Cystic Fibrosis Ireland

Proposal for a Cystic Fibrosis shared care centre in Cavan General Hospital and inclusion of dedicated outpatient and inpatient CF facilities in the Development Plan for Cavan General Hospital

TSA Consultancy | April 2013
Proposal for development of a shared care CF centre in Cavan General Hospital

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Acknowledgments

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Thanks in particular to Raymond Dunne for his support and guidance throughout the period of the research.

A list of the individuals consulted is contained in the report on page 6.
1 Introduction and background

This report has been commissioned by Cystic Fibrosis Ireland (CFI) in order to identify the current and projected needs for dedicated inpatient beds for Cystic Fibrosis (CF) patients in Cavan-Monaghan Hospital.

The proposal has been developed following consultation with management, consultants and other clinical staff in Cavan general hospital.

Ireland has the highest incidence of CF in the world, almost 4 times the average rate in other EU countries and the United States.\(^1\) Cavan has the second highest incidence of CF in Ireland, and Cavan General Hospital is an important regional centre for cystic fibrosis in Ireland. The hospital serves the following counties: Cavan, Monaghan, North Longford, North Meath and East Leitrim. At present, there are no dedicated facilities for CF patients in the hospital.

TSA Consultancy has been contracted to undertake the research.

1.1 Objectives of research

The terms of reference document identifies the following questions to be addressed:

- Are dedicated inpatient rooms and outpatient facilities needed in Cavan-Monaghan Hospital for adult and paediatric patients with Cystic Fibrosis (CF)?
- If yes, how many rooms are required based on present and projected patient numbers and clinical need?
- What options are there available to provide such dedicated rooms within the hospital (for example refurbishment of an existing facilities or new build)?
- What is the optimum general specification for the design of such rooms?
- What is the minimum and optimum level of staff cover needed as a consequence of new inpatient and out-patient facilities in Cavan-Monaghan hospital compared the present level?
- What is the approximate cost of providing additional rooms?

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• How can this project be funded, including from a range of possible sources?

1.2 Methodology

In addressing the above questions, desk research and interviews with key informants were undertaken. Desk research included studying a number of published reports on CF, as well as data and statistics on the incidence of CF in Ireland. Documents consulted included:

• The Pollock Report (2005)
• Health Service Executive (HSE) CF Services Report (2009)
• European Cystic Fibrosis Society (ECFS) standards of care (2005)
• Cystic Fibrosis Registry data/patient numbers (2007-2011)
• Cavan Branch CFI - a proposal from Cavan Branch of the Cystic Fibrosis Association of Ireland for a Shared Care Centre in Cavan General Hospital. June 2012.

Interviews were conducted with people with CF and with patient advocacy organisations, clinicians, hospital management, technical experts in the built environment and others. Those consulted are outlined in the table below.

<table>
<thead>
<tr>
<th>TABLE 1-1 CONSULTATIONS UNDERTAKEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raymond Dunne</td>
</tr>
<tr>
<td>Lorraine O’Neill</td>
</tr>
<tr>
<td>Karen Keogan</td>
</tr>
<tr>
<td>Caroline Higgins</td>
</tr>
<tr>
<td>Tess Brady</td>
</tr>
<tr>
<td>Philip Watt</td>
</tr>
<tr>
<td>Manfredi Anello</td>
</tr>
<tr>
<td>Bernie Walsh</td>
</tr>
<tr>
<td>Evelyn Hall</td>
</tr>
<tr>
<td>Dr Alan Finan</td>
</tr>
<tr>
<td>Dr Ann Leahy</td>
</tr>
<tr>
<td>Dr James Hayes</td>
</tr>
<tr>
<td>Claire Lynch</td>
</tr>
<tr>
<td>Gerry Tully</td>
</tr>
<tr>
<td>Damien Tully</td>
</tr>
<tr>
<td>Niamh Meehan</td>
</tr>
</tbody>
</table>
1.3 Format of report

Section 2 provides an overview of CF in Ireland, including statistics on the incidence, outcomes, provision of services and key policy provisions.

