

Hydrotherapy Pool Feasibility Study

on behalf of

West Berkshire Neurological Alliance
and
Greenham Common
TRUST

December 2006
C811

Profundus Consulting Ltd.
PO Box 519, Reading RG7 5YZ, U.K.
Tel +44(0)118-971-2948; e-mail info@profundus.com

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Acknowledgements

This feasibility study was financed by grants from the European Global Grants Scheme and by Greenham Common Trust. Social Enterprise Berkshire assisted in securing the Global Grant, which was allocated by Berkshire Community Foundation and its funding partners.



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The report layout is optimised to facilitate double-sided printing with all main sections beginning on a right-hand page (i.e. odd-numbered)



The Gellert Thermal Spa Bath, Budapest

1. Executive Summary

Profundus Consulting thanks the West Berkshire Neurological Alliance (WBNA) and the Greenham Common Trust for awarding to it this feasibility study. It has proved to be a most interesting project. We also thank all those who have contributed information and advice (see Appendix A).

For the purposes of this study hydrotherapy is defined as: “a form of physiotherapy treatment conducted in a heated pool where clients undertake specially designed exercises to help regain or enhance their well-being”. The “well-being” statement included in the definition is generally taken to include exercise, for instance the elderly or those with some neurological disorders. The use of pools is sometimes restricted to the enhancement of physical well-being. It seems to us that any artificial distinction between physical well-being and mental well-being is tenuous and unnecessary. For instance, the benefits of hydrotherapy are well recognised for children with moderate to severe autism. It has a calming and relaxing effect which is an enabler for improved teaching and other treatments.

Hydrotherapy is conducted in a pool containing heated water. The water in a pool is typically heated to 32-36°C - that is to just below blood temperature and is a level which assists healing. The pool will be designed to meet the needs of people of any age, with impairments due to illness, disease, intellectual deficiency or congenital defects.

Hydrotherapy is well known to benefit a wide range of conditions, notably:

- Arthritis.
- Pain in the back, neck, and shoulder; sports injuries.
- Balance and co-ordination problems; dementia; Parkinson’s Disease.
- Post-operative rehabilitation, especially hip and knee replacements.
- Cerebral Palsy, MS and other neurological disorders.
- Autism, Down’s Syndrome, learning difficulties.

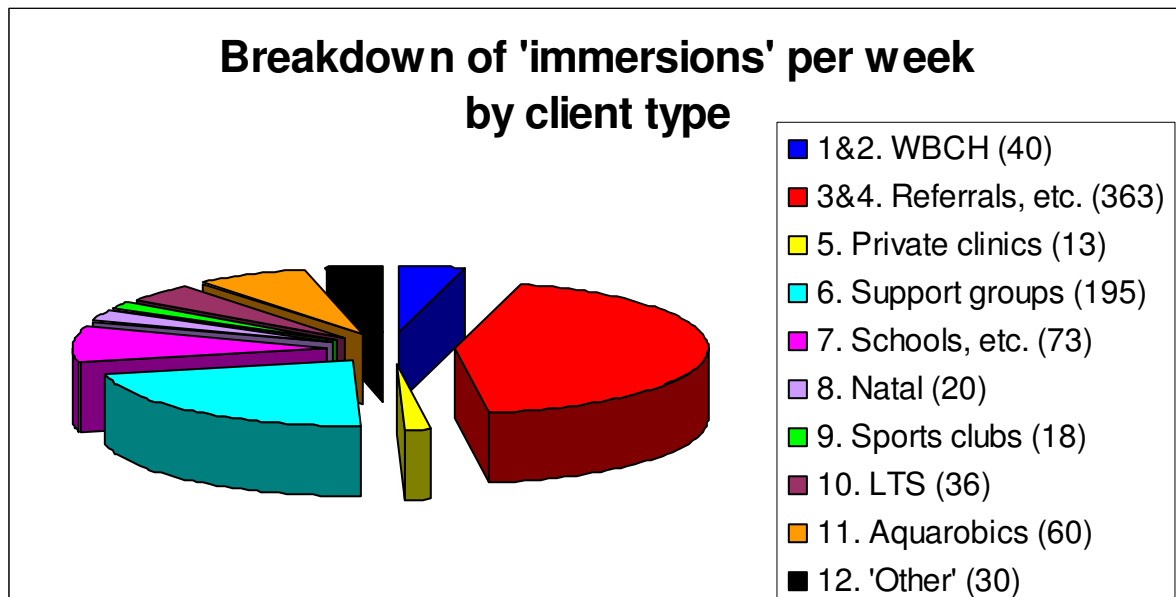
John Holt, of the WBNA, has produced an excellent and detailed review of the health benefits of hydrotherapy and this is reproduced in full in Appendix C.

West Berkshire has a total population of 145,000. We have defined a catchment area of 100,000 population for a pool located in or near Newbury.

Detailed research of twelve market segments was undertaken:

1. **Hospital in-patients** - This is usually a prime source of clients for hydrotherapy pools associated with hospitals. Should the pool be co-located with the West Berkshire Community Hospital (WBCH) then it will contribute a small number of users.
2. **Hospital out-patients** - Again, this is usually a prime source of clients requiring, for instance, hydrotherapy to assist post-operative rehabilitation for replacement hips and knees, cardiovascular problems, etc.
3. **Referrals from GPs and elsewhere** - This is generally the greatest source of clients for a typical community pool. For instance, referrals account for 1100 clients in a year at the Thamesdown Hydrotherapy Pool, Swindon, and clients average twelve visits each.
4. **Self-referrals** - Subject to certain conditions, including an initial assessment, we propose allowing self-referrals who believe they will benefit from hydrotherapy.
5. **Private clinics** - Some private clinics might wish to hire the pool for their own client sessions.
6. **Support groups** - Demand from groups, usually organised charities, will be high. Those especially positive about the benefits of hydrotherapy are the Alzheimer’s Society, Arthritis Care, Cancer Care, Mencap, the MS Society, the Parkinson’s Society and Newbury Stroke Club.

7. **Special schools, units and centres** - Many local special schools or units either have or would like their own pool. The alternative is to share a community pool. In addition, the Ormonde Centre, located at Newbury College, is very interested in dedicated sessions.
8. **Ante- & Post-natal classes** - In some areas of the country hydrotherapy is popular, to ease back pain.
9. **Sports clubs** - The more professional and well-funded a club is, the greater the likelihood that its therapist would value hydrotherapy for players. In West Berkshire, Newbury Rugby Club is especially interested in weekly pool hire.
10. **Learning to swim classes** - While warm water pools are not suitable for most swimming classes, the elderly and parents of very young babies are suitable clients.
11. **Aquarobics** - The use of hydrotherapy pools for gentle exercises for the elderly and infirm is very popular in some other countries, and increasingly in some UK pools.
12. **Other groups** - Hire of a community facility by other groups would have to be carefully controlled, but in many cases it will be justified.



This level of demand, totalling 848 'immersions' per week, can readily be accommodated by opening the pool for 57 hrs. There is capacity for a further 20+ hours per week. The two largest user segments are:

- Referrals - our figures are extrapolated from the Thamesdown figures, adjusted for the different catchment area, and they carry a high degree of confidence.
- Support groups - the result of discussions with every one likely to use hydrotherapy.

During the course of this study we visited four other nearby hydrotherapy pools in order to understand their demand and usage profiles, to hear about their promotion and pricing, to appreciate their design features, to obtain any information on operating costs and to ask their managers' views on a potential pool for West Berkshire and to seek advice.

Throughout this study the **Thamesdown** pool is extensively quoted. It is close to being a model for how a new community pool in West Berkshire should be run. Additionally, there is a wealth of statistics available on its usage and its financial accounts were also opened to us. It is a superb example of a community resource. There is a wonderful 'clubby' atmosphere and while we were there the pool was full of people who were obviously happy despite some having very serious disabilities. It is clear that management responds to the needs of the community, which in turn supports the pool with substantial financial assistance. Its design is old and has been rather piecemeal but after several extensions it now represents a design blueprint which on the whole works, though less efficiently than if it were of a more modern build.

Brookfields is a private physiotherapy clinic, incorporating a hydrotherapy pool, situated in the village of Highclere, five miles SW of Newbury, built sixteen years ago in the grounds of the founder's house. Here we had a special quest to assess what damage would be done to Brookfields' business if a new pool were to be built in or near Newbury. Several groups and many individuals currently travel from Newbury for hydrotherapy at Brookfields. Those we spoke to - both group organisers and users - praised the clinic; but equally they all found the location difficult and expressed a preference for a more convenient, central location.

Therefore Brookfields Clinic would undoubtedly lose some business - a proportion, perhaps up to 20% or 30%, of that which it currently obtains from hydrotherapy; so 8-12% overall. However, a new community facility would be vigorously promoted and awareness of hydrotherapy would rapidly be raised from its current low levels. Some new users would visit Brookfields instead of the new pool and these are likely to make up a large part of the shortfall.

A new pool at the **Oxford Nuffield Orthopaedic Hospital** was suggested to us by WBNA as a possible benchmark design. It does indeed have many desirable design characteristics but also one or two significant flaws. Lessons can be learnt from both. However, above all the pool here has a hospital 'feel', which would be less appropriate for a community resource. At less than 30 hours per week it is underutilised.

The even newer pool at **Royal Berks Hospital** is also currently underutilised but hopefully it will soon be available for hire by groups in the afternoons and evenings. We feel that Royal Berks could have chosen a more modern and flexible design.

We recommend a pool of at least 80 sq m and we have also made recommendations regarding many other design parameters, including:

- Depth and floor gradient.
- Pool edge and surround, changing facilities.
- Pool access and building access.
- Water temperature.
- Lighting and acoustics, decoration and overall ambience.
- Humidity, air-conditioning and ventilation.
- Office, consulting room, social area, staff facilities, utility room and storeroom.

Additionally, we recommend adopting - as far as possible - a new Australian Standard for Hydrotherapy Pools (the UK having no equivalent).

Discussions with Thames Water proved inconclusive and need to be re-established when a location has been firmly chosen.

We were asked to evaluate three locations for a new West Berkshire pool, one being at WBCH. The others chosen, in consultation with WBNA, were Brownfields at Thatcham and adjacent to Park House School and Newbury Rugby Club.

If one were to attempt to define a 'centre of gravity' for potential hydrotherapy users in West Berkshire, then it would result in a point very close to **WBCH**, mid-way between Newbury and Thatcham. Almost all users and organisers of user groups we spoke to favoured this location, many of the elderly and disabled are already used to going there for other purposes and communications are good. There is plenty of room on the site and planning permission should not be difficult to obtain. WBCH management have shown enthusiasm for the project and have already identified an ideal spot near to the main Bath Road entrance.

WBNA has held informal talks with the mayor of Thatcham, who is very keen to attract the pool to the town, believing that a suitable site can be found in the **Brownfields** area. It is three miles east of Newbury centre, twice as far as the Community Hospital, and so it will be

less convenient for users from Newbury itself and from all points west, north-west and south-west. However, communications along the A4 Bath Road are good.

There is not much spare space in Brownfields and security for a stand alone building might be problematic. While there are some health related organisations in Brownfields, none are highly relevant to hydrotherapy, so there is little synergy here.

West Berks Council states that there is a plan to merge Castle School with **Park House School**, though both schools discount it as no more than a long term possibility. Should a merger take place then the need for a new hydrotherapy pool on or near the Park House site could easily be justified. It happens that the Park House School site abuts those of both Newbury Rugby Club and the Falkland Surgery. And so, two other organisations of some relevance are located just yards away from Park House.

There appears to be a lot of playing field space here and it is possible that some could be annexed for a community hydrotherapy pool. However, planning permission could be an issue. It should be stressed that this idea has not been put to the council education department nor to Park House School. Any site in this area would have to have its own access, since access through Park House would be difficult in daytimes because of pupils and in the evenings and weekends because of security.

An alternative has been mooted, that the combined schools might use a community pool at the WBCH site. This could add up to twenty hours per week of further usage.

Wherever it is located, good marketing will be paramount if this pool is to succeed. Fortunately the pool manager can learn from the successes of others, notably Thamesdown, in respect of promotion and fund-raising.

We recommend pricing which is at or even slightly higher than charges at other pools. The thinking here is that those who can pay should pay a full price, while a fund should be available to assist individuals and groups who need a discount.

We anticipate a Social Enterprise, overseen by a Board of Trustees. We believe four staff will be required by Year 3, by which time the demand will have ramped up to what should remain as a plateau. One of two qualified physiotherapists/hydrotherapists will act as manager; there will also be two unqualified assistants. This level of staffing is required to provide full cover for 60+ hours per week opening.

Based on salary guidelines provided by the Hydrotherapy Association of Chartered Physiotherapists (HACP), we have calculated full staffing costs of £106,000 pa. Other costs of running the pool and enterprise will amount to £46,000. Most costs are fixed, putting an even greater emphasis on generating usage and income.

A revenue model, with conservative projections, points towards an annual income (from Year 3) of £212,000, but it could take two years to ramp up usage to this level. This figure is based upon the usage projections and the prices known to be affordable by most users, but for prudence we have reduced the revenue projection by 15%. The result is still £60,000 higher than the cost projection, so there is a substantial margin for error. Indeed, at the prudent level there is as much scope for greater usage and revenues as there is downside.

Hence, we can confidently state that a community hydrotherapy pool for West Berkshire is a feasible enterprise. There is definitely a strong demand for such a resource, a preferred location has been identified and many key design parameters and marketing issues have been defined.

2. Introduction

2.1 Background

West Berkshire Neurological Alliance (WBNA), an umbrella group for eighteen local charities with an interest in people affected by neurological conditions, has worked with the West Berkshire Disability Alliance (WBDA), an organisation whose aim is to improve the quality of life of the disabled, to bring about this study. They were supported by Community Action West Berkshire and Social Enterprise Berkshire, which provided business support.

The Berkshire Community Foundation, which attracts and distributes charitable funds, awarded a grant from the European Social Fund for this feasibility study, and it was also supported by Greenham Common Trust.

Hydrotherapy - the provision of supervised physiotherapy in water - benefits many people with neurological conditions and for a long time the WBNA has been concerned about the unmet needs for a local hydrotherapy pool. Should such a specialised facility become available in or near Newbury then many organisations and individuals will benefit - including hospital patients, social services clients, people affected by long-term neurological disorders, many with musculoskeletal problems, those recovering from operations, those with sports injuries, pregnant women and the elderly population.

The WBNA has already conducted an initial needs survey, which confirmed a considerable need for a hydrotherapy pool and a potential site was identified. However, this did not materialise and now alternatives are being considered, with the West Berkshire Community Hospital site becoming the preferred, but not yet committed, option.

The Greenham Common Trust has indicated that it will be pleased to look at how it can assist with capital funding. Management issues are likely to be addressed through the facility becoming a social enterprise.

2.2 Feasibility Study

This feasibility study was put out to tender and the contract was awarded to Profundus. Work began with a kick-off meeting on 2nd October.

The brief described a number of tasks. They were grouped and restated thus:

A. Demand

To evaluate unmet demand for a hydrotherapy pool for the area. All demand is evaluated and then the proportion which remained unmet is stated.

The price which organisations will be prepared to pay for hire of the hydrotherapy pool is also explored (of course, it has a direct impact on demand). Competition and its effects are noted.

B. Size of pool

To comment on the proposed size of pool required, given the likely demand. A recommendation is made.

C. Location

We consider a number of sites, one of which is the originally favoured West Berkshire Community Hospital.

D. Planning and building consents

We were subsequently advised by WBNA that this need not be addressed since some reassuring discussions with the appropriate authorities have already taken place.

E. Water and energy issues

The tender called for significant considerations to be identified. This has been done but, consistent with our tender, further detailed work needs to be undertaken by a specialist before a building specification can be completed.

F. Capital cost and running costs

Capital cost is to some extent explored but, as stated in our tender, require building professionals to finalise. However, in the case of running costs we are able to show an outline financial model.

G. Legal agreements

Again, and as stated in our tender this task requires the services of a specialist lawyer. However, we are able to pass on some views and experience of others.

H. Design

The brief specifically referred to the pool at the Nuffield Hospital, Oxford, as the WBNA's preferred design option. This was viewed, along with others, and an assessment was made. We have also obtained substantial additional material on pool design. However, as stated in our tender, the ability of Profundus to make few judgments on its own account are limited. However, the advice of others more qualified has been sought and passed on.

I. HCAP

We report on contact with the Hydrotherapy Association of Chartered Physiotherapists.

J. Management

We were required to comment upon the best way in which a pool might be managed and operated. Some views and experiences were obtained and are included.

K. Other weaknesses or threats

All other significant issues discovered during the course of our research are passed on in this report.

Analysis and Reporting

We have worked closely with WBNA, providing regular progress reports and leveraging the contacts and experience already in place. In this way we were able to undertake our work more effectively and deliver best value to WBNA.

This report takes into account all of the information gathered, analyses made and conclusions reached. Following delivery of the final report we shall be available, if required, to provide clarifications. If WBNA wishes this can include a meeting with a wider group - for instance, its trustees, partners and sponsors.

2.3 Methodology

Several other pools were visited and we held meetings and/or telephone discussions with a wide range of organisations representing user groups, suppliers and others. In some cases, we obtained papers, either before, during or after such contact. Appendix A to this report lists acknowledgments to those who assisted. Appendix B lists helpful papers and websites.

Before each contact a free-format list of issues to be covered was constructed. This was revised with great frequency as a result of what was learnt from previous discussions. For instance, we had a rough idea of design considerations at the outset, from various

documents, but these were refined as we saw other pools and held discussions with potential users. This iterative, real-time' process was key to the success of the study.

The chart below shows a list of types of organisations which were contacted and the areas which were explored with each.

Organisations	Tasks:	A	B	C	D	E	F	G	H	I	J	K
WBNA - kick-off meeting and several interim discussions		■	■			■	■	■	■		■	■
HCAP (the Hydrotherapy Association of Chartered Physiotherapists) and other experts		■	■							■		
Suppliers of hydrotherapy pools		■	■						■		■	
Existing hydrotherapy pools (four were visited and contact made with others)		■	■						■		■	
West Berkshire Community Hospital and other possible sites		■	■									
Local Social Services and Education Services		■	■									
Private physio practices in the area		■	■									
Sports clubs		■	■									
Organisations concerned with disabilities Arthritis care, the MS Society, MENCAP, Stroke Association, etc.		■	■									
Special schools - six in the area which are (or have units) for pupils with autism, disabilities, etc.		■	■									
Other potential users, discussed with WBNA or discovered during the course of research		■	■									
Utilities - notably Thames Water			■	■		■			■			■

Primary purpose(s) ■

Secondary areas ■

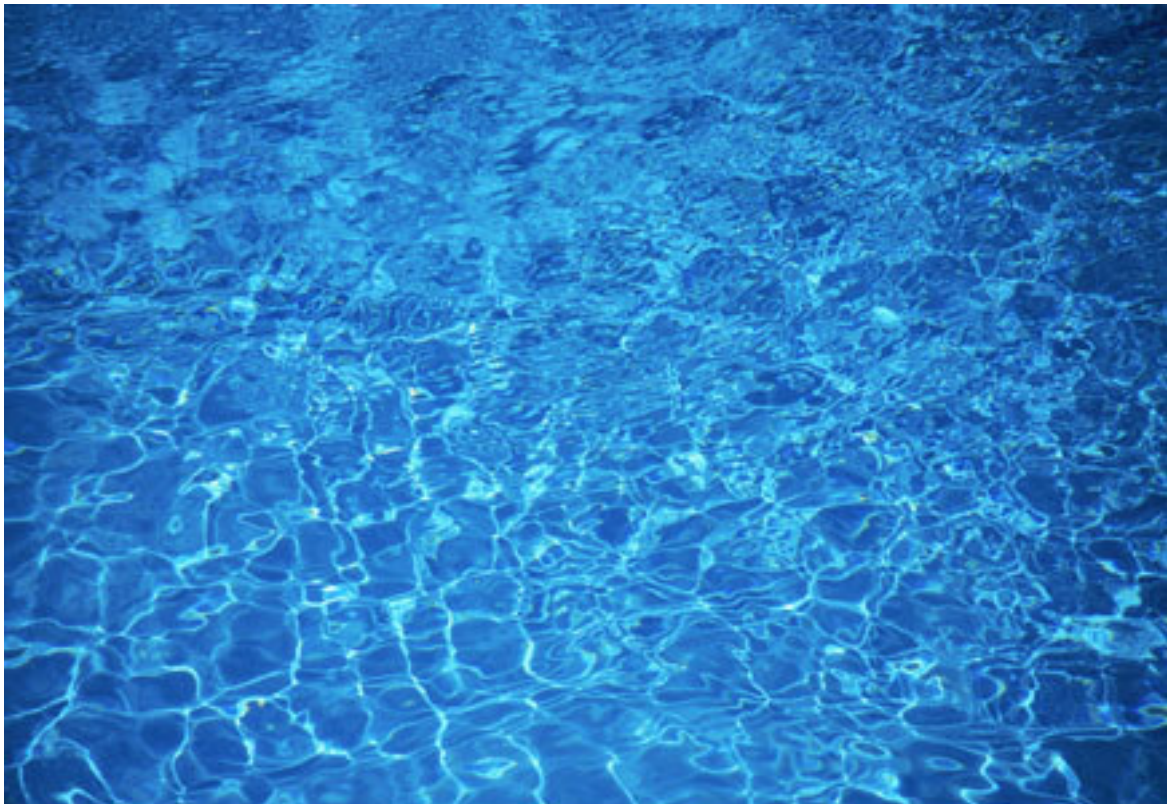
2.4 An apology

The author of this report is qualified in marketing, not medicine! To understand the symptoms of a very wide range of disorders and how hydrotherapy might help to relieve them was found to be a steep learning experience.

