experienced at discharge compared to that at the first consultation. At discharge, only 7% of direct access patients still reported 'very bad pain' or 'as much pain as they could bear' compared with 16% of hospital referrals. More than twice the proportion of hospital based referrals 31%, still reported 'quite a lot of pain', compared to the direct access referrals (14%). Seventy-nine percent of the direct access referrals reported either 'no pain at all' or 'a little pain' compared to 53% of hospital based referrals (Table 41).

Table 41 Amount of pain at discharge

	Direct		OPD		Total	
Pain	No	%	No	%	No	%
As much pain as patient could bear	5	7	3	7	8	7
Very bad pain	0	0	4	9	4	4
Quite a lot of pain	9	14	14	31	23	20
A little pain	33	50	18	40	51	46
No pain at all	19	29	6	13	25	23
Total	66	100	45	100	111	100

Outcome of treatment

More patients referred to the direct access service reported that their condition had improved or been cured, 86% vs. 65% for the hospital referrals. This difference was highly significant (p=0.006) (Table 42).

Table 42 Outcome of treatment

	Direct		Hospital		Total	
	No.	%	No.	%	No.	%
Cured	7	10	1	2	**8**	**7**
Improved	54	76	30	63	**84**	**71**
Same	6	8	13	27	**19**	**16**
Worse	4	6	4	8	**8**	**7**
Total	**71**	**100**	**48**	**100**	**119**	**100**

Discussion

The aim of the evaluation was to test whether any differences in experience and outcome including patient satisfaction existed between patients referred to the direct access services and those referred via the consultant outpatient clinics. Review of the literature shows that direct access clinics have significant benefits, particularly reduced waiting time, reduction in referral to orthopaedics and rheumatology and a lesser likelihood of being referred to other hospital services[4] [5] [6] [7]. Additional benefits cited include a reduction in the number of treatments, more rapid recovery and return to work and less financial cost to the patient[8].

The method used to obtain the information was a semi-structured interview of each patient at commencement of physiotherapy and again at discharge or within four weeks thereof. The use of the qualitative method of open questioning to explore patients' attitudes and perceptions in addition to closed questions has allowed a depth of understanding not hitherto achieved, of factors influencing the beliefs and expectations of patients about the service, its location and their level of satisfaction with it.

Whereas the direct access service was staffed by one physiotherapist or her locum, and communication to the researcher concerning patients' discharge was routine, the same did not hold true for the referrals via the clinics. There were a number of staff rotations during the research period. This caused confusion as physiotherapists were not always made aware of the study or that a particular patient had been recruited in to the study and notice of intention to discharge was therefore not always communicated to the researcher. Whereas direct access patients were interviewed at their discharge visit, patients referred via the hospital were interviewed at their discharge visit or within four weeks of discharge. Hence, this may have introduced some bias into the findings. A number of patients missed at discharge visit completed postal questionnaires. As a result, the quality of the data was poorer for consultant referred patients.

Visual Analogue Scale (VAS)
The visual analogue scale (VAS) is a simple method used to assess variations in intensity of pain. It is a continuous scale and consists of a straight line, the ends of which are defined in terms of the limits of pain experience i.e. 0 = no pain, 100 = unbearable pain [3]. Pain relief is calculated by subtracting the pain score after treatment from the initial score. The (VAS) is considered to be one of the best methods available for the estimation of pain intensity. The main advantage of the VAS appears to be its high degree of sensitivity i.e. a higher discriminating capacity over verbal and numerical scales. However Kremer et al suggest that completion of the VAS is difficult particularly for older patients in spite of careful instructions[9]. The comparative VAS developed by Huskisson defines pain in terms of the degree of pain relief rather than an absolute value[10]. It has several advantages compared to the 'absolute' analogue scale as all patients start at the same baseline and a comparative scale may be easier to use. Both types of scale were used in this study for estimations of degree of pain and restriction of movement. The continuous VAS scale, did show

greater sensitivity than the graded one, but was less likely to have been completed by patients and hence less useful for before-after comparisons. There was a positive correlation between the two scales.

Patient profile
Patients referred to the direct access service tended to be older than the non-direct group although this difference did not quite reach statistical significance at the 5% level. More females were referred to both models of service. Although the direct referral service was provided for GMS eligible patients only, small proportions of non-GMS patients (13%) were referred. GMS patients are more likely to be older than non-GMS, hence this would explain why the average age of patients referred to the direct access service tended to be older than those referred via the hospital.