Section 3 describes the current provision of services and need for CF inpatient services in Cavan Hospital.

Section 4 outlines specifications required for dedicated CF facilities.

Section 5 discusses potential options and costs for the delivery of dedicated inpatient beds for CF patients in Cavan Hospital.

Finally, Section 6 provides a series of recommendations for meeting the needs of CF patients in Cavan General Hospital.
2 A profile of Cystic Fibrosis in Ireland

2.1 Cystic Fibrosis

Cystic Fibrosis (CF) is Ireland’s most common life-threatening inherited disease. Approximately 1 in 19 people in Ireland are carriers of the CF gene (compared to 1 in 25 in the UK) and where two carriers parent a child together, there is a 1 in 4 chance of the baby being born with Cystic Fibrosis.

CF damages many organs including the lungs, the pancreas, the digestive tract and the reproductive system. It causes a thick and sticky mucus to be produced, which blocks the bronchial tubes and prevents the body’s natural enzymes from digesting food. Cystic Fibrosis primarily affects the lungs and the digestive system.

A build up of mucus can make it difficult to clear bacteria and leads to cycles of lung infections and inflammation, which can eventually lead to damage of the lungs. CF can also make it difficult to digest and absorb adequate nutrients from food. Mucus blocks the duct of the pancreas, preventing enzymes from reaching the intestines to digest food.

As a result, persons with CF must consume artificial enzymes with food to help them absorb adequate nutrition. They must also follow a demanding daily routine of physical therapy to keep the lungs free of congestion and infection.

There is no cure for CF, but, as therapeutic options have expanded over the last decade, significant advances have been achieved in both life expectancy and quality of life. Life expectancy has increased steadily over the past twenty years, and today CF is no longer exclusive to childhood. The symptoms and severity of CF vary from person to person. However, CF usually becomes more severe with age and affects both males and females in equal proportions.

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2.2 CF profile and data – the Cystic Fibrosis Registry of Ireland

The Cystic Fibrosis Registry of Ireland (CFRI) was established to keep relevant medical records of each patient with Cystic Fibrosis in a central computer system. It has been funded by the Department of Health and Children and the Health Service Executive (HSE) since its establishment in 2001. Over 300 clinical details are recorded each year for each person.

Each year CFRI publishes an annual report. The CFRI is currently analysing data collected in preparation for its 2011 report, but did provide data for the preparation of this report. According to these 2011 figures, there were 1,132 enrollees on the register which is a national increase of 88 (or 8.4 percent increase) on the register. The registry believes that it captures approximately 90% of all people with CF in Ireland.

COUNTY OF RESIDENCE

Unsurprisingly, the prevalence of CF patients is highest in Dublin: in 2010, 27% of CF patients (282 patients) were from Dublin. Cork had the next highest frequency of CF patients (13.2%, 138 patients). However, Cavan is the county with the second highest rate of CF per capita in Ireland (after Tipperary).

The table below outlines the number of patients with CF by county in 2011.

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3 A census recording the numbers of people with CF registered at CF centres and clinics in Ireland was performed by the CFRI in early 2010. A total of 1,160 people with CF were identified (of whom 1,044 had enrolled with the CFRI by the end of that year). This suggests that 90% of the known CF population in the Republic of Ireland has enrolled on the CFRI.
The table below provides the number of people with CF in the counties that fall entirely within (or partly within) the catchment area of Cavan General Hospital. Both Cavan and Monaghan have a disproportionately high population of PWCF on a per capita basis.