In the case of some disorders even their classification has not been straightforward - is a stroke a cardiovascular problem or a neurological disorder?

Additionally, it was found that some groups are very sensitive to how they are described - e.g. MS sufferers, stroke victims and polio survivors. On a similar theme, those who might benefit from hydrotherapy are generally described as clients (rather than the narrow term, patients) and note that users represent a broader group still (e.g. including clients' carers who might use the pool without directly benefiting from it themselves).

While every effort has been made to check and correctly address these issues the odd error or politically incorrect term may have slipped through. If so, apologies to anybody upset or disappointed by it.



3. Hydrotherapy

3.1 What is hydrotherapy?

For the purposes of this study hydrotherapy is defined as: “a form of physiotherapy treatment conducted in a heated pool where clients undertake specially designed exercises to help regain or enhance their well-being”. This definition is consistent with both those of the UK’s Hydrotherapy Association of Chartered Physiotherapists (HACP) and the Australian Physiotherapy Society (Australia being at the forefront of hydrotherapy usage, research and pool design).

The “well-being” statement included in the definition is generally taken to include exercise. For instance, for the elderly or obese or for some clients with neurological disorders the buoyancy of water might mean that hydrotherapy is one of the few means by which they can safely and comfortably undertake exercise. However, it should be noted that at some pools, especially those within hospital physiotherapy departments, their use for exercise *per se* is disallowed or discouraged.

Often, too, the use of some pools is sometimes restricted to the enhancement of physical well-being. It seems to us that any artificial distinction between physical well-being and mental well-being is tenuous and unnecessary. For instance, the benefits of hydrotherapy are well recognised for children with moderate to severe autism. It has a calming and relaxing effect which is an enabler for improved teaching and other treatments.

Hydrotherapy is conducted in a pool containing heated water. The water in a pool is typically heated to 32-36°C - that is to just below blood temperature. The pool will be designed to meet the needs of people of any age, with impairments due to illness, disease, intellectual deficiency or congenital defects.

Hydrotherapy is well known to benefit a wide range of conditions, notably:

- Arthritis.
- Pain in the back, neck, and shoulder; sports injuries.
- Balance and co-ordination problems; dementia; Parkinson’s Disease.
- Post-operative rehabilitation, especially hip and knee replacements.
- Cerebral Palsy, MS and other neurological disorders.
- Autism, Down’s Syndrome, learning difficulties.

Many other definitions of hydrotherapy attempt to broaden its scope. Other treatments which are sometimes included under the same heading include:

- Immersion baths - with hot water and sometimes also oils and herbs.
- Cold rubbings.
- Douches - water is gently run over the part of the body to be treated.
- Saunas, Turkish baths.
- Wraps and compresses - typically using hot towels.
- Thalassotherapy - the use of seaweed wraps.
- High-powered jets of water.
- Whirlpool baths and jacuzzis.

We include none of these and prefer to see them categorised under the more general heading of Hydrothermal Therapies.

Hydrotherapy is also popular for dogs and horses. We suggest restricting the use of a new pool in West Berkshire to humans.....

3.2 Benefits of hydrotherapy

There follows a table of the perceived benefits of hydrotherapy. It is reproduced from another feasibility study, produced professionally in Australia for Colac Otway Shire. It was constructed from papers published by Helen Whitelock, who is a renowned authority on hydrotherapy and who for several years was a lecturer at the Bath National Hospital for Rheumatic Diseases, which is the UK's leading establishment for training hydrotherapists (see also the Bibliography in Appendix B).

Benefit	Reason
Relief of pain	<ul style="list-style-type: none"> • Warmth of water • Suppression of the sympathetic nervous system secondary to central hypervolaemia (blood flow to the chest and heart)
Ease of movement	<ul style="list-style-type: none"> • Support offered by buoyancy to assist movement • Reduced effect of gravity
Reduction of muscle spasm	<ul style="list-style-type: none"> • Warmth of water • Suppression of the sympathetic nervous system secondary to central hypervolaemia • Suppression of muscle MSG activity (myography - e.g. how much muscles contract) due to reduced effect of gravity • Sensory input from movement of water
Reduction of oedema (swelling)	<ul style="list-style-type: none"> • Effect of hydrostatic pressure • Reduction of effect of gravity on the vascular system
Resistance to movement	<ul style="list-style-type: none"> • Viscosity and weight of water • Negative drag due to turbulence • Moving against the upward force of buoyancy
Enhanced relaxation, both specific and generalised	<ul style="list-style-type: none"> • Reduced effect of gravity • Support from buoyancy • Reduction in pain • Hypnotic and sensory effects of water
Enhanced well-being	<ul style="list-style-type: none"> • Enjoyment • Social interaction • Sense of achievement • Fun
Re-education of functional activities	<ul style="list-style-type: none"> • Support from buoyancy • Variation in weight bearing • Assistance or resistance to movement
Enhanced cardio-vascular fitness	<ul style="list-style-type: none"> • Resistance to movement • Greater variety of activities • Less ballistic effect due to buoyancy during period of rehabilitation following injury

John Holt, of the West Berkshire Neurological Alliance (WBNA), has produced an excellent and detailed review of the health benefits of hydrotherapy from a thorough examination of 25 academic references. This is reproduced in full in Appendix C.

4. The Market in and around West Berkshire

4.1 Demographic profile

West Berkshire, as an administrative district, comprises 272 square miles and stretches from Hungerford in the west to Purley and Calcot in the east. Newbury/Thatcham is central and to the south.

The total population of West Berkshire is 145,000 [ONS, 2004]. Ignoring the east-most wards (Calcot, Purley, etc.), which have a population of 27,000 and which more naturally gravitate towards Reading for some amenities and services, the main urban areas are:

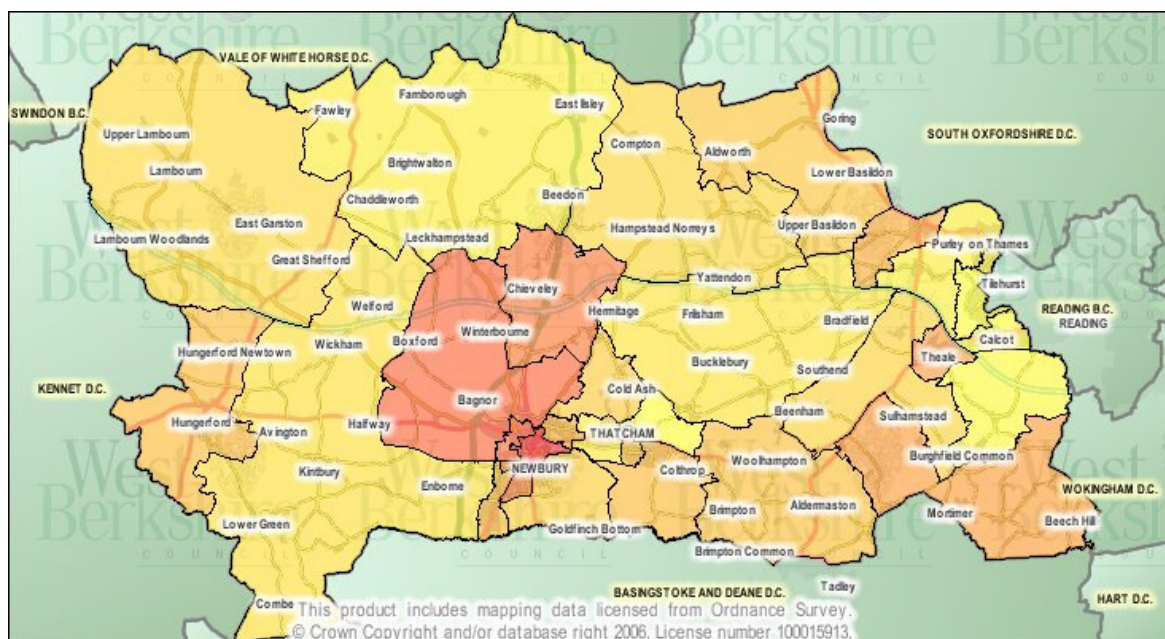
- Newbury/Thatcham 49,000
- Hungerford 5,500
- Theale 2,500

A further 60,000 are disbursed in a large number of villages and settlements throughout the countryside.

Arriving at a catchment area for a health facility based in or near Newbury/Thatcham depends as much on communications - especially the A4 and M4 - and the nearness of other urban concentrations as on distance as the crow flies. So, Hungerford might look more to Newbury, while Lambourn might tend to look west to Swindon. Similarly, all communities east of Theale would tend to look towards Reading. However, by the same token, the very northern communities of Hampshire would tend to look more towards Newbury than Basingstoke.

It might be more accurate to describe both an inner catchment comprising mainly Newbury and Thatcham but also a few communities within five miles, with a population of about 65,000, and an outer peripheral catchment stretching to Hungerford, Great Shefford, Beedon, Yattendon, Bradfield, Aldermaston and Burghclere (Hants), which would add a further 35,000 to result in a total catchment area of 100,000 population.

The map below, besides showing the geographic extent of West Berkshire, also displays the proportion of the total population of each ward with a limiting or long-term illness (bright yellow shows 10%, red shows 18%, with the various shades of orange between being proportionate). It demonstrates a slight concentration in and around Newbury.



Source: West Berks website (<http://ww2.westberks.gov.uk/InternetMapping>)

Population growth between 1991 and 2004 was 4.1% (slightly above the national rate) and there appears to be no reason why this trend should not continue.

The age profile of West Berkshire is slightly below that of the national average (37.8 years vs 39.3), possibly reflecting high employment rates and a generally prosperous community, with many high-tech industries.

4.2 Segmentation overview

As a result of talking to the managers of other hydrotherapy pools, examining feasibility studies for other pools and holding discussions with potential users, it seems that there are twelve potential market segments or user profiles. These are shown below.

1. Hospital in-patients

This is usually a prime source of clients when the hydrotherapy pool is a part of a hospital's physiotherapy department. There are no known examples of a hydrotherapy co-located with a hospital but not owned by it. However, provided a suitable agreement is in place there is no reason why such a pool should not be used equally often for in-patients.

2. Hospital out-patients

Again, this is a prime source of clients for hospital pools. In the case where a hospital has no pool it will refer patients to a local community pool. A good example of this is Swindon's Great Western referring 256 out-patients to Thamesdown in 2004. Post-operative rehabilitation for replacement hips and knees will be one of the main problems being dealt, but also spinal problems, arthritis, cardiovascular problems, etc.

3. Referrals from GPs and elsewhere

There is an overlap here with out-patients but GPs will refer patients for a very wide range of conditions. Other clinics also refer their clients on occasions, as do Social Services and a variety of other institutions to a small extent. These referrals, numbering almost 1100 clients, along with those from hospitals, were sufficient to justify pay-as-you-go sessions in Thamesdown's pool for at least three hours each day, seven days a week.

4. Self-referrals

Why should clients need to be referred by a GP or physio before attending a pay-as-you-go session? If they feel a benefit and are not disruptive (e.g. wanting to swim lengths) then they should be allowed entry, subject to conditions.

5. Private clinics

Here we refer mainly to physiotherapists, but possibly also osteopaths, chiropractors and others. Some private clinics may wish to run their own patient sessions in a community pool.

6. Support groups

Demand from groups - usually organised charities - will be high. They usually require exclusive use for between 40 and 60 minutes once or twice per week. Those with whom discussions were held are:

- Age Concern
- Alzheimer's Society
- National Ankylosing Spondylitis Society (NASS)
- Arthritis Care

- ASBAH (Spina Bifida)
- Cancer Care
- Dystonia
- Fibromyalgia
- Mencap
- MS Society
- Parkinson's Disease Society
- Polio Fellowship
- SCOPE
- Stroke Association

7. Special schools, units and centres

Some have, or would like, private pools; others would hire a community facility. Those identified to date are:

- Ormonde Centre (a facility for rehabilitation of the disabled)
- Castle school
- Kennet school
- Mary Hare school
- Park House school
- Prior's Court school
- Speenhamland primary school

8. Ante- & post-natal

Aquarobics classes in ordinary swimming pools are often very well supported by mothers-to-be and those who have recently given birth.

Hydrotherapy is used in Oxford, most often to ease back pains. Indeed, such problems are as prevalent post-natal as they are pre-natal. The problem with pre-natal aquarobics in a hydrotherapy pool is that many mothers-to-be cannot stand the heat.

9. Sports clubs

Only the most professional, and well funded, are likely to use hydrotherapy on more than an occasional basis.

10. Learning to swim / 'Babies Go Swimming'

Regular classes for infants are held in some pools; others refuse because of fouling problems. A local company, called 'Babies Go Swimming' organise classes for babies up to 14 months in several hydrotherapy pools.

An evening class for older adults might be feasible.

11. Aquarobics

This form of gentle exercise for the elderly and infirm is hugely popular in hydrotherapy pools in some other countries (e.g. Australia) but is rarely seen in the UK outside of regular swimming pools.

12. Other groups

Once the community becomes aware that a local hydrotherapy pool can be hired in the evenings there will be a number of enquiries. Some may not be entertained (children's parties?), but others could be justified.

Each of these is expanded upon, and numeric estimates are made, in the following section.

Another potential market segment which is occasionally mentioned is for hospices and care homes to send groups for hydrotherapy. We can find no evidence that there is anything more than a very small demand here. At best they would send groups for occasional visits, but not on a regular basis.

4.3 Detailed analysis of potential users

In the following assessment we make some key assumptions:

- The new pool will be co-located with West Berkshire Community Hospital (we believe there will be a reduced demand profile for other locations and this will be expanded upon later in the report).
- It will have a maximum capacity of twenty users.
- There are no limitations on availability by day of the week or time of the day. In particular, opening in evenings and weekends is acceptable.
- Access, both to the pool building (e.g. nearby parking and wheelchair ramps) and into the pool itself (e.g. hoist) are easy. Additionally, changing facilities for the disabled are provided.
- Pricing will not be an obstacle (that is to say, it will not be free but prices will be readily affordable by the majority of users and a safety net of subsidies will be available to others).
- There will be no artificial constraints on types of users (e.g. only allowing users who derive a demonstrable health benefit) or denying hire to profit making organisations.

4.3.1 Hospital in-patients

In the case of pools which are owned and operated by hospitals this represents a major use and in some cases almost a *raison d'être*. For instance, at the Nuffield hospital, Oxford in-patients are timetabled 17½ hours per week. The head of physiotherapy has found it best to group patients according to their ailment - "neuro", "rheum", "paediatrics", etc. - because of the widely differing needs of each.

In-patient groups also include some very demanding individuals, such as immediately post-operative patients with what are effectively open wounds and some with immune-deficiencies. These patients require an especially high quality of water.

It is said that the availability of hydrotherapy for in-patients can sometimes result in a substantial financial benefit as a result of certain classes of patient being able to leave hospital earlier as a result of hydrotherapy and hence freeing up beds.

However, hydrotherapy pools are most often seen at acute hospitals, with a far greater number of in-patients. West Berkshire Community Hospital has just 60 beds - 30 for rehabilitation and 30 for the elderly and palliative care. In-patient hydrotherapy is seen as an additional facility and would need funding; it is not seen as replacing current dry physio by another therapy which is more effective for certain conditions.

Based on data supplied by WBCH we estimate there will be about ten in-patient sessions in a typical week, reflecting the hospital's small size. The physiotherapy department's own staff would lead in-patient hydrotherapy, rather than the pool's staff.

If the new pool were not co-located with the hospital then it is still possible that some in-patients will be transported to the pool.

4.3.2 Hospital out-patients

In 2004 Thamesdown had 294 clients referred directly from hospitals - 256 from Great Western and 38 from 5 others. Brookfields also has a few referrals from hospitals.

The West Berkshire Community Hospital hosts day surgery but the unit is run from the Royal Berks Foundation Trust. It is likely that some referrals will be made by the consultants working out of Newbury. Data provided by WBCH suggests that initially the number of out-patients referred by the hospital itself will be low, perhaps up to 20 immersions per week. However, this is likely to increase as awareness of the pool and of the benefits of hydrotherapy grows. In the third year of operation it could be up 50% on that early figure.

Post-operative rehabilitation and paediatrics were especially mentioned by WBCH as the source of most hydrotherapy clients. It is most likely that these out-patient sessions will be supervised by the hospital physio department. If not, then they will be included in the general referrals and be handled by the pool's own staff.

4.3.3 Referrals from GPs and elsewhere

In 2004 Thamesdown Hydrotherapy pool received 1,112 referrals from sources other than hospitals. 994 were from GPs, 96 from thirteen private clinics (physiotherapy, chiropractor, massage, etc.) and 22 from seven miscellaneous sources, including Social Services. We were told of significant ongoing promotional activity to maintain this level of referrals from GPs - mailing, visits, invitations, etc. Further, the manager found that promoting the pool to nurses and practice managers was at least as effective as directly addressing the GPs themselves.

All 1406 referrals resulted in 15,505 'immersions' in the year (excluding carers and helpers). This is an average of 10.7 per client. Since referrals from hospital are generally for a short course of treatment, typically six visits, the average for GP referrals, many of which will be related to long-term disorders, will be higher, at about 12 per client.

In 1995, when the pool at Reading's Battle Hospital was threatened with closure, Arthros (an arthritis charity) commissioned a survey of local GPs to help to prove the case for hydrotherapy in Reading. A summary of the results is shown below:

1995 Arthros survey of Reading GPs

The survey was mailed to 279 individual GPs in 61 practices. 45 (12%) responded:

- They estimated between them 643 patient-sessions per annum (14.3 each). If this is grossed up to the total number of GPs it suggests 3987.
- When asked about their expectations regarding cost for half an hour in the pool with a qualified physiotherapist the average was £28.
- For use of the pool without a physio £8-10 for half an hour was the most usual response.
- For exclusive hire of the pool (capacity eight) without a physio there were few replies and over a wide range, but £25 was the median response.
- Additional comments suggested a low awareness of hydrotherapy benefits. This factor will have depressed the figures estimated.