Referral source
There was a wide range in the number of referrals by each GP to the direct service in the nine month period of the study. However the maximum number of referrals per GP was 10. This relatively low service usage, may suggest that GPs were anxious not to swamp the service or in the cases of very low usage that they lacked awareness of it. However, an audit of the service provided by the hospital over a one year period indicates that there were 147 referrals to the direct access service. It is much more likely therefore that many of the referrals were missed by the researcher

Results of a combined GP satisfaction survey with Phase I and Phase II of the project are reported separately but would indicate high satisfaction rates with the service.

Referrals from orthopaedics and rheumatology accounted for almost all of the indirect referrals. It is hardly surprising therefore that in the absence of a direct access service, general practitioners would have opted to refer patients to these clinics in a majority (60%) of cases. According to Fordham [7], introduction of a direct access service results in a reduction in referrals to orthopaedic and rheumatology clinics. Referral to private physiotherapists in the community was only an option for the GP in a small proportion of cases.

Waiting time
A number of studies have shown that direct access to physiotherapy reduces waiting times for treatment compared to referral by a consultant[4] [5]. There was a marked difference in waiting time for the first physiotherapy visit between the two groups, nine versus 43 days. Although initial referral to physiotherapy was made from outpatients for the non-direct group, many of these patients had a number of outpatient visits with their presenting condition prior to their first physiotherapy visit. Fifty per cent of those referred via the hospital clinics had made at least one outpatient visit since their physiotherapy commenced. It is possible that many of these visits could have been avoided or at least have been less frequent had physiotherapy been available sooner for these patients with considerable savings in hospital resources and patient disability and time.

As expected patients referred to the direct access service were much more likely to be satisfied with their waiting time for the service than their counterparts referred through the clinics. To ensure ongoing satisfaction with the service, waiting times for physiotherapy services should be monitored routinely and procedures put in place to communicate the current waiting time to the GP. Target waiting times need to be set and any overrun of these targets should be investigated thoroughly.

Reason for referral

The principal reason for referral differed between the two groups. Patients referred to the direct access service were more likely to have soft tissue injuries and less osteoarthritis than the hospital referred group. This would suggest that referrals to the direct access service were made for more acute conditions in keeping with the pre-referral protocol and hence were appropriate.

Patient condition

The vast majority of patients referred via the hospital experienced symptoms for longer than three months, with a quarter experiencing symptoms for longer than a year, compared to just over a half of patients referred directly by their GP. Again this suggests that patient disability would have been substantially reduced had a direct service with a shorter waiting time been available for these patients.

Although it might be suggested that patients were referred to the direct access service for relatively minor morbidity compared to those referred via the clinics, this was not the case. More direct referrals reported being in 'very bad pain, or having 'as much pain as I could bear' in the two weeks prior to their first physiotherapy visit, indicative of the acute nature of their symptoms. Again this correlated well with the pain score recorded on the visual analogue scale at the first visit where direct referrals had a higher median pain score of 63 compared with 53 for non-direct referrals. (0 = no pain and 100 = maximum pain). However, although the condition of the direct access patients was more acute, there was no difference in the proportions of patients in either group taking anti-inflammatory drugs, muscle relaxants or analgesics at their first visit. Direct access patients were also more likely to believe at the first visit that the physiotherapist would be able to provide relief for their complaint; hospital referrals were more unsure of this probably because of the longer duration of their symptoms.

Patient perceptions and satisfaction with the service

Over a half of the patients in each group had had previous experience of public hospital physiotherapy departments that may have coloured their expectations of the service and their stated location preference for the service. Almost three-fifths of patients in either group at first interview stated a preference for a hospital based service, with one-third or less stating a preference for a practice based service and one in 10 being unsure. Whereas patients in both groups were more likely to report that the GPs surgery is more convenient, patients believed that the hospital has a wider range of facilities and more experienced staff. However lack of previous experience with a practice based service may have influenced patients' perceptions. Patients referred to practice-based physiotherapists may have a difference preference bias.

At final interview the proportion of patients opting for a hospital based service increased substantially with almost three-quarters of patients in either group now stating a preference for this model. Again the facilities available and the perception that the hospital physiotherapist has more experience were the principal advantages cited. Although three-quarters of direct access patients and over two-thirds of clinic referrals perceived no disadvantages, almost one in five reported distance to travel as a disadvantage.

The high proportion of patients opting for a hospital-based service would clearly indicate that their experiences had been positive. This is also borne out in the high rates of satisfaction with help received from the physiotherapist. Fordham reports that, using the patient's own assessment of treatment, open access to physiotherapy was no more beneficial than consultant referral[7]. The reported satisfaction rates for both groups were in excess of 90%. This would suggest that there are no deficiencies in the technical quality of either model of physiotherapy. A similar study carried out at Beaumont Hospital likewise showed no difference in satisfaction rates for patients attending the direct access service and those attending the non-direct service[11]. With regard to future models of physiotherapy service, the views of patients as recipients of the service as well as service providers should be sought.