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# Table 2-1 People with CF by County of Residence (2011)

<table>
<thead>
<tr>
<th>County</th>
<th>No of PWCF</th>
<th>% of CF population</th>
<th>% age of national population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>9</td>
<td>0.8%</td>
<td></td>
</tr>
<tr>
<td>Carlow</td>
<td>14</td>
<td>1.2%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Cavan</td>
<td>24</td>
<td>2.10%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Clare</td>
<td>37</td>
<td>3.30%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Cork</td>
<td>140</td>
<td>12.40%</td>
<td>11.3%</td>
</tr>
<tr>
<td>Donegal</td>
<td>17</td>
<td>1.50%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Dublin</td>
<td>313</td>
<td>27.60%</td>
<td>27.7%</td>
</tr>
<tr>
<td>Galway</td>
<td>53</td>
<td>4.70%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Kerry</td>
<td>46</td>
<td>4.10%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Kildare</td>
<td>47</td>
<td>4.20%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Kilkenny</td>
<td>20</td>
<td>1.80%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Laois</td>
<td>20</td>
<td>1.80%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Leitrim</td>
<td>8</td>
<td>0.70%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Limerick</td>
<td>65</td>
<td>5.70%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Longford</td>
<td>6</td>
<td>0.50%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Louth</td>
<td>23</td>
<td>2.00%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Mayo</td>
<td>31</td>
<td>2.70%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Meath</td>
<td>41</td>
<td>3.60%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Monaghan</td>
<td>13</td>
<td>1.10%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Offaly</td>
<td>19</td>
<td>1.70%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Roscommon</td>
<td>9</td>
<td>0.80%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Sligo</td>
<td>14</td>
<td>1.20%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Tipperary</td>
<td>56</td>
<td>4.90%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Tyrone</td>
<td>1</td>
<td>--</td>
<td>0.1%</td>
</tr>
<tr>
<td>Waterford</td>
<td>21</td>
<td>1.90%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Westmeath</td>
<td>22</td>
<td>1.90%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Wexford</td>
<td>19</td>
<td>1.70%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Wicklow</td>
<td>44</td>
<td>3.90%</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

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4 For example, all of Cavan and Monaghan are within the catchment area, while parts of Leitrim, Longford and Meath fall within the catchment area.
TABLE 2-2 PEOPLE WITH CF BY COUNTY WITHIN THE CATCHMENT OF CAVAN GENERAL HOSPITAL (2011)

<table>
<thead>
<tr>
<th>County</th>
<th>No of PWCF</th>
<th>% of CF population in Ireland</th>
<th>County population as a % of national population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cavan</td>
<td>24</td>
<td>2.10%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Leitrim</td>
<td>8</td>
<td>0.70%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Longford</td>
<td>6</td>
<td>0.50%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Meath</td>
<td>41</td>
<td>3.60%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Monaghan</td>
<td>13</td>
<td>1.10%</td>
<td>1.3%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>92</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Some key headlines for the county Cavan data:

- 24 people with CF are included in the 2011 registry - this is an increase of 26% on 2010 figures (which reported 19 people with CF).
- Cavan has a disproportionately high CF population - according to the CFRI 2011 figures and a comparison with census data, it accounts for 2.1% of the CF population in Ireland, while it only accounts for 1.6% of the population in Ireland.\(^5\) Cavan has a prevalence rate of CF at 0.36 per 1,000 people, while the average prevalence rate for the country is 0.26 per 1,000.\(^6\)
- Cavan has a high proportion of young people with CF - some 58% of people with CF in Cavan are under the age of 18 years, compared with the national figure of 48%.

**RATIO OF ADULT TO PAEDIATRIC CF PATIENTS**

The age profile of PWCF has increased in recent years as patient outcomes and treatments and facilities have improved. According to CFRI, the ratio of adult to paediatric identified CF patients has increased each year since 2004 at a rate of approximately 2% per annum. Since 2007, the majority of those with CF are aged 18 years or older. In 2010, 54.5% of patients with CF identified were adults (aged over 18 years). 2011 figures are slightly lower, and 52% of those on the registry are 18 years and older.

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\(^5\) Limerick and Tipperary are the only counties with similar or higher per capita rates of CF.