There are nineteen GP practices or medical centres in the West Berkshire catchment area. However, active marketing to at least ten others, in surrounding areas such as Calcot, Tilehurst, Pangbourne and Tadley will be worthwhile, since the hydrotherapy pool at Royal Berks does not allow its use except for in-patients and out-patients, at least yet.

Awareness of hydrotherapy among West Berks GPs is low and this will need a lot of work, especially at the beginning. The population of West Berks is 30% less than that of Swindon, so the peak rate for referrals is also likely to be correspondingly lower at, say, 780. Nonetheless, if the number of clients which the new pool obtains from referrals is about this figure and the average number of visits per client is 12, as estimated above, then GP referrals will result in 9360 visits in a year (excluding carers and helpers).

At Thamesdown referrals from all other sources added a further 11%. If this pattern is repeated in West Berkshire a further 86 clients and 1320 visits each year could be expected. However, the figure is likely to be lower owing to many hospital out-patients coming through WBCH (the second category above).

4.3.4 Self-referrals

There are few examples of self-referrals at other pools. However, if this is to be a community facility and members of the community feel, for good reasons, that they would benefit then preventing them would be churlish.

A typical self-referral might be somebody suffering from arthritis or back pain; they may know somebody similar who has benefited from hydrotherapy; they may have a GP who is unaware or unhelpful and they want to give it a try in any case.

There will need to be safeguards, notably a paid for initial assessment by one of the pool's qualified staff. It might be sensible to have them sign a declaration that they have no illness (e.g. stroke, epilepsy, Parkinson's or MS) which might make their usage dangerous without special supervision. At the same session they will also be instructed in exercises which will help their condition. It might be decided that an even greater safeguard is necessary, such as a doctor's note to confirm the client has no conditions which might put him/her in jeopardy if hydrotherapy is taken.

Because this is a new concept it might be best to begin in a small way and see how well it works. For instance, make self-referral available only for those with one of a short list of recognised conditions and only at certain times. If the experiment works well then it can be expanded.

On the face of it there is no reason why it should not succeed and it could in time prove to be a substantial source of clients - perhaps up to half as great as referrals from GPs, though in our usage forecasts we have included a more conservative 25%. However, it is also likely that providing a self-referral facility might reduce the numbers going to their GP specifically to obtain a referral (which could become a cause of concern among some GPs).

4.3.5 Private clinics

Contact was made with several local private clinics. Only one was unreservedly positive. Its owner is a very experienced hydrotherapist and would like to take his patients for sessions in the pool, ideally with exclusive use of the whole pool for at least once each week. He views hydrotherapy as the opportunity to add a new and important service to his practice.

Two other local clinics are based on the site of swimming pools (at Greenacres and Canon's Leisure Centre) and so already have available water-based therapies, if not true hydrotherapy.

Another clinic told us they would refer some of their patients to the community hydrotherapy pool, without otherwise having any involvement. Others refused to respond and there is a suspicion that they view a community hydrotherapy facility as new competition.

All in all, use by private clinics is unlikely to become a large element.

4.3.6 Support groups

Most hydrotherapy pools encourage local support groups to arrange exclusive sessions for those with a wide range of neurological and musculoskeletal problems and these generally represent a significant proportion of total users. In the case of pools owned by hospitals entertaining support groups is less important, owing to staffing difficulties, opening hours and other factors. In fact, the representative at one hospital pool told us frankly that "it was not worth the hassle".

However, the attitude of community pools is vastly different and many come into existence specifically to accommodate local groups. One such is Thamesdown which, in 2004, saw 5408 'immersions' through groups (curiously down steadily since its peak of 8208 in 1993).

As an important part of the research to determine demand for this pool, we set out to discuss with many local support groups their needs and potential usage. These are summarised below. It is not an exhaustive list but we tried to select the largest and those most likely to have a strong demand.

Age Concern day centre

- No experience of hydrotherapy and little awareness, but thought it a good idea.
- It could be started as an occasional outing; then, if successful, expanded into a regular session.
- Funding would be an issue.
- Many members have other conditions and could have access via other groups.

Alzheimer's Society

- 700,000 people suffer from dementia in the UK. This figure implies over 1100 within the catchment area.
- Benefits of hydrotherapy to those with dementia are improved mobility, neuro-rehabilitation (re-establishment of neuro pathways) and enjoyment.

- Hydrotherapy is likely to appeal more to those with early stages dementia and to ex-swimmers.
- A 40 minute session would be sufficient and most will need their own regular carers on a 1:1 basis, mostly in the pool with them.
- The society representative envisaged organising a group of 6-10 (larger in the summer than the winter) and suggested a session dedicated to dementia sufferers at least once a week which could be supplemented by clients referred by their GPs.
- The Alzheimer's Society would fund or part-fund the session.
- Transport from outlying villages might be a problem.
- It is important that pool design should provide an 'entire experience' - wood-clad walls, plants, art, natural light, etc.
- A walled pool, rather than deck-level, would enable better eye contact to be maintained with carers and family remaining at the poolside.

National Ankylosing Spondylitis Society (NASS)

- AS is a painful progressive rheumatic disease which affects 1 in 200 men and 1 in 500 women. The average age of its onset is 24.
- It is widely recognised that hydrotherapy alleviates some of the symptoms and it is recommended by NASS.
- There is no local support group. In areas where there is a pool enlightened GPs often refer their AS patients.

Arthritis Care

In many pools arthritis sufferers represent one of the most numerically significant groups of user. West Berkshire does not have a support group dedicated to arthritis and so a number of conversations were held with the national Arthritis Care charity and organisers in Reading and elsewhere.

- According to the Arthritis Care Factsheet (available on its website), arthritis is said to affect one in five people in the UK. 8.5 million have osteoarthritis, over half of which have moderate to severe osteoarthritis in their hands, 550,000 in their knees and 210,000 in their hips. 387,000 have rheumatoid arthritis.
- Research has shown that the economic cost of arthritis in the UK is £5.5bn. This includes £307m for GP consultations, £341m for prescribed drugs, £259m for rheumatology in hospitals and £405m for hip and knee replacements.
- Assuming that the population of West Berkshire is representative of the whole country, the defined catchment area could contain up to 10,000 people (10%) with moderate to severe arthritis. This figure seems high, given that only 18% of the population is over 60, but even if it exaggerated by as much as a factor two or three it represents a very substantial base of potential users of hydrotherapy.
- A fairly new Reading support group, Arthritis Matters, which has 121 members, is campaigning to obtain access to the new hydrotherapy pool at Royal Berks Hospital.
- The way forward might be to organise one or more hydrotherapy classes dedicated to arthritis and to promote them among GPs, in the local newspaper, at libraries and elsewhere. It might be that out of this will spring a local support group.

Association for Spina Bifida and Hydrocephalus (ASBAH)

- People with Spina Bifida (who often also have hydrocephalus) are born with it. Sometimes it can be alleviated by means of an operation at birth but otherwise it is not curable.
- We were told the majority of SB sufferers are inactive and overweight. Therefore anything to encourage fitness and flexibility is good. In theory therefore hydrotherapy should be useful. However, SB sufferers generally lack motivation and most will not participate.
- There is no local support group and the regional representative of ASBAH has very few clients in West Berkshire. Just one or two might use hydrotherapy.

Cancer Care

- The local support group sees hydrotherapy mainly benefiting women who have had mastectomies: getting mobility back, regaining their confidence and 'body image', health and fitness; and an opportunity to socialise with others that have the same problem.
- It funds a weekly 90-minute hydrotherapy session at Brookfields Clinic and patients are accompanied by the palliative care physiotherapist at the Macmillan Day Centre, now based at West Berkshire Community Hospital.
- The sessions include patients at different stages, so they are 'mixed ability' classes. The maximum group size is twelve, but this is due to the capacity of the pool. It was felt that the size of each group would rise if the pool were larger.
- Although transport to Highclere is not generally a problem, co-locating a new pool at the Community Hospital would almost certainly result in this group switching venues and the organiser predicted that the number benefiting would at least double.
- There is considerable antipathy in the cancer care community (and indeed elsewhere) to any notion that the pool might fall under the control of the NHS after what is referred to as the 'Charles Clore Centre Fiasco'.

The Dystonia Society

- Dystonia is a neurological movement disorder which affects 40,000 people in the UK. There are several different types and many symptoms but most often the face, eyes and neck are affected.
- There is no local support group (the nearest is Oxford, which has 45 members, drawn from a wide area).
- The Oxford group co-ordinator was unaware of hydrotherapy being a recommended therapy but sufferers tend to clutch at straws. In 2005 the group discussed the prospect of hydrotherapy and voted in favour of a one-off visit to a pool to try it out when a suitable opportunity arose.

There are several lesser known or rarer disorders like dystonia, with little or no history of hydrotherapy, whose sufferers might like to try it out and some might derive a benefit, if only for improving fitness and generating a feeling of well-being. Others include:

Asperger's Syndrome	Myasthenia Gravis
Ataxia (including Freidrich's Ataxia)	Narcolepsy
Charcot-Marie-Tooth Disease	Neurofibromatosis
Guillain Barré Syndrome	Paget's Disease
Haemaplegia	Perthe's Disease
Huntingdon's Disease	Rett Syndrome
Leukaemia	Spastic Quadriplegia
ME Fatigue	Tourette Syndrome
Motor Neurone Disease	Transverse Myelitis
Muscular Dystrophy	Tuberous Sclerosis

The majority of these are represented to a small degree in the referral statistics provided to us by Thamesdown. A full breakdown of its referrals is shown in Appendix D.

Fibromyalgia Support Group

- This Reading-based group has about 100 members, spread throughout Berkshire.
- Fibromyalgia sufferers potentially benefit from hydrotherapy, as it improves circulation and mobility. A representative anticipates no difficulty in forming a group of at least twelve for weekly sessions. Funding is not a problem.

Mencap

- Most local children with learning difficulties attend Castle School. Hence the local Mencap mainly addresses adults, some of which also have physical disabilities, including some in wheelchairs.
- The local support group organiser anticipates that those who would benefit most are those requiring therapy for physical disabilities. However, it would also be an attractive external activity for others.
- Many of the Mencap users would have behavioural problems and all who attend would be on a one-to-one basis with carers. This also means that only Mencap-dedicated groups are feasible.
- An hour is a suitable length of time for a group session and there would be a demand both in the daytime and evenings. The local organiser suggested we put Mencap down for one session per week in the daytime and one in an evening. This is more likely to later rise than to fall.
- Funding would not be an issue. Sessions would be paid for centrally and in some cases they would recover costs from users' benefit payments.
- To have the new pool located at the Community Hospital site would be ideal, though hospital car parking charges could be an issue.

MS Society

- Multiple Sclerosis has a high profile, though in fact its incidence nationally is about 0.14% of the population and locally 0.18%.
- The main benefits of hydrotherapy for MS sufferers is for health/fitness/toning - to avoid muscle wastage.
- The Society funds a weekly session at Brookfields, Highclere, at a cost of £45 per 45 minute session. The MS group alternates the severely disabled with the more ambulatory, so everybody who wants hydrotherapy can benefit once per fortnight. Each group normally has 6-7 people, which is probably a maximum for the severely disabled group because of their greater need for carers.
- Morning is the best time for MS sufferers because they tend to tire easily later in the day. This also makes travelling an issue, even as far as Highclere. It was felt that numbers would certainly rise if there were to be a more central location. Indeed, we were informed that up to two thirds of all MS sufferers generally benefit from hydrotherapy. The other third are mostly unsuited by the heat of a hydrotherapy pool.

Parkinson's Disease Society

- For over seven years the society has funded two groups per month at Brookfields, Highclere. At the moment the group numbers about ten, but seven or eight normally attend any one session. Additionally, some go by themselves, paying privately, up to twice per week.
- Some stay in the pool for up to an hour. However, hypotension is a common symptom of Parkinson's and in heated water dizziness can sometimes result. These people would have shorter sessions and/or a greater level of supervision. For group sessions a physio from the centre will attend them.
- Social interaction is important as well as the therapy. Many stay on for a coffee afterwards.
- Transport, and indeed distance to travel, are issues. Some get there by themselves, others have carers or volunteers with cars. For this reason using a pool at the Community Hospital would be much preferred and greater numbers would probably be expected, possibly in more sessions.
- Pool design issues were discussed and many of the points made were common (access by steps and hoist; spacious changing rooms with grab rails and seating; close car parking, with easy access into the building). However, Parkinson's sufferers also have a special need: there should be no sudden changes of colour or texture to the floor - otherwise PD sufferers can 'freeze'.

Polio Fellowship

- Polio survivors often have what is known as 'post-polio syndrome', which often results in breathing difficulties. The cure is exercise and hydrotherapy is a recognised treatment.
- There are two problems. Firstly, pools are few and far between and travelling can be difficult for the severely disabled. Secondly, The NHS only funds a finite course of treatment, so funding is an issue.
- The Fellowship knows of 120 polio survivors in Berkshire (so perhaps about 20 in West Berks). There could be a few more they do not know about, especially if the symptoms are mild. Only a proportion of these would both benefit from hydrotherapy and be in a position to take advantage of it.

SCOPE (National association for those with Cerebral Palsy)

- Cerebral Palsy affects one in 400 of the population at birth and there is a wide range of its severity. It only slightly reduces life expectancy.
- Hydrotherapy is most beneficial for those who suffer the more severe symptoms. Typically these cannot walk very well and would require a hoist to enter pools. The greatest benefit is improvement in balance, along with posture and flexibility.
- It is notable that SCOPE runs five schools and one college in the UK. Each has its own hydrotherapy pool since it has been found to be so beneficial to CP sufferers.
- There is no West Berkshire support group. The majority of those requiring therapy are referred by either their GPs or the Royal Berks Child Development Centre
- On a matter of principle SCOPE would ideally like to see CP sufferers in pools during mixed sessions ("the more mixing and acceptance in society the better"). A representative also alluded to the fun of being in water and advocates the sufferer's family joining him/her in the pool.

Stroke Association

- One quarter of one percent of the population suffer a stroke each year.
- The Stroke Association forms local Stroke Clubs and Family Support Organisations. These appear to be especially active in Newbury, where the local group believes that it successfully seeks out 99% of stroke victims who live in the area.
- The Newbury Stroke Club has 30 members (and is restricted to this capacity). It organises a group visit to Brookfields pool once per week and on average four attend. Brookfields charges £45 for a 45 minute session, including physio attendance. Funding is via a number of donors and sometimes the cash dries up, so the group therapy cannot take place.
- Benefits of hydrotherapy are rehabilitation, fitness, confidence, balance and relaxation. The warm water provides comfort, compared to an ordinary swimming pool, and this is linked to confidence and dignity.
- Some stroke sufferers will never improve; it is more a question of maintenance. However, on occasions sufferers display "astounding improvements" as a result of hydrotherapy. During a visit to the Stroke Club we heard of some examples first hand: "Initially I need a frame to walk but after hydrotherapy for a few weeks I can now make do with just a stick"; "I can now drive again following the therapy I have received".
- One hour would be the preferred session length for stroke victims and many who regularly attend the club's session at Brookfields also attend privately for additional therapy. Many said they would ideally like three or more sessions a week.
- Funding is not generally an issue (even though users are self-funded, not subsidised by the Stroke Association). One user notably added that a hydrotherapy session cost him only £5 but it cost £15 on public transport to get to Highclere. The majority of users, though they would be sorry to leave Brookfields, would prefer a central location.

4.3.7. Special schools, units and centres

There are six schools in the area which have some demand for hydrotherapy. The only one currently with a pool is Castle School. This is a special needs day school for children from two to nineteen, with 135 pupils, the majority living in West Berkshire. It has a mixture of autistic children and others with a range of physical disabilities. All pupils at this school are moderate to profound in their disability.

The school has a very small (5 x 3 m) hydrotherapy pool, with a maximum capacity of five. A variety of programmes are provided, depending upon need. Those with physical disabilities use it to improve flexibility and fitness; those with autism for its calming effect.

The West Berkshire Council talks of Castle School merging with and moving to the same site as Park House School, though the management of both schools discount it as no more than a long term possibility.

Park House has a number of pupils with autism, learning difficulties or hearing impairment. It currently has no access to hydrotherapy.

Kennett School has a significant number of children with disabilities - though most are ambulant - but here they are fully integrated into the mainstream school. Kennett has its own (cool water) swimming pool and all children use it in PE lessons. This does not have all of the beneficial effects of hydrotherapy but some are taken for special hydrotherapy sessions elsewhere following surgery.

Mary Hare School busses some children to use the Kennet swimming pool. Mary Hare is a school primarily for profoundly deaf children, though its remit is now widening. Again, some children have hydrotherapy after surgery.

Speenhamland Primary School has a special unit with places for ten children with physical disabilities. They currently go for one hour each week to the Brookfields Clinic pool and the school is likely to switch to the new pool in a more convenient location.

Kennett, Mary Hare and Speenhamland all share a part-time physiotherapist, qualified in hydrotherapy, employed by the Health Authority.

All of these schools would on the face of it benefit from the availability of a community hydrotherapy pool. However, transport difficulties and school timetabling constraints conspire to make it difficult for them to use an off-site facility. We were consistently told that parents of their pupils who benefit from hydrotherapy often seek out facilities for them to use out of school, both at weekends and in school holidays.

Prior's Court is an independent school for children aged 5 to 19 with autism. The majority are medium to severe in their symptoms, often with challenging behaviour and usually with learning difficulties; most are non-verbal. The majority of pupils are weekly boarders.

The school opened in 1999 and it was recognised at the outset that a pool would be useful. It is not a true hydrotherapy pool; it is described as a multi-sensory pool and the emphasis is on swimming rather than therapy. A feature of the pool is an array of coloured lights, projectors and speakers (some underwater) to reproduce a series of programmable multi-sensory experiences.

The Ormonde Centre, based at Newbury College, runs services for West Berkshire adults with physical disabilities - of all types, from car accidents to long-term neurological disorders. Typically it takes people after discharge from Royal Berks or Stoke Mandeville. It has 80-90 at any one time.

It operates a day centre and Outreach projects and is run six days per week plus evening groups. It provides rehabilitation and support and aims to rebuild self confidence and self-respect, since many of its clients arrive at a low ebb. The benefits of hydrotherapy are that it aids rehabilitation, improves fitness and adds a social dimension.

At the moment just one or two have hydrotherapy, on a private basis at Brookfields. However, the manager sounded out all his clients last year, when the prospect was first voiced, and he received a positive response from about 60%. This equates to as many as 50 users each week. The Community Hospital would not be an ideal location, since going back to hospital would have a stigma for the people at the Ormonde Centre, but it is acknowledged that it would be a sensible option overall.

The major issues to be addressed are:

- a) Carers - many are severely disabled and would require one-to-one care in the pool;
- b) Funding - many of its clients are on benefits and could not afford normal rates;
- c) Transport - the Ormonde Centre has a pool of paid drivers, but it is stretched.

In conclusion, we were asked to provisionally put down the Ormonde Centre for two block sessions per week, one in the afternoon and one in the evening, and that we would additionally expect some to attend open sessions.

4.3.8 Ante- & post-natal

This would be organised through the National Childbirth Trust, the hospital's Community Midwives Department and one or two private midwives. There will - at least initially - be a patchy take-up largely through lack of awareness. Usage is likely to be service-led (i.e. when a facility is available it will be tried). There might also need to be a crèche, since users are likely to have other small children.

It is not difficult to envisage at least two classes a week, one for pre-natal, one for post-natal, and further use in the referred client sessions.

4.3.9 Sports clubs

There is very little awareness of or interest in hydrotherapy from smaller amateur sports clubs in the area. Only when a club has a therapist is there generally more interest shown.

Thatcham Football Club occasionally send teams to Cannon's Health Club for water-based exercise and sauna and its therapist says it would use hydrotherapy in special cases, to speed recovery from minor injuries.