Treatment
The range of treatments offered only reflected the differences in reason for referral between the two groups. The duration of treatment did not differ between the two groups. There was a trend towards a reduced number of treatment sessions received by the direct access patients (6 versus 7 for consultant referrals) but this did not achieve statistical significance. A similar proportion of patients in each group had their medication changed between first and last interview. Likewise, there was no difference in the proportion of patients who had visited their GP, in the number of visits made or in the proportion of those who had visited other professionals since physiotherapy had commenced. These findings would again suggest that there was no difference in the degree of morbidity between the two groups.

Time off work
Relatively few patients reported taking time off work as a result of their condition. However, the population from which the survey sample was chosen was relatively old and included a majority of GMS patients and is therefore unrepresentative of the working population. Although the data are incomplete especially for hospital referred patients, there was a tendency for hospital referrals to report taking more time off work. Although this did not reach statistical significance, it is to be expected due to their longer duration of symptoms and number of outpatient visits while awaiting physiotherapy.

Patient Outcome
Restriction in movement and pain or discomfort caused by the affected part(s) were the main difficulties affecting patients. Both groups recorded a reduction in pain score on the pain VAS at their final interview. Direct access patients whose pain was more acute showed a significantly bigger reduction. A reduction in difficulty in carrying out activities of daily living identified by the patients themselves as causing

difficulty was also achieved by both groups. On the continuous VAS scale, which is more sensitive than the graded one, direct access patients appeared to show a greater reduction in difficulty which achieved statistical significance for lifting. Early management of acute low back pain can lessen long term disability and again strengthens the case for widespread general practitioner direct access to physiotherapy. More patients referred to the direct access service reported that their condition had improved or been cured.

Conclusions

There is now substantial evidence that the Mater Hospital physiotherapy direct access service is providing a high quality service which meets Maxwell's parameters of a quality service[12]. The service is as effective in terms of its technical quality, is highly efficient in terms of reduced waiting time and results in a better outcome for patients. A pre-referral protocol has ensured appropriate conditions are referred and high patient satisfaction rates with the reduced waiting time for direct access patients indicate responsiveness to patient need. A trend towards as a reduction in the number of treatments and less time taken from work was noted for direct access referrals but did not achieve statistical significance. It is likely that many of the outpatient visits incurred by the consultant referrals while awaiting physiotherapy or since physiotherapy commenced could have been avoided with considerable savings in hospital resources, and patient time had physiotherapy been available sooner. The biggest disadvantage cited by 1 in 5 patients was distance to travel. It is recommended that the present pilot project be continued as an ongoing service and that discussions towards extending direct access to physiotherapy for general practitioners in each of the six major Dublin hospitals be commenced.

Recommendations

1. It is recommended that the present pilot project be continued as an ongoing service.

2. Consideration should be given to extending direct access to physiotherapy for general practitioners in each of the six major Dublin hospitals as resources permit.

3. With regard to future models of physiotherapy service, the views of patients as recipients of the service as well as service providers should be sought.

4. Waiting times for physiotherapy services should be monitored routinely and procedures put in place to communicate the current waiting time to the GP. Target waiting times need to be set for the service. Any overrun of the targets should be investigated thoroughly.

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Acknowledgements

Ms Edwina Mullan, Researcher, EHB GP Unit for her input into the development of the study instruments, for conducting the interviews and preparing a draft of the method and tables.

Ms Grainne Quinn, Physiotherapist Mater Hospital for provision of tools to assist the research i.e. Visual Analogue Scales, development of a pre-referral protocol, referral form and continued co-operation and support during the evaluation.

Ms Diane Barnal, Superintendent Physiotherapist and Ms Mary Kilduff, Deputy Superintendent, Mater Hospital for facilitating the study and for providing office accommodation for the researcher.

The staff of the physiotherapy department for their co-operation with the study.

Mr Tom Gorey, Mater Hospital for facilitating the study.

Ms Pauline Bryan GP Unit for funding.

Dr Noel O' Gorman, GP Unit for enlisting the support of the general practitioners.

The general practitioners who participated in the study:

Dr P Mc Vey
Dr M Kearney
Dr D Frawley
Dr O Carey
Dr Michael Brennan
Dr M Hayes
Dr D Fitzpatrick
Dr M Maguire
Dr Maurice Brennan
Dr D Maguire
Dr L Power
Dr S Gately
Dr A Clarke
Dr P Kelly
Dr J Murphy
Dr D Caulfield

The patients who gave generously of their time.

Dr Zachary Johnson, Public Health Department, for assistance with data analysis.