\(^6\) Cavan Branch CFI – a proposal from Cavan Branch of the Cystic Fibrosis Association of Ireland for a Shared Care Centre in Cavan General Hospital. June 2012
The age profile of PWCF in County Cavan in 2011 is significantly lower than the national figure, and 42% of those on the registry are 18 years of age and older (58% under the age of 18 years).

The improved outcomes for PWCF is reflected in an increased median age of death for PWCF - the registry notes that the median age at death in 2010 for CF patients increased to 28.5 years from 25 years in 2009. However, the registry cautions about using this as a measure of CF survival as it describes the duration of life only in those patients who have died. Moreover, the HSE also notes that while life expectancy is constantly increasing, median age at death will invariably underestimate median survival.

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7 Figures are not yet available for 2011.
2.3 Factors affecting patients numbers and trends

The prognosis for Cystic Fibrosis has improved significantly in recent years, and patients have recorded greater longevity. Part of the reason for this is improved patient care and management, particularly through the establishment of dedicated CF centres. Research has indicated that differences in healthcare provision may be an important factor in CF survival.

**INCREASED AVAILABILITY OF SPECIALIST FACILITIES**

In recent years, the availability of specialised CF centres has ensured that a greater number of patients with CF have access to dedicated services necessary for good patient outcomes and consistent with consensus standards for CF care, including multi-disciplinary teams. There are eighteen CF centres in Ireland, of which five are adult CF centres with dedicated inpatient facilities. The centres with dedicated inpatient beds are based in St Vincent’s University Hospital (Dublin), Cork University Hospital, Mid-Western Regional Hospital (Limerick), Beaumont Hospital (Dublin) and Galway University Hospital.

Since 2010, developments that have taken place have improved access to both day facilities and inpatient facilities. At the time of writing this report, a number of these were nearing completion, including a day (ambulatory) facility with three (outpatient) treatment rooms in Our Lady of Lourdes Hospital, Drogheda; a facility in the Mid-Western Regional Hospital, Limerick, which will provide nine inpatient beds; and a development in St Vincent’s University Hospital was completed in summer 2012 which provides thirty-four dedicated inpatient beds for CF patients. At present, the total number of CF beds completed or in development in the country is sixty-one, as outlined in Table 2-3 below.

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9 According to Kerem et al, centre care is associated with better survival of CF patients. The authors note that there is moderate evidence from respected authorities, clinical findings, descriptive studies, or reports of expert committees to support this. Kerem, E., Conway, S., Elborn, S., and Heijerman, H. (2005). 'Standards of care for patients with cystic fibrosis: a European consensus.' Journal of Cystic Fibrosis, 2, (2005), 7-25.

TABLE 2.3  TOTAL NUMBER OF DEDICATED INPATIENT BEDS FOR CF PATIENTS IN OPERATION OR IN DEVELOPMENT

<table>
<thead>
<tr>
<th>CF centre</th>
<th>No of dedicated inpatient beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>St Vincent’s University Hospital</td>
<td>34</td>
</tr>
<tr>
<td>Mid-Western Regional Hospital, Limerick</td>
<td>9\textsuperscript{11}</td>
</tr>
<tr>
<td>Cork University Hospital</td>
<td>11\textsuperscript{12}</td>
</tr>
<tr>
<td>Beaumont Hospital</td>
<td>4</td>
</tr>
<tr>
<td>University Hospital Galway (UHG)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>61</strong></td>
</tr>
</tbody>
</table>

**AGE-RELATED COMPLICATIONS FOR CF PATIENTS**

As there is no cure for CF, patients rely on ongoing health services for treatment. Moreover, as people with CF age, their health needs become more complex and the rate of hospitalisation increases. According to CFRI:

*As people with CF age, their condition becomes more complicated. Adult PWCFs\textsuperscript{13} therefore have on average a greater number of hospitalisations, respiratory exacerbations and complications than their paediatric counterparts ... for adult PWCFs, hospitalisations, respiratory exacerbations and complications have increased in 2010. (p.23)\textsuperscript{14}*

CFRI includes data on hospitalisation for 412 adult patients in their annual report for 2010.\textsuperscript{15} The incidence of hospitalisations, exacerbations and complications are all higher for adults than for children with CF.