A very positive reply was received from the therapist at Newbury Rugby Club, who is interested in regular monday evening sessions, 40 weeks a year, for their entire 1st XV squad just to ease away the aches and bruises of the weekend match. However, this would depend upon funding, which depends upon sponsorship income, which in turn largely depends upon performance, notably the club's 1st XV remaining in National League 1 with a squad of professional players.

The Injured Jockey's Fund is a national association headquartered at Newmarket but with a strong base of jump jockeys living in or near Lambourn. A representative showed interest in a Newbury hydrotherapy resource in 2005 but has since moved on and nobody in the organisation now appears to recognise its value.

Brookfields Clinic has in the past had visits from jockeys wishing to undertake exercise in warm water in order to rapidly lose weight. Brookfields discouraged this and it should be, too, in the new Community Pool.

Besides hire of the pool by sports clubs, a large number of individuals with sports injuries will be individually referred for hydrotherapy, by GPs, hospitals and private clinics. These would be included under the headings 4.3.2 to 4.3.5 above.

4.3.10 Learning to swim / 'Babies Go Swimming'

Regular classes for infants are held in some pools; others refuse because of fouling problems. A local company, called 'Babies Go Swimming' organise classes for babies up to 14 months in several hydrotherapy pools (including, recently, Brookfields). These are popular and have high standards (e.g. special 'aquanappies') and so represent an easy hire out for pool managers.

An evening class for adults might also be feasible but one would have to question whether a regular swimming pool would be better suited for the purpose. It might be worth experimenting with a class for beginners over 70 years old but once they attained a basic competency they would have to move on to an improvers' course in a larger pool.

4.3.11 Aquarobics

Here we refer to gentle exercise for the elderly and infirm, rather than the more vigorous type sometimes offered in regular swimming pools. It is hugely popular in hydrotherapy pools in some other countries, such as Australia, Canada and the USA but is rarely seen in the UK. However, it is notable that Brookfields Clinic operates four half-hour aquarobics classes every week.

While aquarobics is not therapy as such, nobody can deny the health benefits of exercise. The elderly and infirm have few opportunities to exercise under supervision and in comfort and safety, so there is no reason why aquarobics should not be promoted on the programme of a community hydrotherapy pool.

In due course we suggest that there would be demand for one session every day, some for ladies only, some for men only and some mixed.

4.3.12 Other groups

Once the community becomes aware that a local hydrotherapy pool can be hired in the evenings there will be a number of enquiries. Some may not be entertained (children's parties?), but others could be justified. While 'expect the unexpected' might be the order of the day, here are some hypothetical examples

- A nudist club
- We hear that in High Wycombe there is demand from a group of Muslim women who will only be seen without their burqas, etc. when males are totally excluded.
- One can imagine that a department store might fund after work sessions on a Saturday for its floor staff.

There may be some opposition to such use: the pool is for therapy; it is inappropriate on a hospital site (if that is where the community pool is situated); where are the health benefits? Management and the Board of Trustees would have to take a view on whether such criticism would damage the enterprise or whether a genuine community need is being satisfied, while also generating revenues to help offset operating costs and hence benefiting all other users.

4.4 Other nearby hydrotherapy pools

During the course of this study five other pools were visited. All were chosen because:

- a) they are relatively near to Newbury (the furthest being Oxford, at 25 miles) - and hence there was an element of comparison and possibly even competition;
- b) to understand their demand and usage profiles;
- c) to understand their promotion and marketing, especially pricing;
- d) to appreciate their design features, especially in the light of what users and potential users seek;
- e) to obtain any information on operating costs;
- f) to ask for their managers' views on a potential pool for West Berkshire and to seek any other advice.

The managers of each were very helpful and supportive. They aptly demonstrate that there is a strong community of hydrotherapy enthusiasts who are willing to help one another.

4.4.1 Thamesdown

www.thamesdownhydrotherapypool.com



Thamesdown Hydrotherapy Pool, based in a suburb of Swindon a little to the north of its centre and some 22 miles from Newbury, has already been extensively quoted in this report. It is close to being a model for how a new community pool in West Berkshire should be run. Additionally, there is a wealth of statistics available on its usage and its financial accounts were also opened to us.

The pool is stand alone, built on the site of old allotments and donated by the local council. It was conceived in 1971 from an idea out of the local disabled swimming club

and fulfilled eight years later after considerable fund-raising and a substantial donation by Hambro Life, a local company.

There have subsequently been three extensions: high dependency changing facilities, a front entrance (including double semi-automatic doors) and a spa. A number of substantial non-building improvements have also been made, including a very extensive overhead tracking hoist system and a doubling of car parking space.

At 13.5 x 6 metres this is a large pool, with a capacity for 20 users at one time. On one long side the pool is just a few inches below deck level, on two other sides there is a sunken walkway and the fourth, short side is against a wall. This mix is said to work well since some therapy sessions are led from outside the pool and most learning-to-swim sessions (primarily for special needs schools) are supervised from outside.



The construction of the pool is double block tiling. The amount of natural light is limited and is constantly supplemented by artificial lights. Access is

provided by steps, static hoist and overhead tracking hoist. The tracking hoist is very extensive, going into all changing areas and toilets. There are numerous junctions and six lifts, each with a docking point where its batteries are charged. It is said to be used by up to 50 patients per week.

The building itself is in an attractive honey-coloured stone. Those internal partitions which are not old outside walls (following extensions) are breeze-block of similar colour. There is a good use of murals, posters and various other colourful decorations.

Because of its location, on a stand alone site in a housing estate next to a school, it is subject to vandalism. High security fences and extensive CCTV is an unfortunate result.

One can imagine that before the extensions it might have seemed quite cramped, but now the space is at least adequate. A poolside office has a large window giving good visibility and the manager's office to one side also has a window.

At one short side of the building a spa extension has been built. This is a fairly standard jacuzzi, which would perhaps hold four people. It has its own plant room.

One attractive feature is a social area, with a drinks machine, comfortable seats, a coffee table and with magazines and jigsaws available. It seemed to be well-used by carers and transport volunteers. Speakers constantly broadcasting Radio 1 throughout the building might not be to everybody's taste but it was in keeping with the friendly, 'clubby' atmosphere.

The manager stressed that the design was customer-led. During the period of fund-raising most of the potential users were consulted and their needs taken into account.

The plant room was very cramped and apparently this has led to some difficulties, such as delivery and storage of chemicals and replacing pumps.

There are four staff members:

- the manager and deputy manager, both of whom have been with Thamesdown for the whole of the 27 years it has been open; both are fully trained physios and lifeguards;
- two assistants, who are trained lifeguards and have some special skills (for instance, one is able to sign to the deaf).

It is clear that its physiotherapy manager, Paul Charlwood, is also an accomplished business manager. The unpaid Board of Trustees includes a treasurer, whose contribution includes salaries/PAYE and negotiations with suppliers.

The pool is open from 9am to 8pm seven days a week. It shuts on public holidays and for a week at xmas, during which times maintenance is done. It is reckoned that the maximum capacity of the pool is 1000 users per week.

During term time 17 special schools and units are accommodated and reduced charges for these are a part of the deal with the local council, which leases the land to Thamesdown for no rent. Out of term time some of the sessions are instead used for outings for old people from nursing homes, etc.

For about 27 hours, in sessions of three to five hours duration, on weekday afternoons/evenings and weekend mornings, the pool is devoted to 'Individual/Family Referred Client Sessions'. Individuals come (some with carers), without appointments on a 'pay and go' basis. During 2004, on this basis 1406 individuals attended Thamesdown and between them visited 15,500 times.

A few sessions are devoted to block bookings from organisations such as Ankylosing Spondylitis and the Stroke Club.

Finally there are some special sessions organised by Thamesdown, for high dependency users, sports injuries, etc. The Articles of Association forbid Thamesdown taking patients from profit-making private organisations, such as private physio clinics.

Those coming to the 'Referred Client Sessions' are referred by hospitals and GPs. Thamesdown is constantly refreshing awareness among these groups.

Thamesdown is meticulous in collecting data on users. Each completes a 'Request for Hydrotherapy Pool Treatment' form. Analysis (of 2004 data) shows a median age range of 51-60. 89% of referred users have a postcode from within the Borough of Swindon (which has a population of 182,000).

Total use of the pool peaked in 1994 and 1995, with 35,000 immersions per annum. It has since fallen away to 27,000. We were told that the principal reason for this was a change in local government, when the borough was carved out of Wiltshire. It is now more difficult for non-borough schools and individuals to use Thamesdown.

There are also comprehensive statistics on the ailments of referrals (or at least the principal ailment for which they were referred). The highest occurrences are:

- Arthritis: 24%;
- Spine/neck/back problems: 21%
- Other musculoskeletal problems: 16%
- Post operative: 11%
- Neurological disorders: 12%
- Learning difficulties: 4%.

Full statistics are shown in Appendix D. An important distinction should be recognised between long-term ailments, like MS and cerebral palsy, and treatment associated with recuperation, for instance a six-week course following a knee or hip replacement. The figures above show the number of clients in a twelve month period, so the number of clients attending for recuperation reasons tend to be overstated compared to similar statistics for long-term ailments. For instance, neurological disorders and learning difficulties together could account for about half of total immersions.

The standard adult session charge is £3 (20-40 minutes in the water is typical). Groups are generally charged at £25 (special schools under the jurisdiction of the borough at half of that).

These very low admission charges generated £79,000, resulting in a substantial shortfall in revenue, which is made up by donations and the result of fund raising activities, totalling £80,000. So, roughly half of regular revenue was from admission charges and half from other sources.

In addition to the general donations, special 'restricted' donations bought a replacement for the spa, at £14,000. Also, £29,000 was received from a National Lottery grant for the new car park. Thamesdown's operating costs are referred to later in this report.

In summary, Thamesdown is a superb example of a community resource. There is a wonderful 'clubby' atmosphere and while we were there the pool was full of people who were obviously happy despite some having very serious disabilities. It is clear that management responds to the needs of the community, which in turn supports the pool with substantial financial assistance. Its design is old and has been rather piecemeal but after several extensions it now represents a design blueprint which on the whole works, though less efficiently than if it were of a more modern build.

4.4.2 Brookfields Clinic

www.brookfieldsphysio.co.uk



Brookfields is a private physiotherapy clinic, situated in the village of Highclere, five miles SW of Newbury, built sixteen years ago in the grounds of the founder's house. The clinic includes a hydrotherapy pool and about 40% of the clinic's income is from hydrotherapy, with the remainder from conventional 'dry' physiotherapy along with Pilates, aromatherapy and other therapies. Besides the owner, the clinic employs two other qualified physiotherapists and a PA/office manager.

The pool itself is 30 x 14 ft (i.e. 42 sq m) and has a maximum capacity of ten. It is heated to 32°C (slightly lower than most). It has steps and two hoists, one

overhead and one on castors.

The pool, with an attractive coloured mosaic design, its log cabin surround and the large windows looking out onto a nice garden give a feeling of tranquillity and relaxation.

There are one or two minor design shortcomings - lack of changing space and the gravel driveway being difficult for wheelchairs.

Clients are from within a 20-mile radius, including the northern parts of Hampshire, notably Andover. The bulk are hospital outpatients and support groups. Some referrals are from GPs but there is little business from other private physio clinics. One school (Speenhamland) regularly uses the pool and four aquarobics classes are run per week. There is no business from sports clubs nor the ante-/post-natal community (because of there being no crèche). A third party has recently begun to hire the pool for a 'Babies go Swimming' class.

A lot of new clients hear of Brookfields by word of mouth and some are self-referrals. There are no set periods of 'Pay-as-you-go', but suitable times are suggested to those who seek it.

The standard fee for individuals to use the pool unsupervised is £5, rising to £40-55 with a therapist in attendance. A large proportion of clients have their fees paid for out of private health insurance.

Since Brookfields Clinic is so near to Newbury, the brief for this study included a request to consider possible damage to its business should a community pool be built in or near Newbury.

Several groups (Cancer Care, MS Group, Parkinson's Society, Stroke Club, Speenhamland School) currently travel from Newbury to Highclere for hydrotherapy at Brookfields. Undoubtedly many individuals do, too. Without exception, those we spoke to - both group organisers and users - praised the clinic and the staff, feeling they benefit from attendance; but equally they all found the location difficult and expressed a preference for a more convenient, central location. The majority said they would reluctantly move on.

So, Brookfields Clinic would undoubtedly lose some business - a proportion, perhaps up to 20% or 30%, of that which it currently obtains from hydrotherapy; so 8-12% overall. The further east of Newbury centre the new pool is situated (e.g. the Community Hospital or

Thatcham) the less will be the impact; the further south or west (e.g. Park House School) the greater will be the impact. Brookfields' owner is sanguine about competition. The clinic is running at more or less full capacity and if anything a slight respite in working hours would be welcomed.

However, a new community facility would be vigorously promoted and awareness of hydrotherapy would rapidly be raised from its current low levels. Some new users would visit Brookfields instead of the new pool and these are likely to make up a large part of the shortfall.

The Board of Trustees of the new pool could consider going one step further and include Brookfields in its promotion of hydrotherapy benefits: ".....and so if you wish to use hydrotherapy then contact the Newbury pool or, if you live in the Wash Common / Woolton Hill / Highclere area then you might consider the private Brookfields Clinic".

4.4.3 Oxford Nuffield Orthopaedic Hospital



The Oxford Nuffield Orthopaedic Hospital is being rebuilt. Parts of the new hospital - including the pool - are now operational.

The capital cost of the pool (c£750,000) was met by a number of chunky charitable donations.

The hospital's physiotherapy manager had a big say in its design, drawing on her experience at Northwick Park and Bath. The

result is a design which is often cited as incorporating the best, state-of-the-art features.

The pool has an area of about 60 sq m. Unusually, the floor of the pool slopes along the shorter dimension and from the tiles that could be seen this was estimated at 20-25cm difference only. All four sides of the pool are at deck level. A useful feature is an underwater seat along one of the short sides (and therefore with a variable depth from seat to pool floor).

The maximum capacity of the pool is considered to be 14, but 8-10 is a more typical group size and 'self-management groups' (i.e. pay-as-you-go) is limited to 12. The absolute number which can be accommodated depends more on what therapy they are getting.

The whole hydrotherapy suite is spacious, with an especially wide area around the pool. There is a static hoist, capable of lifting 25 stone. But this is not enough for some obese patients, which have to be turned away - even though this risks the hospital being sued under the disability act! This patient weight issue also impacts emergency egress procedures, since loading a patient onto the special board and lifting him/her out of the pool can violate Health and Safety at Work rules.

There is no overhead tracking hoist, because the cost would have been £85,000 - especially high because the ceiling would have need strengthening to fix it.

There are four double changing rooms - i.e. spacious rooms with a curtain down the middle and hence allowing each to be used by two patients. Additionally, there is a larger room that could accommodate about five. All clothes are removed to nearby lockers. There is also a spacious staff changing area, with shower, and a laundry room.

For patients there are two pass-through showers, operated with string pulls. This, and a firm regime generally regarding hygiene, is considered to be essential, not only for the users'

health (which include some immuno-suppressed patients), but also because it cuts down on the cost of chemicals.

Other measures mentioned were a 'bowel regime' for incontinent patients and only allowing infants at the end of the day. Even so, fouling does take place from time to time. The damage can normally be repaired with chemicals overnight, without resorting to emptying the pool.

There is macrobiotic testing of the water in a laboratory twice per week (but with a turnaround time of 24 hours of so, not much can be done if the results are negative).

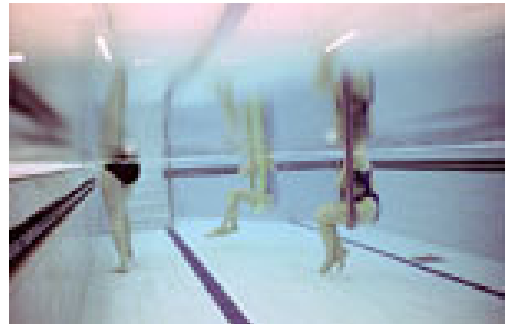
Despite a very good air extraction system humidity causes problems in the poolside office: it cannot include a computer, because it keeps shorting; in twelve months the metal filing cabinet has had to be replaced three times because of rusting; staff find it tiring. A door opening into the pool area is a significant design flaw; it should have the door opening into the air-conditioned reception area and just a window overlooking the pool.

The department employs one specialist hydrotherapist and additionally many of the other physiotherapists have gone on a hydrotherapy course.

When anybody is using the pool there has to be a minimum of two staff present - a physio and an assistant. Both categories of employee are trained in life saving and in emergency evacuation of the pool.

HCAP lay down guidelines regarding the maximum time that a physio can be in the pool in any one day, at three and a half hours.

Anybody seeking to hire the pool and run a group is vetted by the department. They are especially careful because the reputation of the Nuffield is at stake and they could not afford, for instance, to have a user suffer a cardiac arrest and the proper procedures not adhered to.



The pool opens at 8.30 and closes at 16.30. At lunchtimes it is formally shut for an hour. However, on four days there is a self management group during this period, run on a voluntary basis by the staff (i.e. just supervision, in their normal lunch hour).

The occasional hiring out would be in the evening or weekends.

The following table shows a reproduction of the current timetable (in half hour blocks beginning at the times shown):

	Mon	Tues	Wed	Thurs	Fri	
8.30		Out-patients	Out-patients		Out-patients	
9.00					Rheum	
9.30					Out-patients	
10.00	Neuro	Rheum	Rheum	Rheum	Out-patients	
10.30		Out-patients	Knee class	Out-patients	Neuro	
11.00			Out-patients			
11.30			class			
12.00	FRP	FRP	FRP	FRP	ARP	
12.30			ARP			
13.00						
13.30	Back class	Paediatrics		Paediatrics		
14.00	Out-patients			class		
14.30	Rheum		Paediatrics	Paediatrics		Neuro
15.00						
15.30						
16.00						

Key: closed self-mngm

It can be seen that the pool is only open for 'hospital business' for 57 half-hour sessions per week (19 of which are for out-patients). This is down to time and money constraints. The manager says that hydrotherapy is only used when it is really necessary, rather than in marginal cases.

Self-management groups are charged at £30 for a ten week period per individual. It is controlled in this manner, with pre-paid with appointments, in order to limit numbers.

Charging for group hire varies. For instance, a Yoga Summer School was charged £100/hour, but those with a charitable element, such as the Ankylosing Spondylitis Support Group, are charged £25/hour.

In general, demand for private hire is limited, one reason being that there are six other hydrotherapy pools available in Oxford: at the university sports centre, at a private hospital, at two nursing homes, at a special school and at a centre for the disabled.

In summary, we found the Nuffield Hospital pool to have many excellent ergonomic features and other desirable design characteristics but also one or two significant flaws. Lessons can be learnt from both. However, above all the pool here has a hospital 'feel', which would be less appropriate for a community resource. At less than 30 hours per week it is underutilised.

4.4.4 Royal Berks Hospital

We visited the physiotherapy department's new hydrotherapy pool just a few days after it was opened. It is a direct replacement for, and strongly resembles, the pool previously at Battle Hospital, which has now been closed and incorporated onto the Royal Berks site.

The pool 'suite' is said to have cost £817,000. The whole facility was constructed in about six months.

The pool is not quite square, but the usable area, excluding steps, is about 7m x 7m. It has a step in the middle, to demarcate a shallow end and a deeper end. It has raised sides and

access is by steps or hoist. The pool is surrounded on all sides by changing and amenity rooms - brick cubicles, mainly with curtains. The water temperature is maintained at 36°C and the air at 27°C.

Hydrotherapy is provided by the general physiotherapy team, who are trained in-house in the use of the pool. Whoever is in the pool with patients there is always an additional 'poolside assistant', a person in a small office in the corner to supervise (and presumably act as life saver).

Car parking problems for out-patients have been overcome by having dedicated, free disabled bays near to the back door and also the use of 'drop-off bays' for up to one hour, also free.