TABLE 2.4  HOSPITALISATIONS, EXACERBATIONS AND COMPLICATIONS AMONGST ADULTS WITH CF, 2010

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>Average per person with CF\textsuperscript{16}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of hospitalisations</td>
<td>493</td>
<td>1.2</td>
</tr>
<tr>
<td>Number of respiratory exacerbations requiring IV antibiotics</td>
<td>741</td>
<td>1.8</td>
</tr>
<tr>
<td>Number of complications</td>
<td>1,637</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*Source: CFRI Annual Report 2010*

\textsuperscript{11} In development
\textsuperscript{12} In development
\textsuperscript{13} People with Cystic Fibrosis
\textsuperscript{15} This is based on clinical information (annual assessment data) gathered. The number of CF patients for whom data is available is reflective of different data collection systems in hospitals and limited availability of data.
\textsuperscript{16} Based on a sample of 412 adults.
The number of days’ treatment for patients requiring IV antibiotics is illustrated in Figure 2.2 below. This indicates that a disproportionately high number of adults (18+ years) with CF were hospitalised in 2010 compared with CF patients under the age of 18, even when the age profile of all CF patients is taken into account. The number of hospitalisations amongst adult patients is 1.6 times the number of hospitalisations of paediatric patients, while the size of the adult population is 1.15 times the paediatric population.

This disproportionate relationship is underscored by the consideration that a higher proportion of people with CF aged over 18 years can administer IV antibiotics at home, compared with those aged under 18.

2.4 Standards of care for people with CF

2005 saw the publication of the *Standards of care for patients with cystic fibrosis: a European consensus*\(^\text{17}\), the aim of which is to define standards for routine evaluation, monitoring and treatments of patients with CF in Europe. In February 2005, the CFI published *Towards a Better Service* (the Pollock Report).\(^\text{18}\) This report summarised hospital services in Ireland for people with cystic fibrosis and produced recommendations for service development involving the establishment of nine specialist cystic fibrosis centres across the country. These publications were followed, in 2009, with *Services for People with Cystic Fibrosis*\(^\text{19}\), which was a report of a working group established by

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\(^{19}\) HSE, ‘Services for People with Cystic Fibrosis in Ireland. Conclusions of a Working Group established by the
the HSE to undertake a wide-ranging review of the current infrastructure for CF in Ireland.

All of these studies concur with regard to standards of service for people with CF, and with a ‘shared care’ methodology of service delivery, outlined below. The key elements of these standards include the provision of multi-disciplinary teams, infection control provisions as key elements of service planning, and a model of ‘shared care’ for PWCF, between specialised CF centres and satellite centres in areas where fewer PWCF live.

STANDARDS OF CARE FOR CF PATIENTS ON AN INPATIENT BASIS

According to consensus standards of care for CF patients, inpatient accommodation should be provided in single rooms with en-suite facilities. According to CF standards of care (European consensus):

> Each centre should have a clear infection control policy. The beds should be in single rooms, mainly to prevent cross infection, and preferably with private, en suite toilet and bathroom ... there should be no patient interaction allowed inside the hospital ... separate rooms for each patient are also necessary in order to promote adherence to physiotherapy and facilitate the inhalation of antibiotic drugs.\(^{20}\)

There is also consensus amongst clinicians and advocates that in order to facilitate immediate admission to inpatient beds, the number of dedicated beds should equal 10% of all CF patients.\(^{21}\)

OUTPATIENTS

Out-patient visits should take place in designated clinics allowing patient segregation according to infection category and sufficient rooms for members of the multi-disciplinary teams. According to the Consensus standards of care:

> The outpatient visit should take place in a designated clinic in the hospital. The CF physician and nurse should see the patient and all other members of the CF team should be accessible. Other specialists may see the patient according to local arrangements. Every visit should include a routine physical examination, measurement of weight, oximetry, age appropriate pulmonary function tests and sputum or cough swab cultures.