The primary uses of this pool are for in-patients (e.g. neurology, musculoskeletal, orthopaedic, paediatrics, maternity, etc.), about 60% and out-patients comprise the remaining 40%. At the moment there is no availability for outside groups, though if this is introduced then it would only be for health-related purposes, not aquarobics and learning to swim. There is a small amount of cross-referrals with other hospitals, when an out-patient might switch to a more convenient location.

The opening hours are 9.30 to 4.30 five days per week. There is a willingness to open earlier, at 8.30, but not later or at weekends. In general there is a reluctance to open longer hours because of staffing issues and no budget/income motivation to do so.

The number of users in the pool at any one time varies with its type of use. For instance, no more than three neurological patients are likely to be using it at one time, but eight children with parents/carers. Orthopaedic patients might be four to six, with just one physio.

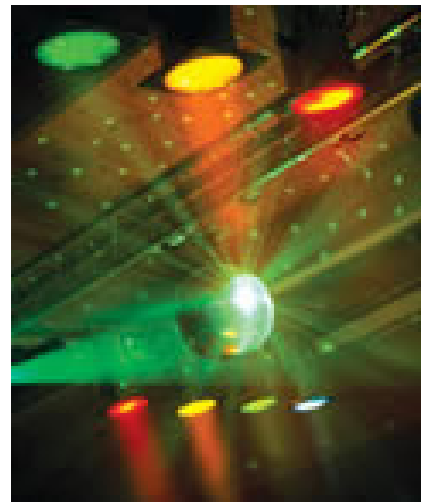
In summary, we feel that Royal Berks could have chosen a more modern and flexible design, especially given the expenditure. Like Nuffield, the pool is underutilised and its current unavailability to outside users means that it is in no way a community resource.

4.4.5 Prior's Court School (www.priorscourt.org.uk)

This has already been referred to in section 4.3.7 and it is not really a hydrotherapy pool, but is a multi-sensory pool used for swimming by the autistic children who attend the school.

It could be argued that the lights and sounds provided in and around the pool are intrinsic to the therapy and could also play a part in a hydrotherapy pool.

It has some other nice design features, including wooden wall cladding, which is attractive, eliminates echo and adds to the overall feeling of relaxation.



4.4.6 Other local pools

A hydrotherapy pool is included in a private leisure centre at Sindlesham, just south of Reading. We were told by a member of its staff that it was used for relaxation and leisure and not for serious therapies at all.

There is a scheme to build a £38 million 'Learning Campus' at Tilehurst (at the eastern edge of West Berkshire, twelve miles from Newbury and three from Reading). Besides new school buildings it is proposed to include a swimming pool, hydrotherapy pool, sports hall and gym. It is not clear whether the mooted hydrotherapy pool will be for providing community therapy, to support the local schools' special needs or just a leisure facility. The plan was put to West Berkshire Council in May 2006, a grant was awarded towards its cost in November and we understand a feasibility study will begin in 2007. If it were to be built then there could be some degree of overlap between it and both the Royal Berks and West Berkshire pools.

4.5 Assessing total demand

In section 4.3 we arrived at conclusions regarding likely usage of the pool, for each category of user, in year three. This is summarised in the table overleaf.

For an average week we show:

- the number of assessments for new referred clients;
- how many 'normal' pool visits are expected, from both referrals and classes;
- visits by carers and family members;
- pool hires for 40 minutes without a pool physio being present;
- pool hires for 40 minutes with a pool physio in attendance;
- pool hires for 60 minutes without a pool physio being present;
- pool hires for 60 minutes with a pool physio in attendance;
- the total number of 'immersions'.

On the whole this analysis might be regarded as presenting a rosy view, for a number of reasons:

1. It represents what we have been told. Some groups have an interest in telling us what we want to hear because they would like to see a new local pool justified. Obviously there has been an attempt to question and rationalise the responses and to take a conservative view but nonetheless it remains a potential downside.
2. Sometimes the responses have been honest but there are some doubts whether forecast demand might become a reality. For instance, funding issues could prevent some groups from attending as regularly as they might wish to, or Newbury Rugby Club might be demoted to a lower league, out of the professional arena.
3. There are some elements of seasonality. For instance, schools will only attend in term time, sports clubs only in their playing seasons and individuals might be less keen to venture outdoors in the depths of winter.
4. Most groups currently using Brookfields pool say that they will switch to a new one if it is based at WBCH. They may ultimately decide not to.

However, it should also be said that there is also some potential upside to the figures. On the whole we have erred on the side of caution in our estimates, especially in respect of the catchment area. If the pool is of a good design and has a welcoming atmosphere then some clients will travel greater distances to use it, especially from Reading if the Royal Berks pool


continues to be largely unavailable to outsiders. Also, more groups might be attracted and the potential for self-referrals might be understated.

all figures for one week		assessment		individuals		group hire				immer-
			normal visit	carer or family	40 mins hire	40 mins w physio	60 mins hire	60 mins w physio	sions	
WBCH	1. In-patients 2. Out-patients						5		10 30	
3. Referrals	800 clients pa; av 12 visits/client So 9600 visits pa = 192 visits/wk 70% have assessments; 560/50 = 11/wk	11	192						192 11	
4. Self-referrals	200 clients pa; av 12 visits/client 100% have assessments	4	48						48 4	
3a/4a. Carers & family	20% of all referrals w carer 10% with av 1.5 family members			48 36					72 36	
5. Private clinics	av 12 + own physio						1		13	
6. Support groups	Alzheimer's Soc. av 12, carers 1:1 Arthritis care classes of av 15 Cancer Care av 15 Fibromyalgia av 12 Mencap av 12, carers 1:1 MS Soc. av 6, carers for 50% Parkinson's Soc. av 8, carers for 50% Stroke Club av 15		30			1			24 30 30 12 48 9 12 30	
7. Schools & centres	Speenhamland av 10 Another school av 15 Ormonde Centre av 16, carers for 50%								10 15 48	
8. Natal	'Pre-' class classes of av 10 'Post-' class classes of av 10		10 10						10 10	
9. Sports clubs	Rugby av 18						1		18	
10. LTS / BGS	Babies av 12, mothers 1:1 Elderly class av 12		12		1				24 12	
11. Aquarobics	daily classes av 12		60						60	
12. Other	av 15						2		30	
Totals		15	362	84	1	7	13	3	848	

This analysis suggests 461 individuals per week, eight 40-minute hires/classes and sixteen 60-minute hires/classes. Although these usage totals are scheduled in the example timetable below, on balance we suggest that for the purpose of a conservative financial plan these figures are lowered by 15% across the board.

So, a possible timetable representing the amount of usage shown in the table might be:

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
09.00							
10.00	Cancer Care		MS		Parkinson's		
10.40		Alzheimer's		Cancer Care	School		
11.20	Ormonde	pre-natal	Fibromyalgia	post-natal			
12.00							
13.00							
16.00	Stroke Club	School	Arthritis		Mencap		
17.00	Elderly LTS	BGS	Private Clinic	Stroke Club	Arthritis		
18.00	Aquarobics	Aquarobics	Aquarobics	Aquarobics	Aquarobics		
19.00	Rugby Club	Mencap	'other'	Ormonde	'other'		

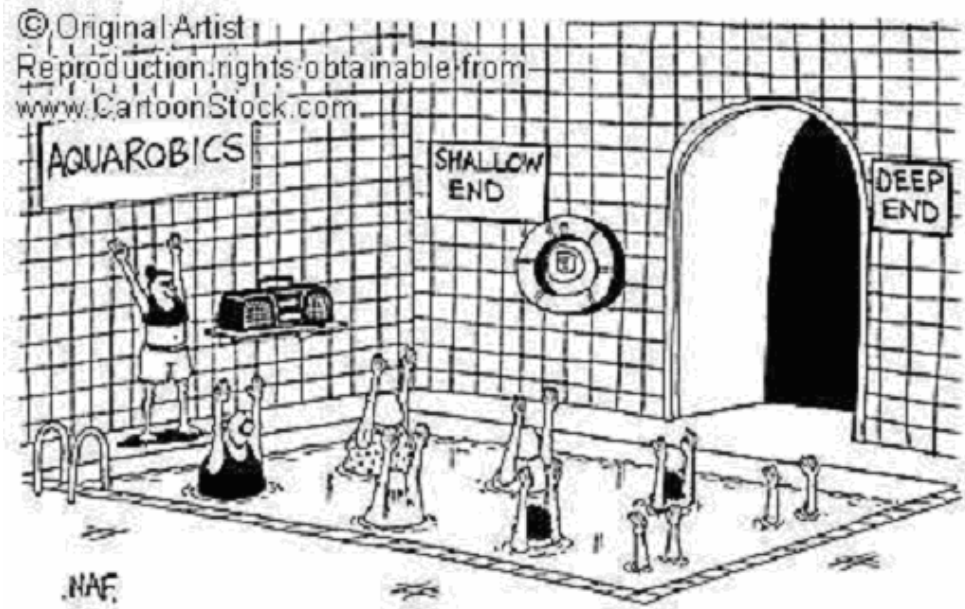
Key:  WBCH pool hire classes referrals

This assumes the pool is open from 9.00 to 20.00 each weekday. Additionally the pool might be open on Saturday and Sunday mornings, and all public holidays except for xmas, from 10.00 - 13.00 for referrals.

Planned closure for annual maintenance will ideally be scheduled for xmas week.

We allow one hour each morning for WBCH to use as it wishes for its in-patients and out-patients Four hours each day, seven days a week, will accommodate 461 individuals (an average of 13 users at any one time). Adding in the currently identified hire-outs and classes still leaves spare capacity for a further seven at 40-minute and one of 60-minutes. There is also scope to remain open longer in the evening and to add Saturday and Sunday afternoons.

In conclusion, a pool with a maximum capacity of twenty at any one time will comfortably accommodate the schedule shown and would, indeed, be able to cope with a number of individuals and hire-outs about 50% greater.



5. Location and Design

During discussions with potential users and in the analyses included in section 4 it was assumed that the pool would be situated at the favoured location, on the site of the West Berkshire Community Hospital (WBCH), that its capacity would be twenty users and that its design benchmark would be the pool at Nuffield Orthopaedic Hospital, Oxford. These issues are now examined in greater depth.

5.1 Location

The brief for this study stated that the favoured location was WBCH and that two other locations should be examined and compared. As a result of discussions with WBNA, Brownfields, at Thatcham, emerged as a feasible second choice.

It was difficult to identify a third feasible site. Those discussed but not followed-up include Kennett School, Newbury College, the Racecourse and Northcroft Leisure Centre. However, under certain conditions a site near to Park House School and Newbury Rugby Club might be viable and this is included in the comparison below.

5.1.1 West Berkshire Community Hospital

If one were to attempt to define a 'centre of gravity' for potential hydrotherapy users in West Berkshire, then it would result in a point very close to WBCH, mid-way between Newbury and Thatcham. Almost all users and organisers of user groups we spoke to favoured this location, many of the elderly and disabled are already used to going there for other purposes and communications are good.



West Berkshire Community Hospital - when under construction (RG18 3AS)

The management is keen to come to a suitable arrangement and although negotiating with the NHS might typically be an arduous and time consuming process, the strong will on both sides can make it happen. There is plenty of room on the site and planning permission should not be difficult to obtain. Indeed, WBCH management have already identified an ideal spot near to the main Bath Road entrance.

The hospital itself will provide a significant number of users, both in-patients and referred out-patients. It is envisaged that a covered walkway between the main hospital building and the pool building will be sufficient to move in-patients between the two.

Security and safety for users is excellent; access and car parking will not be a problem (though a modest charge for parking is inevitable).

Hospital services, including security and maintenance, are run under a PFI agreement with Jarvis and the hospital would not want the complication of including the pool in this agreement. There would however be an opportunity for the pool management to contract separately with Jarvis if it is wished to.

In summary, the WBCH site seems to be excellent in every respect. We are struggling to find any negative aspect. Perhaps the greatest is that some users in rehabilitation might be slightly put off by the idea of 'going back to hospital' but this is not a major issue, even for those who voiced it.

5.1.2 Brownfields

WBNA has held informal talks with the mayor of Thatcham, who is very keen to attract the pool to the town, believing that a suitable site can be found in the Brownfields area.

Brownfields is a short road off the Bath Road. It has the town council offices, library, a surgery, dentist, chiropractor clinic and a care home/day centre for the elderly. Car parking is good (and free).

It is three miles east of Newbury centre, twice as far as the Community Hospital, and so it will be less convenient for users from Newbury itself and from all points west, north-west and south-west. However, communications along the A4 Bath Road are good. On the plus side it is further still from Brookfields Clinic at Highclere and therefore any element of competition will be further lessened.

There is not much spare space for a new building in Brownfields. It will be more a question of what else is given up. Even building on the tennis courts in the north-west corner would probably be insufficient. And so this also raises a question over planning permission.

Security for a stand alone building in Brownfields might be problematic. Thatcham has recently developed a poor record of crime and vandalism. Also, the safety of elderly and infirm clients, some of whom will be visiting the pool after dark, has to be considered.

While there are some health related organisations in Brownfields, none are highly relevant to hydrotherapy, so there is little synergy here.



Brownfields, Thatcham (RG18 3HF)

In summary, the greatest thing going for Brownfields is the will of the mayor to make it happen. At best it could be considered a possible fall-back in case negotiations to secure the hospital site collapse.

5.1.3 Park House School / Newbury Rugby Club

West Berks Council states that there is a plan to merge Castle School with Park House; both schools discount it as no more than a long term possibility. Castle School (see section 4.3.7) is a special needs day school with 135 pupils, comprising a mixture of autistic children and others with a range of physical disabilities. It has its own hydrotherapy pool. Park House School, too, has a number of pupils with autism, learning difficulties or hearing impairment.

Should a merger take place then the need for a new hydrotherapy pool on or near the Park House site could easily be justified. It happens that the Park House School site abuts those of both Newbury Rugby Club and the Falkland Surgery. And so, two other organisations of some relevance are located just yards away from Park House.

There appears to be a lot of playing field space here and it is possible that some could be annexed for a community hydrotherapy pool. However, planning permission could be an issue. It should be stressed that this idea has not been put to the council education department nor to Park House School (the management of which did not wish to discuss it with us).

While the rugby club has shown interest in becoming a regular hydrotherapy user, its potential for a one hour per week hire should not be overstated.

This site is at the junction of the Andover Road and Monk's Lane, at Wash Common. It is just three miles from Brookfields Clinic at Highclere, greatly increasing the potential overlap of clients and not solving very well the problem which users from the north and west of West Berkshire have in reaching Highclere.

Any site here would have to have its own access, since access through Park House would be difficult in daytimes because of pupils and in the evenings and weekends because of security. Utilities and other services would probably have to be built from scratch.



Park House School / Newbury Rugby Club (RG14 6NQ)

In summary, the merits and shortcomings of this third possible site are drowned in the single issue of whether Castle School will merge with and relocate to Park House School. If it does happen then timing is an issue, since such a plan is unlikely to be fulfilled until well after the hydrotherapy pool is up and running.

5.2 Design parameters

It is not one of the functions of the feasibility study to produce a design, but we can state some important design parameters, based on stated requirements of users, observations and available documents.

We are restricting our comments to the hydrotherapy pool itself, along with its building and surround. Other related facilities, such as a spa/jacuzzi (as at Thamesdown), a sauna (as at Brookfields) and a multi-sensory experience (as at Prior's Court) all could have a part to play in improving general therapy, rehabilitation, user well-being, relaxation, pleasure and, indeed, not forgetting revenues. However, all of these might be regarded as non-core add-on extras.

5.2.1 Regulations and standards

There appears to be no set of UK regulations for hydrotherapy pools beyond those for swimming pools generally. These are not exacting and are well known to swimming pool builders. However, some are relevant to this study, for instance that the minimum quantity of water which should be dumped for each immersion, at 30L, in order to preserve water quality.

Much more useful is a new Australian Standard for Hydrotherapy Pools. A copy has been obtained and passed on to WBNA. Many of its measures are mentioned below. In 1993 the Hydrotherapy Association of Chartered Physiotherapists (HACP) produced a paper called 'Considerations in Planning and Design'. One of its joint authors, Helen Whitelock, went on to become recognised as a guru of pool design and it was she who produced the 2006 Australian standard. It is therefore safe to assume that the old HACP guidelines have been superseded in the light of experience, new thinking and modern technologies.

The Australian Standard also contains much of the necessary detail on filtration, sanitisation, water balance, microbiological quality and testing regimes, along with recommended materials for non-slip floors, etc. The characteristics discussed below address issues more visible to users and they also draw on the experiences and advice of managers at other pools.

5.2.2 Pool size

Older hydrotherapy pools are typically up to 50 sq m and more often than not square in shape. Modern pools are often 70 sq m with an aspect ratio of 2:1.

4 sq m per user is sufficient for most users, though for some disabilities, especially where carers are presents on a 1:1 basis up to 50% more will be required.

Because a large proportion of the usage of this pool will be 'pay-as-you-go' referrals and classes, we recommend it has a maximum capacity of at least twenty users and is therefore at least 80 sq m. The single greatest mistake admitted by the Thamesdown pool is that they should have built it bigger (and it is already 81 sq m!). One can subsequently make changes to all manner of facilities around the pool and even extend the building itself, but it is not practical to enlarge a pool once it has been completed.

The difference in running cost between a pool of 80 sq m and one of, say 60 sq m. is not great. The more substantial impact will be in building costs, to accommodate a larger pool and in providing changing facilities for a greater number of users. Indeed, a further over-provisioning could be justified, up to 90 or 100 sq m, without providing more changing facilities, on no more a basis than it might be required in the future for unknown applications or to overcome unseen capacity constraints.

A rectangular shape is universally recommended. Hexagons and kidney-shaped pools look good but they are not as suitable for serious work. An aspect ratio of 2:1 is not necessarily ideal. From the point of view of somebody taking a class one nearer to 3:2 is more appropriate. However, the deciding factor for length is more often the range of depth and its floor gradient.

5.2.3 Depth

It used to be thought important to have a minimum depth of 830mm, to accommodate children in safety. In practice, it is difficult for therapists to work in this depth without either working painfully on their knees or risking a backache. Also, disabled children with carers do not need to be within their comfortable standing depth. And so the latest thinking is that a minimum depth of 1100mm is sufficient.

The smallest practical maximum depth should be 1350mm (4'5"), which will not pose a problem for almost all adults.

The recommended gradient for a sloping pool floor is 1 in 30 (a step is definitely out these days).

So, if the depth range is 1100-1400mm, that is a 300mm difference, then the minimum length should be 9m; if it is 1000-1400mm then the length should be 12m. If the depth range were to be 830-1350mm (consistent with the old HCAP guidelines) then the length has to be at least 15.6m (to which no pool we have heard of conforms).

In a 'Rolls-Royce' pool there would be a movable floor but we imagine this would be prohibitively expensive. In the Nuffield pool there is a seat running along one entire side, with a width of about 45cm, which is considered to be a successful innovation, both for adults sitting on it and therapists using it for your children.

5.2.4 Pool edge

These days the advantages of a 'wet deck' (where water spills over into a drain at the edge of the concourse) are widely appreciated. Most water pollutants are either floating on the surface or in the top few millimetres of water, and hence removing this very top layer into the filters is best.

Of course, a wet deck can only be provided when the concourse is at the same level as the water surface, so having a containing wall the top of which was well above the concourse is inconsistent with the wet deck design.

However, in the course of our research we have heard some arguments in favour of a wall. The first is in the case of carers and families of disabled users staying at the side of the pool. With a flush deck communication is at a steep angle; with a wall of 1-1.3m level eye contact can be maintained.

The second advantage of a wall is in the case of emergency evacuation - for instance, in the case of a cardiac arrest. When supervisors have to manhandle a client from a water level at or beneath their feet it is difficult and can result in back damage and other strains to those lifting. In the case of a wall it can be easier.

Thamesdown has the best of both worlds. At one long side there is a deck; on two others there is a pit, accessed by means of steps (the fourth side is unsuitably beside a high wall).

Copying this principle, by having two sides with a wet deck and the other two below a wall should be given serious consideration.

5.2.5 The pool surround

There should be a 2m concourse on each side where there is a deck at or just above the water surface. This will allow for passing and manoeuvring of wheelchairs and 360° operation of the static hoist.

It should be equipped with a cold water drinking facility, ideally a fountain with plastic cups.

5.2.6 Access

Wide and shallow steps, into the shallow end of the pool, and with good handrails is the preferred method of access for most users. They should be double width to allow clients to exit the pool at the same time as others enter. A ladder, as in swimming pools, is definitely unsuitable.

A ramp, with the intention of pushing wheelchairs up and down it is not a good idea, because of the necessary steep gradient and subsequent danger of its running away while going down and being extremely difficult to push up when leaving the pool.

Most hydrotherapy pools have a static hoist (see right). This is inexpensive, flexible and is considered to be an essential item of equipment. There is an issue about its maximum carrying weight. While one that can support a 25 stone individual might be adequate for most users, some obese clients will be heavier and it is questionable whether somebody denied usage because of unsuitable access might have an action under the Disability Discrimination Act.



In addition, an overhead tracking hoist (see left) is highly desirable. Tracks are set into the ceiling and severely disabled clients can be safely and quickly moved between their wheelchairs, or even directly from changing rooms, into the pool. An extensive overhead system installed at Thamesdown (at a cost of £25,000) is used at least 50 times every week. One such for the West Berkshire pool is recommended but it should be planned for at the outset. Nuffield could not install one without a very expensive strengthening of the ceiling.

5.2.7 Water temperature

Hydrotherapy pools are generally kept at 34-36°C - that is at a 'thermo-neutral' temperature (near to blood temperature) and the Australian standard suggests a maximum range of 30-36°C. There are certainly some advantages in being towards the lower end of the range, since the difference between, say, 32°C and 36°C can have a significant effect on fatigue and dehydration, but far less effect on the therapeutic benefits of warm water.

In particular, anything more than gentle exercise - for instance, aquarobics - is far more comfortable in slightly less warm water. This has led some to question whether the temperature of the water can be varied. For instance, can the temperature be maintained between 9am and noon at, say, 34°C, then have the heating turned off for the remainder of the day, allowing gradual degradation to below 30°C for evening activities? This is a question for an engineer to resolve. It has also been suggested to us that when filters are backwashed

then this results in a sudden influx of cold water into the pool. If this is so then perhaps this process can be undertaken at times when a lowered temperature is desirable.

It should be mentioned in passing that many believe in a myth that it costs more to heat a house, pool or any other body when its temperature is allowed to vary rather than maintaining a constant maximum temperature. This is not so.

It is a fundamental principle of thermodynamics that the rate of exchange of heat between two adjacent bodies is directly proportional to the difference in their temperature. So, given that the temperature of the air and pool sides remain fairly constant over a given period then less energy will be consumed if the water temperature is allowed to vary between, say, 26C and 34C than if it is maintained at 34C for the whole period.

Furthermore, most heating systems operate more efficiently if they are allowed to run for lengthy periods compared to a rapid on-off cycle consistent with a thermostat maintaining a constant temperature.

We have also been advised by other pool managers that investment in good insulation is well worth while - both behind the sides and beneath the floor of the pool and in a heavy duty blanket for the surface of the pool at night. Builders of regular swimming pools might not have sufficient experience of pools maintained at a rather higher temperature to be able to incorporate such measures without their being explicitly specified.

5.2.8 Light

Some natural light is highly desirable, not only because it is pleasing and relaxing but also to permit those clients who might be subject to certain psychological or visual impairment some means of time orientation. A skylight is ideal but side windows might also be considered provided that blinds can be drawn when required, both to shut out bright sunlight and also to provide privacy after dark to users of the pool.

Artificial lights should be diffused. They should be in positions where maintenance is easy and there is no possibility of broken glass falling into the pool (which would result in the need for it to be drained and swept).

Underwater lights are attractive and should be considered.

5.2.9 Acoustics

Pool buildings can be very 'echoey'. This is noisy and can be frightening to some clients with certain conditions; it is certainly not consistent with a relaxed feeling.

The best means which we have seen to reduce echoes is to have wood clad internal walls. However, other considerations are resistance to fire and water damage and the choice of materials which do not facilitate the growth of micro organisms. These are not normal characteristics of wood, though it is notable that treated woods are used successfully in saunas and steam rooms.

Sound insulation might also be needed for the plant room.

5.2.10 Decoration and overall ambience

It cannot be stressed too highly that overall a hydrotherapy pool should exude the air of relaxation and pleasure which is conducive to successful therapies. Natural materials, good use of light and colour and perhaps soothing music all have a part to play. This is so important that it should not be left to chance. The advice of an interior designer, with experience of hotels, hospitals and public places, should be sought.

It is very notable that, of the five pools visited, the three that had a good ambience were those run privately; the two which did not were both situated within hospital physiotherapy departments. The latter for the most part had a white ceramic 'clinical' feel. As one group organiser memorably stated: "Nobody wants to feel as if they are in an abattoir"!

5.2.11 Humidity, air-conditioning and ventilation

Humidity is a major source of fatigue, for pool users and staff. It is also very damaging to equipment, particularly anything which is either electronic (e.g. computers) or metal (e.g. filing cabinet).

So, poolside humidity should be carefully controlled though a suitable air conditioning system. The Australian standard suggests a preferred maximum of 60% humidity. Air temperature should be maintained at not more than 10°C below water temperature.

Beyond the poolside, in offices, storerooms and any social area for carers and clients, humidity and temperature should be nearer to normal indoor levels.

5.2.12 Office

A staff office should not open out to the poolside (except perhaps for emergency access), mainly because of the humidity issue but security might also be a consideration. Instead it should have access from the area of the building in which near to normal levels of humidity and temperature are maintained. However, a large window should be provided in the office so that an excellent level of supervision of the pool can be provided.

5.2.13 Changing facilities

All pool managers we have spoken to stress the importance of providing adequate changing facilities. The space vs capital cost dilemma is not an easy one to solve but it can be ameliorated by providing greater flexibility.

The greatest waster of changing space is to have separate and equal areas for males and females. We suggest instead having four identical areas labelled 'red', 'green', 'blue' and 'yellow'. Their usage can be dynamically allocated - for instance, three for males and one for females; or two for females, one for males and one for infants; or two for the outgoing MS group, one for incoming males and one for incoming females; etc.

Each area should include one high dependency changing facility, with integral shower and toilet and, ideally, a terminus for an overhead tracking hoist (this has been implemented to great effect at Thamesdown). The remaining changing places in each area should also have flexibility - for instance, two rooms, with curtains to divide each into cubicles for those who prefer greater privacy. Each area will be equipped with a shower.

Having five or six 'regular' changing places and one high dependency place in each of four areas would probably work well for a pool with a maximum capacity of twenty. This can be

checked by means of a mathematical model based on anticipated usage patterns and typical times to change.

There will be a central bank of lockers and at least two of ordinary toilet cubicles.

A couple of pass-through showers on the way into the pool are desirable. We are told that the removal of sweat, make-up, dust, etc. from users before they enter the pool has a great effect on water quality. It is possible to have automatic showers which come on when movement is detected but this is not a good idea for a hydrotherapy pool because they will also be a passage for carers and staff who are dressed. A string-pull operation is preferred (and is said to work well at the Nuffield pool).

5.2.14 A 'dry' physiotherapy consulting room

Hydrotherapy is merely one special technique of physiotherapy. Often a mix of hydrotherapy and 'dry' physiotherapy is appropriate. Furthermore, all hydrotherapists are qualified general physiotherapists. It therefore makes sense to include within the building a consulting room equipped with couch, ultrasound equipment and the other paraphernalia of a usual physiotherapy clinic. Then the broader range of services can be offered and, to a certain extent, promoted.

5.2.15 Social area

One of the most successful aspects of Thamesdown is its provision of a social area. It is equipped with comfortable chairs, a coffee machine, magazines, etc.

It is used by carers and transport volunteers while their clients are in the pool and often by clients after their sessions, when socialising with others who share a common problem is so important. It contributes to the overall 'clubby' atmosphere.

Copying this idea is strongly recommended.

5.2.16 Building access and parking

Naturally, with so many disabled users visiting the pool, excellent wheelchair access is paramount. Fully automatic doors into the pool building are not recommended, since a proximity sensor will cause the doors to be opened too many times and for too long for energy efficiency. A simple knob or pressure pad to operate the doors should be preferred.

Parking for disabled users very near to the entrance is essential and for others within a short distance is highly desirable. The parking area should be tarmac or concrete, not gravel, which is very unfriendly to wheelchair users.

5.2.17 Staff facilities

Staff need a separate changing area, shower and toilet. It should be large enough for at least two, with a curtain which can be drawn for privacy when required. A compact kitchen area will also be needed.

5.2.18 Utility room

Laundry facilities and a drying room for client and staff swimwear and towels should be provided.

A sluice for mops is useful.

5.2.19 Storeroom

A storage facility for pool paraphernalia and other materials and objects should be provided.

5.2.20 Plant room

Again, there is a dilemma between providing sufficient space for ease of maintenance, and perhaps also allowing the subsequent addition of equipment, against building costs. All we can advise is that in the majority of cases we seem to hear opinions of designers erring too much on the side of cost-saving.

A range of energy conservation and recovery methods are available for modern pools. These include heat pumps and advanced heat exchanges. Their deployment could result in significantly increased capital expenditure but this might be justified against savings in operating costs.

5.3 Utilities

We were advised that dealing with energy providers is straightforward. However, trying to obtain definitive advice from Thames Water is somewhat more difficult. The greatest problem lies in emptying the pool, either for planned maintenance or emergency. In either case it is important that the emptying and refilling processes are as rapid as possible in order to limit downtime.

Naturally the size of the incoming mains supply affects the speed of filling a pool. Of greater concern is the size of outgoing sewer, since emptying a pool too quickly could result in flooding in the network, not necessarily in the immediate locality. For this reason when a large volume of water is dumped, as when a pool is emptied, a formal consent needs to be obtained. This costs £150 and the normal notice period is fourteen days (though in many cases it can be turned around much faster, even overnight).

A 'normal' volume of daily waste water is not a problem. However, no guidelines could be provided by Thames Water on the threshold between 'normal' and 'abnormal'. It seems that each instance is determined on a case-by-case basis. The temperature of water disposed of also seems of no concern to Thames Water (though this is contrary to the advice given by one pool manager).

We heard from both pool managers and Thames Water of these regulations being completely ignored, though doing so obviously carries a risk.

A Senior Consultant in the Waste Water Quality Department of Thames Water suggested that the way forward would be to have a discussion when the location is settled, the volume of the pool is known and the local conditions can be determined. At this stage it might be necessary to replace or improve the local sewerage network and it might prove possible to issue a blanket dispensation, possibly restricted to certain hours.



6. Marketing

6.1 Promotion

There is no greater mistake that can be made by an enterprise of this kind than to think that as soon as it is built and opened the world will beat a path to the door. It took Thamesdown two full years of operation before the number of users regularly exceeded 1,000 per month, close to the current levels.

It needs to be promoted and constantly 'sold' like a product or service from any other business. In this way the community will benefit by having the benefits of hydrotherapy and the availability of a nearby resource pointed out; and the pool will benefit by having more clients, hence ensuring its continuing viability and controlling costs, and therefore prices, to clients.

Some of the likely successful means of promotion are:

Brochure

A simple D5 (A4 folded into three) colour brochure should be sufficient to spell out the key facts. These are cheap to produce can be and handed out in generous quantities in doctors' surgeries, libraries, hospitals, physiotherapy clinics, sports clubs, swimming pools and elsewhere. Support groups should be sent their own supplies.

Directories

These include general directories - everything from Yellow Pages to the myriad of local online directories now springing up. There are also some very specialist directories that would list a hydrotherapy pool - for instance the Berkshire Disability Information Network (BDIN), which is funded by Berkshire PCTs.

Posters

For much the same organisations as targeted with brochures: doctors' surgeries, libraries, hospitals, physiotherapy clinics, sports clubs, swimming pools, etc.

Website

The pool should have its own dedicated website and this can have more detail than the brochure, including photographs and downloads. Later, more sophisticated facilities might be an online booking form and online donations.

PR

A hydrotherapy pool in West Berkshire should be a high profile resource, especially at time of launch, when substantial publicity can be anticipated. The local newspapers will be no problem, radio should be achievable and TV a possibility, especially if a suitable celebrity agrees to formally open it. The greater challenge will be to keep it in the limelight. Publicising success stories is one way, fund-raising events another.

Visits

Potential referrers - hospital consultants, physiotherapists, GPs, Practice Mangers, Practice Nurses, organisers of support groups, etc. - should be invited to visit, either for Open Days with presentations and perhaps a social dimension, or to see the pool in action during working hours.

Paid for advertising is unlikely to provide a good return on investment (unless space is given free of charge). However, another possible idea could be a 'Referral pad' for GPs to keep beside them, rather like the old-fashioned prescriptions they used to hand out. Then there is a whole range of 'gimmicky ploys', such as a "Hydrotherapy cured me" badge.

We recommend the appointment of a part-time promotions manager. It is almost certain that a suitable person can be found who is retired or is enjoying a career break while bringing up children. This should be a voluntary position, with expenses paid.

Besides masterminding the promotion plan, his/her duties would include copywriting, organising design and production, liaising with press and media and, as far as possible, persuading suppliers to donate their services without charge (printers, website designers, etc.).

6.2 Pricing

We believe that the West Berkshire Hydrotherapy Pool should have a price list which reflects both costs and the prices which many or most users would be prepared to pay. We have spoken to many individual users and concluded that for most demand is price inelastic; for groups this is not so clear cut since for some finding funds for regular hydrotherapy sessions is difficult. We therefore suggest that subsidies should not be provided across the board (as they are, for instance, at Thamesdown), but they should be targeted at the individuals and groups which need them.

Based on our research, both in specifically discussing this issue with many users and observing the pricing strategies of other pools, we recommended the following base schedule of prices:

Individuals on a referred client (or 'pay-as-you-go') basis

- Initial assessment by a qualified hydrotherapist: £20. (For some referrals, for instance from a qualified physiotherapist, this might be waived.)
- Subsequent visits: £6 per nominal 40-minute session (when the pool is not busy then this may be optionally extended to an hour).
- One-to-one 40-minute sessions (in the pool or in the dry physiotherapy consulting room) with a qualified consultant: £40.
- Carers and, at the supervisor's discretion, family of the client: £3 per session.

Groups

- Exclusive group hire with supervision by a life-saver: £60 for a 40-minute session or £80 for one hour.
- Exclusive group hire with supervision by a qualified hydrotherapist as well as a life-saver/assistant (e.g. for classes): £100 for a 40-minute session or £130 for one hour.

Subsidies

- Any individual or group may apply to the manager on duty for a subsidy/discount, with the balance paid out of donations. The manager has discretion to award a 50% discount providing adequate funds are available and all such discounts will be notified to the Management Board.
- Any applications for discounts greater than 50% must be referred to the Board in advance.

Car parking

- If the hydrotherapy pool is co-located with West Berkshire Community Hospital and follows the same car park charging scheme then each visiting vehicle will yield an additional £1. We assume that this will be reimbursed to bona fide pool users.

How do these proposed prices compare with local 'competition'?

Thamesdown is subsidised across the board, at the rate of 50%, so for comparison purposes its prices must be doubled. On this adjusted basis Thamesdown charges £6 per session (typically for 40 minutes maximum) for referred clients (with discounts for children of 6 or under). Groups are generally charged an adjusted £50 per session (half for borough schools in return for the land on a peppercorn lease). There appears to be no separate charge for the services of a qualified hydrotherapist. All of these charges are being reviewed and will rise shortly.

Brookfields, a private, profit-making clinic, charges £5 per pool visit for an individual, following a consultation. For both hydrotherapy and dry physiotherapy, initial consultations are charged at £45-55 and subsequent treatments at £40-50. Group charges are by negotiation - for instance, a Cancer Care group, which takes along its own physio, is charged £30 for a 90-minute session, while both the MS Society and the Stroke Club, each of which are led by a Brookfields hydrotherapist pay £45 for a 45-minute session.

Phil Harris, who runs a private clinic, charges £45 for an initial consultation of up to one hour and £30 for subsequent treatments of typically half an hour.

The Lilley Clinic charges £40 for an initial assessment and £35 for subsequent treatment session, each of 30-minute duration.

It might be worth trying some price 'packages' - for instance, an assessment and two visits per week for six weeks for a single charge, paid in advance, at a 15% discount compared to normal prices. The advantage of price plans such as this are that they keep clients focused on their treatment; they are less inclined to skip a visit because they are tired or it is raining. There may also be a benefit to the client if they are claiming on health insurance - funding a single 'course of treatment' will be easier than justifying continuing one-off visits.

We anticipate that in the worst case the result of price packages will be revenue neutral, but they are more likely to boost revenue.

6.3 Fund-raising

There is evidence that it is not difficult to raise funds to support a hydrotherapy pool. Half of Thamesdown's income is from fund-raising and we heard of a pool at Northwick Park hospital, in NW London, being entirely funded by London cabbies' fund-raising activities.

The appeal to the public of hydrotherapy probably lies in its benefits to a wide range of disabled and disadvantaged people, including children. It is also local and tangible, rather less of a 'black hole' than donating into the general funds of many large national charities, however, worthy.

As outlined in the proposed pricing plan above, we propose that a range of fund-raising activities be conducted in order to subsidise individuals and groups who need discounts. A fund will be created and the whole of it will be available for spending on subsidies. Additionally the Board of Trustees of the pool may choose to channel some of the surpluses of income over expenditure into the same fund.

We propose the creation of a 'Friends of West Berkshire Hydrotherapy Pool' organisation. It will have its own committee and be run at arms length from the pool itself.

Some larger local businesses are likely to be substantial donors. There will also be smaller donations from individuals, groups, pubs, etc. In due course the pool might benefit from bequeaths.

However, proactive community fund-raising should also be pursued, not only for its revenue impact but also because it is consistent with the feeling of this being a community resource. Activities such as marathons, 'swimathons' and simply collecting at the racecourse should become routine.

7. Management and Staffing

7.1 Legal entity and taxation

We are advised that the preferred type of entity is that of a Social Enterprise. The advantages and disadvantages of this have not been explored but we anticipate assistance and advice from Social Enterprise Berkshire and also from Greenham Common Trust, which is itself a Social Enterprise.

Similarly the duties and composition of the Board of Trustees are not clear.

And finally the tax position of a Social Enterprise is unknown. In particular the VAT position should be ascertained without delay, since if VAT has to be levied on charges then it will have a considerable impact on revenues.

These matters have been highlighted not because we have answers - and it is outside our brief to seek them - but as an *aide memoire* for those undertaking the next stage.

7.2 Staffing

Here we describe feasible staffing levels in year three. Four staff, two qualified and two unqualified assistants will be required to provide full cover, comprising one of each during core opening hours, and minimum supervision/life-saving when the pool is hired out in the evenings and weekends.

If it is accepted that client numbers and revenue will be built over a period of two years or more before reaching a stable plateau then it is possible that in the early stages of the enterprise a lower level of staffing - with fewer full-time staff and possibly part-time employees - might be feasible.

7.2.1 Manager

The manager of the pool, and whole enterprise on a day-to-day basis, should be a qualified and experienced physiotherapist and hydrotherapist. He/she must also be used to managing other people and have some business acumen. A typical profile might be an assistant manager in a hospital or private clinic looking for a career step-up.