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Health Service Executive (2009)


In children, height and in young children also the head circumference should be measured and recorded on percentile charts. Medication should be reviewed and any treatment changes fully discussed with the patient/family and communicated to the general practitioner. (p 13)\textsuperscript{22}

**SHARED CARE**

Care provided in shared care, satellite centres should be of an equivalent standard to those in a specialist CF centre, and infection control considerations are central to the planning of service infrastructure.

Agreed models of shared care are needed as a response to patient/parent demand but they should not be allowed to result in suboptimal care. There is no place for doctors working in isolation and caring for small numbers of people with CF. A satellite CF unit in close liaison with a CF centre should have a minimum of twenty patients and input from a dietician, physiotherapist, and nurse, each with a special interest in CF. (p. 14)\textsuperscript{23}

A specialist CF centre should have a minimum of 50 CF patients.

The shared care model operates on the basis that outpatient visits take place on an alternate basis between a specialist centre and a shared care centre, and that each patient will have a minimum of 4 outpatient visits per year (2 in a shared care centre, and 2 in a specialist centre, on an alternate basis). The annual assessment for each patient should take place in the specialist centre.

2.5 **National Clinical Programme for Cystic Fibrosis**

The HSE’s Quality and Clinical Care Directorate has been established to help improve patient care throughout the health system. The Directorate has overseen the establishment of 30 national clinical programmes, which are joint initiatives between the HSE, clinicians, patients, patient organisations and hospital management, charged with defining the ideal care for patients so that it can be implemented across the country.

The National Programme for Cystic Fibrosis, which has been established in 2012, will establish national guidelines and models for the treatment of CF in designated specialist and shared care centres throughout Ireland. It is hoped that Cavan General Hospital will be recognised as a designated shared care centre for people with CF. There is already significant expertise in CF amongst

\textsuperscript{22} Kerem et al, (2005): Op Cit
\textsuperscript{23} Kerem et al, (2005): Op Cit
clinicians, respiratory and paediatric nurses, physiotherapists, nutritionalists, and microbiologists.
3 CF PROVISION IN CAVAN GENERAL HOSPITAL

Cavan General Hospital is a public hospital located in Cavan town, County Cavan, Ireland. It is managed by the Health Service Executive and provides acute-care hospital services, including a 24-hour emergency department, for the population in counties Cavan, Monaghan and surrounding areas (including North Longford, East Leitrim and North Meath).

3.1 CF Patient numbers and demographic profile

Cavan general hospital is the only hospital in the republic of Ireland located north of the median point between Drogheda and Galway which provides services to CF patients. 16 children and 12 adults\(^{24}\) with CF currently attend Cavan Hospital. All these patients are on the CFRI registry data.

According to CFI Cavan branch, there are a further 9 patients from Monaghan who are not attending Cavan General Hospital (it is not known what hospitals this group are attending nor their age profile). There are also a further 6 paediatric patients in Cavan who do not attend Cavan General Hospital, and instead exclusively access services from a specialist paediatric CF centre in Dublin (e.g., Temple Street, Crumlin, or Tallaght hospital).

Cavan Hospital serves a catchment area of Cavan, Monaghan, North Meath, East Leitrim and North Longford. According to the CF registry, there are 37 PWCF in Cavan and Monaghan. While it is not possible to isolate the numbers of people with CF in parts of surrounding counties that come within the catchment of the hospital, there are a further 55 PWCF in Meath, Leitrim and Longford.\(^{25}\)

**AGE PROFILE OF CF PATIENTS**

The ratio of paediatric patients to adult patients in Cavan General Hospital tends towards a younger age profile of patient, compared with national data. 61% of patients in the hospital are paediatric patients (16 patients).