The manager will lead the therapy activities of the enterprise (both in the pool and in the 'dry' consulting room). He/she will take responsibility for safety, water quality and the functioning of equipment. He/she will also have responsibility for liaising with the Board of Trustees, preparing budgets, etc. and, we propose, have a degree of discretion over discounts and subsidies.

HCAP has been very helpful in sending us information on NHS pay scales for 2006/07. For the type of person described above the chairman of HCAP recommends a Band 7 salary, which is in the range £27,622 to £36,416 pa.

7.2.2 Assistant manager

The assistant manager should also be a qualified physiotherapist, though experience in hydrotherapy might not be essential since training could be provided.

His/her duties will also include therapy and he/she will be an active deputy to the manager in all other respects. HCAP recommends a person fairly recently qualified, at Band 5 and therefore in a salary range of £19,166 to £24,803 pa.

7.2.3 Unqualified assistants

Like the manager and assistant managers, unqualified assistants should also be certified life-savers. Their other duties will include bookings, running aquarobics classes, helping clients and carers in a range of situations and keeping the building tidy and a pleasant place in which to receive therapy.

There is no reason why this should not be an entry point into a career centred around physiotherapy and hydrotherapy. HCAP recommends a Band 2 pay scale of between £12,177 and £15,107.

7.2.4 Part-time work and temporary employees

The roles of assistant manager and unqualified assistants could be filled by part-time employees, such as parents not able to undertake a full-time job.

It is equally probable that cover in the event of sickness or annual leave could be covered from within the local community rather than resorting to agency staff.

7.2.5 Outsourcing

While we consider the main functions described above unsuitable for outsourcing, all maintenance and cleaning should be outsourced.

7.2.6 Voluntary staff

We anticipate the members of the Board of Trustees being unpaid volunteers (indeed a recent court ruling found that paying a member of the board of a charity affected its tax status). We also suggest seeking a volunteer to spearhead promotional activities and that a committee of volunteers runs the 'Friends of' organisation.

It is possible, too, that one or more administrative positions could be created on a voluntary basis - for instance, a receptionist/booking clerk or a part-time secretarial assistant.

7.2.7 Positions for disabled staff

We were asked to examine the potential for the enterprise to employ disabled staff. Because of their life-saving duties and the need to provide physical therapies we feel that none of the full-time positions will be easily justifiable for disabled staff. In the case of all voluntary positions the opposite is the case.

7.3 Insurance

A range of building, public liability, trustee indemnity and possibly other insurances will be required. The manager of Thamesdown assured us that we are unlikely to have any onerous conditions imposed. Provided the pool is operated to appropriate standards and best possible practice is followed there should be no major issues.

8. Financial Model

8.1 Capital cost and reserves

It is outside the scope of this report to estimate the capital cost of building, pool installation and equipping. In any case, there are too many unknowns - for instance whether the cost of land should be included (we have assumed a peppercorn lease).

However, it is noted that the WBNA has a figure of £750,000 in mind, which is the same as the cost of a new pool at the Oxford Nuffield Hospital. The hydrotherapy suite at Royal Berks, completed in September 2006, is said to have cost £817,000.

A question arises whether a reserve should be accumulated in order to pay for an unforeseen and uninsured disaster or simply replacement in 25 or so years. The Board of Trustees of Thamesdown (Swindon) have decided that six months of income represents a suitable reserve and this is held in a deposit account (also generating useful income interest).

Should the Board of Trustees of the West Berkshire pool make a similar decision then it is recommended that accumulation of such a reserve begins after usage and income have settled down, which might take up to two or three years, at which time a modest surplus of income over expenditure should enable a suitable sum to be established over a period of about five years. Alternatively, unrestricted donations and bequeaths could be used for this purpose.

Conversely, working capital during the start-up and ramp-up periods will be required. By start-up we mean that before the pool is operational staff will be recruited and trained and there will also be costs associated with energy, water, insurance, communications, office expenses, marketing, etc.

We assume that a full income stream will not be achieved before the third year of operation. Although some costs can be deferred until that period (e.g. a fourth member of staff) most of the rest cannot. The shortfall in income vs expenditure will need to be funded.

8.2 Operational costs

The following analysis relates to the third full year of operation (and assumes constant 2006/07 prices). Further work needs to be undertaken to estimate costs during the ramp-up period, which is assumed to be two years in duration.

The largest item is for staffing and related costs, representing some 70% of the total. This has been carefully researched and calculated on a bottom-up basis.

Estimates for other items have either been based upon experience at Thamesdown (which kindly provided us a copy of its accounts) or have been based on general business/office averages.

In most cases we have erred on the side of caution. A competent manager will sweat away some of these costs.

Year Three Cost Estimates

£'000				Notes
	<i>Gross salaries</i>	<i>NI: 12.8% x (GS-5K)</i>	<i>Pension: 6% x GS</i>	
<i>Manager</i>	33	3.6	2.0	<i>mid-point plus in band</i>
<i>Assistant Manager</i>	23	2.3	1.4	<i>mid-point in band</i>
<i>Unqualified assistant 1</i>	13.5	1.1	0.8	<i>mid-point in band</i>
<i>Unqualified assistant 2</i>	13.5	1.1	0.8	<i>mid-point in band</i>
<i>Totals</i>	83.0	8.1	5.0	
<i>Temporary staffing</i>	8.3			<i>based on 10% of gross salaries total</i>
<i>Staff training costs</i>	2			
Total staff and related costs			106	
Cleaning			3	outsourced
Maintenance & repairs			6	outsourced
Water			3	Thamesdown £3,200
Energy (assuming some energy-saving measures)			7	Thamesdown £9,000
Chemicals & pool sundries			5	Thamesdown £4,900
Insurance			5	Thamesdown £4,200
Communications (telephone & internet)			1	
Marketing (printing, website, etc.)			3	a generous figure, assuming few donations
Office sundries			1	
Staff expenses - associated with management and marketing (e.g. travel)			2	
Audit			1	Thamesdown £800
Legal & professional			1	Thamesdown £1,200
Depreciation of plant & equipment			8	Thamesdown £8,100
TOTAL			152	

Notes

Capital reserve

At Trustees' discretion

Peppercorn lease

Assumed to be negligible

Business rates

We understand charities are entitled to 80% relief from rates and the remaining 20% is at the discretion of the local authority.

8.3 Operational revenues

To arrive at Year 3 revenue forecasts we take the usage summary from section 4.5 and apply the pricing suggested in section 6.2:

weekly	number	price	revenue	revenue less 15%
assessments	15	£20	£300	£255
normal visit	362	£6	£2172	£1846
carers & family	84	£3	£252	£214
40 min hire	1	£60	£60	£51
40 min hire + physio	7	£100	£700	£595
60 min hire	8	£80	£640	£544
60 min hire + physio	3	£130	£390	£331
Total			£4514	£3837

The above includes no charge for hospital usage. However, all revenues are discounted by 15% to reflect additional reasons for conservatism described in section 4.5.

Assuming a 50-week year (accounting for annual planned maintenance and two half-week unscheduled closures), a weekly revenue projection of £3837 implies annual revenues of £191,850. This is comfortably above the cost projection.

There can be an additional revenue stream from 'dry' physiotherapy. With two qualified physiotherapists and a suitably equipped consulting room it is not difficult to envisage two client sessions per day, at £40, resulting in further revenues of £20,000 pa.

Thamesdown achieves donations and fund-raising revenues of £80,000 pa. If a more conservative figure for West Berkshire is chosen - say, just £50,000 - then this will enable a generous range of discounts and subsidies, for instance:

- all support groups to pay 50% less;
- schools and the Ormonde Centre to pay 50% less;
- 30% of normal pool visits to pay 50% less.

Additionally the Board of Trustees may choose to transfer some of its revenue surplus to the subsidy fund.

8.4 Sensitivity

None of these figures, either on the cost side or revenue side, are unduly sensitive to a single factor.

The majority of revenue figures have a linear correlation with the number of users and with price levels. For instance, if the price levels suggested are unsustainable and are dropped by 10% then revenues will fall by roughly the same amount; or if usage figures are 5% higher then revenues will be 5% higher.

On the other hand the majority of costs are fixed. With the exception of a deliberate understaffing while demand ramps up, costs will vary little with demand. In fact, staffing levels and salaries are the single greatest factors affecting total costs.



Appendix A - Acknowledgements

We are grateful to the following for providing information and assistance during the course of this study:

Sponsors of the study

- Dr Fred & Molly Davison, Joint Secretaries of **West Berkshire Neurological Alliance** (Molly also being a hydrotherapy user)
- John Holt, Liaison Officer of **West Berkshire Neurological Alliance**

Authorities on hydrotherapy

- Mike Maynard, Chairman of the **Hydrotherapy Association of Physiotherapists** (HACP)
- Helen Whitelock, leading hydrotherapist, author and **authority on the design of hydrotherapy pools**

Those concerned with other hydrotherapy pool feasibility studies

- Greg Fletcher, representing **Colac Otway Shire** of Victoria, Australia (which had recently completed a feasibility study for a hydrotherapy pool)
- Geraldine Woollatt, of **Wishing Well Waters Hydrotherapy Resource Project** preparing a feasibility study for a hydrotherapy pool in Gwyneth, Wales (and also a user herself of one in Bangor)
- Martin Rowe, Chairman of the Friends Association for **Maplewood School**, High Wycombe (for children with learning difficulties), which is trying to raise the funding for a new pool.

Representing other hydrotherapy pools

- Thea Thomson, Physiotherapy Manager, **Royal Berks Foundation Trust** (which has a new hydrotherapy pool)
- Paul Charlwood, manager of **Thamesdown Hydrotherapy Pool, Swindon**
- Receptionist, **Worcester Citizens Swimming Pool** (a warm water facility of swimming pool dimensions)
- Dr Karen Barker, Physiotherapy Manager, **Oxford Nuffield Orthopaedic Hospital**
- Victoria Kerr Davis, owner/manager of **Brookfields Clinic**
- Jenny Gribble, Head of Swimming, **Prior's Court School**
- **Lya Turner**, who commissioned a feasibility study in Reading when the Battle Hospital pool was threatened with closure.

Hydrotherapy pool suppliers

- Marketing Assistant, **Arjo Pools Ltd.**
- Peter Fenton, MD of **Peter Fenton Pools Ltd.** (which installs swimming and hydrotherapy pools)

Utility

- **Thames Water:** Jean Bowen and Dave Wiltshire, of the Waste Water Quality Department.

Information sources for potential users

- John O'Neil, **Berkshire Disability Information Network**
- James Hamilton, West Berks **Social Services Physical Disabilities Team Manager**

West Berkshire Community Hospital

- Jan Bartlett, **Interim Area Director West Berkshire**
- Alison Cantlay, **Head of Physiotherapy**

Support groups for potential users

- Sue Kitchener, manager of the local **Age Concern** day centre
- Chreanne Montgomery-Smith, **Alzheimer's Society**
- **Arthritis Care**: ex-chairman of local branch, Lya Turner, the Regional Administrator for the South of England, Clare Mills, and the Regional Campaigns Manager for SE England, Siobhain McCurrach.
- The new Reading-based support group, **Arthritis Matters**, Kim Seabrook
- Emma McKeever, regional officer of **ASBAH** (Association of Hydrocephalus & Spina Bifida)
- Suzanne Oliver, **Newbury & District Cancer Care Trust**
- Maria Heron, Team Leader, **Charles Clore Unit of the Newbury Community Hospital** (Cancer Day Centre)
- Una Rennard, ex-regional co-ordinator of the **Dystonia Society** and Faith McKeever, who runs a support group in Oxford.
- Sue Tait, organiser of the **Reading Fibromyalgia Support Group**.
- Leila Ferguson, Chief Executive of **Mencap** (local branch)
- Ann Tuersley, **MS Society** (also an MS sufferer and user of hydrotherapy)
- Lisa Rees, local co-ordinator for the **National Childbirth Trust** and Lynn Woolacott, an **independent midwife**
- Joyce Parker, chairman of **Newbury Stroke Association** (and vice chairman of the WBNA) and Janet Sugden, who organises group hydrotherapy
- David Tait, manager of the **Ormonde Centre**
- Norman Jones, **Berkshire Polio Fellowship**
- John Shaw, South of England Community Development Manager for **SCOPE**

Private physiotherapy clinics

- Geoff Mitchell, **The Lilley Clinic**, Hungerford
- Phil Harris, the **Newbury Clinic**

Sports clubs

- Ian Lakey, **Newbury Cycling Club**
- Sally Carey, therapist for **Thatcham Town Football Club**
- Margaret Davison, secretary of **Newbury & Thatcham Hockey Club**
- Phil Harris, therapist to the **Newbury Rugby Club**

Representing special schools

- Ian Pearson, Head of Education Service, **West Berkshire Council**
- Jenny Gribble, Head of Swimming, **Prior's Court School**
- Eleanor Brooks, head of **Speenhamland Primary School**
- Graham Page, bursar of **Castle School**
- Jackie Crouch, who is employed by the health authority to provide hydrotherapy at **Speenhamland, Kennett and Mary Hare schools**

Appendix B - Bibliography

The following documents and websites were obtained and taken into account during the course of this study:

- **West Berkshire Council's** website: www.westberks.gov.uk
- **West Berkshire District Profile: People and Place** - demographics and trends
- **A Two-Way Street - A Compact for West Berkshire** (2006) shared principles for strengthening relationships between statutory and voluntary and community sector organisations
- **A National Service Framework (NSF) for Long-term Conditions** (2006), by the Department of Health

- HACP's **Costing a Hydrotherapy Service**
- HACP's **Hydrotherapy Pools - Considerations in Planning and Design** (1993)
- **The Australian Standard for Hydrotherapy Pools**, 2006
- Australian Physiotherapy Association: **Physiotherapy in the management of arthritis and musculoskeletal conditions** (Nov 2005)

- **Colac Otway Shire Hydrotherapy Pool Feasibility Study** (2005), by Melvin Recreation Management Consultants (also www.colacotway.vic.gov)
- The website of **Wishing Well Waters Hydrotherapy Resource Project**: www.wishingwellwaters.org.uk.
- **UnLtd**, the Foundation for Social Entrepreneurs (www.unltd.org.uk).
- A 1995 **Feasibility Study for a new Hydrotherapy Pool in Reading**

- The website of the **West Berkshire Neurological Alliance**: www.wbna.org.uk
- The Neurological Alliance's booklet **Neuro Numbers** (also www.neural.org.uk)
- **WBNA's demand study** for a 2005 exercise exploring the potential for a hydrotherapy resource at a new site to be acquired by Newbury Football Club
- The website of the **West Berkshire Disability Alliance**: www.dwib.org.uk

- The website of **Brookfields Physiotherapy Clinic**: www.brookfieldsphysio.co.uk.
- **Thamesdown Hydrotherapy Pool**, Swindon (www.thamesdownhydrotherapypool.com) various documents:
 - Marketing brochure
 - Current timetable
 - Request for treatment form
 - Friends of Thamesdown Hydrotherapy Pool flyer
 - 25th Anniversary brochure and history
 - Treasurer's Report for the year to 31.3.05
 - Financial Statements for the year to 31.3.05
 - Statistical analyses of usage 1982-2004

- **'Hydrotherapy, a health justification'**, by John Holt of the WBNA (reproduced in Appendix C, which immediately follows)



Appendix C - 'Hydrotherapy, a health justification'

Hydrotherapy, a health justification

**A review prepared in connection
with a feasibility study into a**

Hydrotherapy Pool for West Berkshire

November 2006

West Berkshire Neurological Alliance,

2, Clayhill Crescent, Newbury Berkshire RG14 2NP

Tel: 01635 33582

www.wbna.org.uk

Registered Charity No 1081021

Hydrotherapy, a health justification

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Section 1. Introduction.

1.1. Purpose of this review.

A feasibility study into the need for a hydrotherapy pool for West Berkshire was commissioned by West Berkshire Neurological Alliance in August 2006. One suggestion is that the pool might be located adjacent to West Berkshire Community Hospital in Thatcham, on land owned by the NHS, who with other interested parties, will require evidence of the health benefits of hydrotherapy. This review provides that evidence.

1. 2. Summary of findings.

This review finds that hydrotherapy provides a useful range of health benefits for several conditions and that these often are additional to and/or different from those that can be delivered from land-based physiotherapy. Other reviewers report there is a shortage of sound research information on the subject, that the health benefits vary between individuals may be limited, that some patients find hydrotherapy not helpful or a method of treatment with which they do not wish to take. Some general provisos about service requirements are identified.

1. 3. Definitions.

Hydrotherapy, sometimes referred to as balneotherapy, is the provision of specialist physiotherapy in warm water, typically at 32-36^o C. Hydrotherapy is sometimes given under one-to-one expert instruction by a trained therapist or may be taken in groups or may be continued on a self-supervised basis. Hydrotherapy is usually conducted in a pool constructed for such purposes and managed accordingly. Hydrotherapy involving mineralised water, air bubbles or damp towel hydrotherapy is excluded from West Berkshire Neurological Alliance's proposal for a hydrotherapy pool and these versions of therapy are not considered in this health justification.

1. 4. How the review was conducted.

Two databases, Medline and CINAHL, were the primary sources from where information was gathered. From the large number of publications available, 25 research abstracts were identified as relevant for inclusion in this review.

Throughout this review there are many comparisons to physiotherapy, as this is the yardstick most often used by clinicians and researchers to measure relative outcomes from hydrotherapy. There is nothing specific in this review to show that physiotherapy itself provides health benefits. Therefore it is appropriate to record that the NHS has accepted the effectiveness of some physiotherapy provision insomuch as the three Boards of Directors of the former West of Berkshire PCTs accepted the recommendations of the review of the local physiotherapy service undertaken in 2002-3. They then resourced and largely allowed implementation of those recommendations.

Section 2. Detailed findings of the review.

Four systematic review reports were found, of which two were general and two were specific to a condition or group of conditions. It is assumed there is some duplication of content amongst them. Evidence from 25 research abstracts is considered in total. Most references are to randomised control trials or to other research perceived to be of good or moderate quality. Sections 2.1. -2.10. relate primarily to effectiveness, while 2.11. -2.14. also relate to safety of hydrotherapy. Sections 2.15. -2.18. are included to describe some aspects of importance to patients and service commissioners, also some significant physiological changes that occur when the body is immersed.

2.1. Systematic reviews: all applications of hydrotherapy.

Two systematic reviews have been identified, both seeking evidence and reporting on good or moderate quality research into hydrotherapy in all its aspects.

Geytenbeek⁸ conducted a systematic search of ten medical databases, resulting in seventeen randomised control trials and twelve cohort trials being included into the appraisal. Two trials achieved appraisal scores indicating high quality evidence in the subjectively evaluated merit classification. Fifteen studies were deemed to provide moderate quality evidence for the effectiveness of hydrotherapy. The balance of high and moderate quality evidence supported benefit from hydrotherapy in the following: pain, function, self-efficacy and affect, joint mobility, strength and balance particularly among adults, and in patients with rheumatic conditions and chronic low back pain.

Queneau et al¹⁹, in France, identified twenty randomised trials, covering seven subject areas. Only four trials were double blind, while nine included a comparison of inter-groups evolution. They report 'The results suggest durable, persisting improvement several months after balneological care, in accordance with the criteria of: pain, handicap, quality of life, consumption of analgesics and of nonsteroidal anti-inflammatory drugs (NSAIDs).'

2.2. Ankylosing Spondylitis.

A 2006 Cochrane review abstract⁵ reports 'Scientists working with the Cochrane Musculo-skeletal Group found and analysed six studies testing over 500 people who had Ankylosing Spondylitis. Studies compared people who did exercises at home, went to group exercise programmes went to a spa resort for physiotherapy or had no therapy at all.' The review concludes that: 'Physiotherapy or exercises are helpful to people with AS.' 'There is 'silver level' evidence that home exercises are better than no exercises and improve movement in the spine and fitness.' 'Group exercises are better than home exercise and improve pain, stiffness, movement of the spine and overall well-being.' 'Adding a few weeks of exercise at a spa resort to weekly exercises is better than just weekly group exercises.'

2.3. Cerebral Palsy.

Hutzler et al¹¹ report on a trial involving 46 children with Cerebral Palsy, comparing the effects of hydrotherapy against a control group using Bobath physical therapy. At commencement lung function of the two groups was reduced against comparable normative data, with the control group improving by 23% and the hydrotherapy group by 65%, measured as lung vital capacity.

2.4. Fibromyalgia.

Mannerkorpi et al¹⁴ conducted a six month trial with 58 patients with fibromyalgia, randomly assigned to pool exercises or to a control group. Significantly, better differences were found for the hydrotherapy group as regards: Fibromyalgia Impact Score, 6 minute walk test, physical function, grip strength, pain severity, social functioning, psychological distress and quality of life.

2.5. Learning Disabilities.

No controlled trials on hydrotherapy and people with Learning Disability were identified. However, Boulter² reports that 'People with a learning disability are increasingly using hydrotherapy for exercise, socialising and the release of tension and energy. For those with a physical disability it offers the opportunity for independent activity from which they may be precluded outside the hydrotherapy pool.' Benefits of hydrotherapy to such patients are examined in detail.

2.6. Low back pain and leg pain.

Pittler et al¹⁸ conducted a meta analysis of randomised controlled trials on the hydrotherapy treatment of low back pain, utilising a systematic review, searching five databases to source their data. Five trials met their criteria for inclusion. They report that there is encouraging evidence that balneotherapy may be effective for treating patients with low back pain.

McIlveen and Robertson¹⁵ conducted a trial completed by 95 patients with low back pain, or with back and leg pain, using a treatment group and a delayed treatment group as a control, with blind assessment of a range of functions. They report a statistically greater number of patients who showed improvement in function when in treatment as against when not in treatment.

Yurtkuran et al²⁴ conducted a trial with 50 patients with low back pain assigned either to hydrotherapy or to land based exercise as control. They reported statistically significant improvements in visual analogue pain score, algometer tenderness, knee-chest distance, modified Schober test, lumbar extension, lateral flexing, finger to floor distance, and leg raising parameters at the end of treatment and continuing at later assessment, whereas the control group showed improvement only in pain.

Roberts and Freeman²¹ report on an audit of 81 patients, referred to hydrotherapy for low back pain, and carried out over 12 months. The audit recorded responses to hydrotherapy in terms of pain, range of motion, ability to perform tasks of daily living, treatment frequency and duration and hydrotherapy programme content. Results showed a highly significant beneficial response, but no control group was included in this study.

2.7. Osteoarthritis.

Cochrane et al³ conducted a controlled comparison trial with 312 patients with Osteoarthritis over a period of one year, using a range of measurements including the WOMAC pain score. They concluded that group based exercise in water over one year can produce a significant reduction in WOMAC pain scores and improvement in physical function in older adults with lower limb Osteoarthritis compared to control. They also reported a favourable cost benefit in the use of hydrotherapy.

Wyatt et al²³ compared hydrotherapy versus land based exercise in 46 patients with knee Osteoarthritis. They conclude that 'both aquatic and land based exercise programmes are beneficial to Osteoarthritis', finding that 'subjective pain levels were significantly less in the aquatic group when compared to the land based group'.

Norton et al¹⁶ conducted a trial on 17 women with Osteoarthritis in the age range 41-88, comparing an aquatics regime against a land based control group recording results using the Arthritis Impact Measurement Scales 2. Compared to the control group, where most measurements showed deterioration, the aquatic group showed positive effects on physical function and psycho-social-well-being.

Ahern et al¹ report on the clinical and psychological effects of hydrotherapy in rheumatic disease, as studied in a randomised trial where 22 patients continued with hydrotherapy while a control group of 8 had their treatment stopped. After four introductory days of hydrotherapy, improvements were measured in self-efficacy for function and pain, with resulting improvements in pain and stiffness scores. Those remaining on hydrotherapy maintained these improvements, while in the control group most of the variables had returned to pre-treatment values by four weeks.

2.8. Rheumatoid arthritis.

A Cochrane systematic review by Verhagen et al²² identified six trials meeting eligibility criteria, but all trials were found to be flawed to some extent, with pooling of the data not possible. The reviewer's conclusion states 'One cannot ignore the positive findings reported in most trials' and recommends that a large, methodologically sound trial is needed into hydrotherapeutic benefits for rheumatoid arthritis patients.

Hall et al¹⁰ report on a randomised and controlled trial of 139 patients with chronic rheumatoid arthritis. Patients were randomly assigned to hydrotherapy, seated immersion, land-based exercise or progressive relaxation. All patients improved physically and emotionally as assessed by the Arthritis Impact Measurement Scales 2 Questionnaire. In particular, hydrotherapy patients showed significantly greater improvement in joint tenderness and knee range of movement (women only). Although all patients experienced some benefits hydrotherapy produced the greatest improvements.

2.9. Spinal cord injury.

Kesiktas et al¹³ conducted a control case matched study with 20 spinal cord injury patients in two groups, the study group receiving hydrotherapy in addition to the interventions and therapies given to the controls, with various observations being recorded. Both groups showed improvements. The greatest additional significant improvements in the study group were decrease in oral baclofen intake (a muscle relaxant drug with sometimes significant side effects) and decrease in spasm severity.

2.10. Spinal Muscular Atrophy types II and III.

Cunha et al⁴ followed the evolution of 50 patients taking physiotherapy and hydrotherapy in a swimming pool. 50 patients receiving physiotherapy were given additional hydrotherapy at 30°C twice a week for two years. All the patients taking hydrotherapy showed an improvement in the Barthell Ladder scale despite overall progression in deformity of hips, knees and feet.

2.11. Postoperative shoulder.

Kelly et al¹² conducted a randomised, single blind experiment using electromyography to measure activation in six shoulder muscles in non impaired subjects, in and out of water. They report that shoulder elevation in water at slower speeds results in a significantly lower activation of the rotator cuff and synergistic muscles. This finding allows for use of hydrotherapy earlier the postoperative period following shoulder surgery without compromising patient safety.

2.12. Postoperative knee arthroplasty.

Erler et al⁷ investigated a special type of hydrotherapy for patients following the implant of a total knee arthroplasty. The results of treating 25 patients by this method were compared to those of 38 treated conventionally, without hydrotherapy, and to 20 healthy persons. Electromyography mapping showed a significantly better contraction capacity of the vastus intermedius muscle, which can lead to a better stabilisation of the knee joint. Early hydrotherapy treatment in such circumstances is recommended.

2.13. Myocardial infarction.

Davydova et al⁶ conducted safety studies in Russia on post-myocardial infarction patients and showed that underwater massage improved the clinical condition of 70% of those treated. Episodes of angina pectoris disappeared or became less frequent, pains attenuated and exercise tolerance was enhanced. They conclude that hydrotherapy is a safe alternative treatment for selected patients with post myocardial infarction.

2.14. COPD.

Perk et al¹⁷ studied cardio-respiratory parameters of COPD patients in physical training on land and in water in 20 patients and found hydrotherapy to be a safe alternative for non-hypoxemic normo-tensive COPD patients without cardiac failure.

2.15. Patient perceptions of benefits of hydrotherapy

No good or moderate quality research has been identified to present in its own right under the heading of patient perceptions of hydrotherapy. Several of the studies mentioned above cover this subject, to varying degrees.

A study entitled 'Exercise Therapy: Hydrotherapy as experienced by outpatients'²⁵ describes an unstructured interview research project into the patient experience of hydrotherapy. Patients describe: increased control over their lives and bodies, increased physical fitness, improved self-help and a feeling of well-being. The authors interviewed patients suffering

from rheumatic, traumatic and neurological conditions, with control reported as the dominant theme demonstrated in the main study, something not reported elsewhere above.

2.16. How hydrotherapy is different from physiotherapy. Hydrodynamics and physics of water based physiotherapy.

Reid-Campion²⁰, a Guy's trained hydrotherapy consultant describes that 'Water provides a unique medium in which to exercise. Due to its physical properties and characteristics, specific techniques that enhance movement, strengthen muscles, increase range of movement and develop balance and co-ordination can be employed in rehabilitation programmes.' The combinations of gravity and buoyancy, drag resistance and turbulence allow exploitation of the hydrodynamic principles of relative density, metacentre (balance in water), and pressure. Therapists use these principles to rotate patients in specific and controlled ways not possible on dry land.

Hold-relax techniques, stabilisations, repeated contractions and specialised breathing techniques can be used in a variety of floating positions, for precise muscle working to suit specific objectives.

2.17. The physiology of immersion in warm water.

Hall et al⁹ report that 'The physiological changes that occur when the human body is immersed in warm water up to the supra-sternal notch include a transfer of some 700 ml of blood from the calves to the cardio-thoracic compartment resulting in effects on the cardiovascular, renal, respiratory and haematological systems.' This article details a range of other physiological changes that arise during warm water immersion and contributes to the understanding as to how patients are sometimes able to undertake exercise that would otherwise be more difficult, painful or impossible on dry land.

2.18. Hydrotherapy within the NHS.

The NHS has not adopted a unified process of commissioning hydrotherapy pools or services. Such pools are commonly found on larger NHS premises. Locally there are such pools at NHS hospitals in the following population centres: Reading, Slough, Ascot, Basingstoke, Winchester, Portsmouth, Southampton, Salisbury, Bath, Swindon, Oxford, and Amersham and possibly others. The exact reasons leading to these investments are difficult to establish. However it is not unreasonable to suggest that the NHS committed to them as a result of widespread belief among clinicians and commissioners that hydrotherapy can deliver health benefits. Clinical referral by NHS doctors is widespread. The relatively small number of NHS pools favours NHS patients living in larger conurbations. Fatigue from travelling, or from the act of taking hydrotherapy, are factors likely to reduce uptake by prospective users resident in rural areas. In practice, travelling to an NHS pool in a neighbouring conurbation is an unlikely option as most pools are fully programmed and utilised.

Section 3. Discussion.

This review does not attempt to be comprehensive. It is likely that relevant research has been overlooked. There are many articles and research reports published advocating hydrotherapy for a range of other conditions, including Stroke, MS, Parkinson's disease, lower prevalence neurological conditions, muscular dystrophy, mastectomy, fractures, post and ante-natal and others. The quality of the research considered in this review was insufficient for inclusion of comments about the efficacy of hydrotherapy for these other conditions. Many authors recommend that more, robust research is needed in order to establish more information about the health benefits of hydrotherapy.

Hydrotherapy differs from land-based therapy because the medium of water allows the body to behave and be exercised in ways not possible on dry land. Research into hydrotherapy cannot readily include studies based on placebo double blind trials and similar 'gold standard' research methods, as patients will always be aware as to whether or not they have been in water or received land based therapy. Good research into hydrotherapy is limited, but there is clear evidence of improved health outcomes from it, both physical and psychological and across several groups of patients. Other research shows that hydrotherapy can be a safe alternative to land based exercise for some patients with serious medical conditions.

This review has found recurring evidence of improvements in aspects of pain, muscle function, self efficacy, strength, balance, quality of life, social function, psychological, pharmaceutical intake, and single research evidence of improved control and vital lung capacity. All these improvements are not reported by all studies, but improvements in one or more of these are reported for Ankylosing Spondylitis, Cerebral Palsy, Fibromyalgia, Learning Disabilities, low back pain, leg pain, Osteoarthritis, Rheumatoid Arthritis, Spinal cord injury and Spinal Muscular Atrophy. Safety studies confirm the efficacy of early use of hydrotherapy in postoperative shoulder and postoperative knee implant, and as an alternative treatment for patients with defined subsets of Myocardial infarction and COPD.

The long-standing investment in and use of hydrotherapy pools within the NHS and widespread evidence of referrals by doctors and other clinicians indicates good general levels of confidence among professional about the benefits of hydrotherapy. Hydrotherapy is practiced widely in Canada and Australia, also in other countries to a lesser extent.

As with many other therapies hydrotherapy is not a cure-all, has outcomes that may be specific to the individual and is a treatment that some patients may find objectionable, fatiguing or worse. To ensure that realisable health benefits are more likely to be secured hydrotherapy should normally be delivered via a process that includes, as a minimum, referral, formal assessment, programmed treatment accompanied by close observation, and regular review. Service should be provided in purpose built, professionally managed premises, in particular ensuring safe water quality and a generally safe and protective environment on the assumption that some clients may be vulnerable individuals.

Section 4.

4.1. Acknowledgements. The search assistance of Andrew Lane, Alison Cantlay and Thea Thomson is gratefully acknowledged.

4.2. Biography.

John Holt, Liaison Officer for West Berkshire Neurological Alliance, compiled this review. The Alliance is an organisation for local neurological charities and others.

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Appendix D - Analysis of Thamesdown's Referred Clients

TOTAL	1406				
Musculoskeletal	851	:	Ankylosing S	16	
	61%		Arthritis	335	: <i>Psoriatic Artropathy</i> 9
					<i>General</i> 69
					<i>Juvenile</i> 3
					<i>Osteo</i> 207
					<i>Rheumatoid</i> 47
			Hip	27	
			Joint	10	
			Knee	36	
			Leg	9	
			Muscle	9	
			Muscular Dystrophy	5	
			Osteoporosis	29	
			Paget's	1	
			Perthe's	13	
			RSI	1	
			Shoulder	36	
			Spine/neck/back	316	: <i>Back</i> 249
					<i>Neck</i> 25
					<i>Sacro-Iliac</i> 1
					<i>Sciatica</i> 14
					<i>Scolliosis</i> 7
					<i>Spine</i> 20
			miscellaneous	8	
Neurological	166	:	Alzheimer's	1	
	12%		Asperger's	1	
			Cerebral Palsy	45	
			Charcot MT	1	
			CVA	10	
			F's Ataxia	1	
			Fibromyalgia	37	
			GB syndrome	2	
			Haemaplegia	9	
			Huntingdon's	3	
			ME Fatigue	8	
			Migraine	1	
			MS	18	
			Parkinson's	6	
			Polio	4	
			Post Viral Fatigue	1	
			Spastic quadriplegia	6	
			Spina Bifida	3	
			Stroke	9	
			unspecified	3	

Learning difficulties	54 4%	:	Autism	6
			Behavioural	1
			Dementia	2
			Developmental delay	5
			Down's	10
			unspecified	30
Post-operative	153 11%	:	Amputee	4
			Bunionectomy	2
			Discectomy	8
			Hip replacement	56
			Hysterectomy	1
			Knee replacement	56
			unspecified	26
Cardiovascular	22 2%	:	Angina	2
			Arterial disease	1
			DVT	1
			Hypertension	4
			Ischaemic	3
			unspecified heart	11
Respiratory	16 1%	:	Asthma	10
			Emphysema	1
			unspecified	5
Cancer	8 1%	:	Leukaemia	1
			unspecified	7
Accidents	69 5%	:	Dislocation	2
			Fracture	33
			Head	4
			Multiple	2
			Road Traffic	10
			Sprain	2
			Whiplash	14
			unspecified	2
other	67 5%	:	Anxiety	2
			Blind	1
			Deaf	2
			Depression	5
			Diabetes	9
			Obesity	9
			Physical handicap	4
			misc	35

Note that some classifications are far from straightforward. For instance, is a stroke cardiovascular or neurological? Some spinal problems might be neurological, others ligaments, etc.

Appendix E - Profundus Consulting Ltd.

Profundus is a specialist consultancy dedicated to providing research services, strategic advice and fast-track implementation programmes.

The main market of Profundus has historically been the information and communications technology (ICT) industry. However, in recent years this has shifted towards local and regional government bodies, mainly in the UK.

The range of consultancy skills available include:

- market studies
- market modelling
- business planning
- market entry strategies
- satisfaction surveys
- market testing
- product launches
- distribution strategies

Some Profundus clients

Telecommunications operators:

British Telecom
Cable & Wireless
Deutsche Telekom
NTL
Thus

Public Sector:

European Commission
Enterprise Ireland
The Welsh Assembly
Norfolk County Council
Observatoire des Télécoms.
Scottish Development Agency

Equipment suppliers:

Ericsson
Hughes
Lucent/Avaya
Microsoft

Major Consultancies:

Ovum
PriceWaterhouseCoopers
Yale Consulting
Cornwell Management Consultants

Others:

BBC
Japanese Inst. of Overseas Investment

Examples of Profundus Projects

- A confidential study for the Covert Investigations Policy unit of the Home Office included a **series of interviews** with senior representatives of telecommunications operators, ISPs, Ofcom and others. From the resulting analysis a number of recommendations were made concerning future operations.
- Cornwell Management Consultants plc, won a major study on Public Sector Broadband Aggregation for the Welsh Assembly. Profundus was subcontracted to manage and lead one of the three parallel tasks, to **ascertain the present and future requirements of public sector bodies** in Wales, in respect of telecommunications generally and broadband in particular. We then contributed to the appraisal of options and business planning.
- A manufacturer of consumer durables, enjoying considerable success with its core product, was beginning to see a flattening of sales in the face of increased competition. Profundus was tasked to **undertake research and produce a market model**, which would be used for forecasting and strategic decision making.
- A county council secured grant funding for the development of a broadband strategy. Profundus was contracted to undertake a **demand assessment** to determine demand levels **by location, sector and user types** and then to build a sophisticated demand model, including a geographic representation of demand using a GIS tool. Finally, Profundus was asked to recommend a number of **strategic options**.

- The research arm of a Japanese bank was conducting a review of **investment opportunities** in the European and US telecoms industries. Profundus was invited to prepare papers on each, expressing views of events, key issues and future prospects.
- An overseas operator wished to explore new ways of utilising the paging networks of several European countries. Profundus **researched the current state of the paging market** in five countries and produced profiles of the principal operators in each. In addition, forecasting indices relevant to **a number of new applications were researched** in order that an advanced forecasting model could be developed.
- A leading manufacturer of electronic organisers required a **study of its customer base** in order to ascertain how closely the profile of its users matched company targets and to check likes and preferences for a future development programme.
- A software company was finalising plans for the launch of a new office product aimed at SMEs. Wanting to understand more about the current practices and needs of this group of customers, the client commissioned Profundus to **research a number of case studies**.
- A training services company believed that it could extend its sphere of operation to certain Eastern European countries. Profundus was commissioned to **research the markets** in Romania and the Czech Republic **and to conduct interviews** in those countries with potential customers.
- Profundus contributed to a major EC study on the future of mobile communications. The project **examined marketing, technical, political and social issues**, described a likely future scenario and made recommendations for regulation.
- **Telecoms opportunities in the UK construction sector were researched** for a supplier developing a vertical marketing approach.
- A consultancy, part of an international group of architects, required assistance in **marketing a research project**. A comprehensive plan was drawn up and assistance was provided in producing a brochure, arranging direct mail, establishing telesales and other marketing activities.
- For the consultant to a UK merchant bank, Profundus undertook a **confidential assessment of the marketing plan** for a software house seeking additional funding.

The consultant for this study was **Kevin Carter**, the managing director of Profundus. He has over 25 years experience in marketing, business development and research, latterly as a consultant specialising in the marketing of products and services in telecommunications and information technology. He has led and participated in a wide range of assignments in the UK and the Europe.

Assignments include market studies, business planning, strategic marketing reviews, market modelling and acquisition studies. A particular feature of many studies has been market segmentation, and especially an understanding of small businesses.

Kevin has personal specialisations in market modelling and market planning, but the majority of his work now is to project manage his company's studies. He became a full member of the Chartered Institute of Marketing over 25 years ago. He is well known on the conference circuit and has at various times been a media spokesman.

Kevin has lived, with his family, in West Berkshire for 22 years. He has a good knowledge of locations, familiarity with local issues and a number of useful local contacts. He has participated in the running of various fund-raising activities on behalf of local and national charities, including the running of an annual croquet tournament at multiple locations across the country in aid of Cancer Research UK.