The age profile of these patients is outlined below.

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\(^{24}\) Two of these patients have been attending the Mater as a result of receiving transplants but would access Cavan on an emergency basis.

\(^{25}\) As it is not possible to isolate specific parts of these counties, we cannot estimate what proportion of these 55 PWCF would come within the catchment area of Cavan General Hospital, but we do know that some of this surrounding county population do attend Cavan General Hospital.
In the past few years, there has been an increase in demand for inpatient beds for people with CF in Cavan Hospital. Figures from 2010-2011 are shown in Table 3-1 (below), which provides data for separate admissions for paediatric and adult patients, on an inpatient basis.

The figures report that a total of 287 bed days were recorded for 2011 (both adult and paediatric) and this represents a 30 percent increase on 2010 figures. The breakdown for these years is indicated below.
While there are no dedicated beds for CF patients requiring inpatient stays, according to those consulted, bed management does allocate a bed for patients when required, such that patients can access single en suite rooms when required. These single rooms for adult PWCF are located in the Medical 1 ward.

However, it was reported at the time of consultations in 2012, that in one instance a patient was taking home IV as an alternative to staying in hospital, as there was not a bed space available for them.

3.3 Current and projected inpatient need for CF patients in Cavan Hospital

CURRENT PROVISION FOR DEDICATED INPATIENT BEDS IN CAVAN GENERAL HOSPITAL

At present, there are no dedicated inpatient rooms for people with CF, whether paediatric or adult patients, but single en suite rooms are provided for patients with CF when a person with CF requires an inpatient room. For adults, beds are normally accessed in the Medical 1 ward in the hospital, and for paediatric patients, in the dedicated paediatric ward.

This current arrangement falls short of requirements of patients, according to those consulted, for the following reasons:

- They do not include air management specifications required of CF patients for infection control.
- The rooms are not of a sufficient size for CF patients, who regularly spend a minimum of one week in hospital (and regularly two weeks in hospital) and require space for activities such as exercise and physiotherapy regimes.\(^{26}\)

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\(^{26}\) As outlined above, the average length of stay for inpatient stays for adults with CF was 9 days, and 65 percent of all admissions for adults with CF in 2011 were of a duration of eight days or more. For paediatric patients...
In respect of paediatric patients, there is a requirement for additional space for family members, as parents usually stay in hospital with their children. Moreover, in order to provide for infection control, paediatric patients with CF cannot share playroom facilities with other paediatric patients and so play space within the single room is required.

**CURRENT AND PROJECTED NEEDS OF PAEDIATRIC AND ADULT INPATIENTS**

The projected needs of beds in Cavan Hospital are related to increasing caseload of patients as well as the increasing severity of CF as patients get older.

**Paediatric patients**

There are currently 16 paediatric patients in Cavan General Hospital. Each year, the caseload increases by approximately one patient. On the one hand, the caseload of paediatric patients is likely to remain relatively constant as paediatric patients make the transition to adult services. For example, within the next five years, approximately seven patients will make the transition to adult services. However, there are six paediatric patients from Cavan who currently access services exclusively from specialist CF centres, rather than on a shared care basis involving Cavan General Hospital. This is primarily because of fears of cross-infection, arising from a lack of dedicated facilities in the hospital for CF patients, both on an inpatient and outpatient basis. It is worth noting in this regard that there is a strong preference for accessing services in Cavan hospital for a number of reasons, including the knowledge and expertise of staff in the hospital, as well as transportation and time issues in accessing Dublin hospitals.

Therefore it is likely that the caseload of paediatric patients would increase if dedicated CF facilities were put in place.

According to the CFRI data, there are currently 14 PWCF from Cavan, under the age of 18 years, and a further 7 from Monaghan - both counties within the catchment area of Cavan General Hospital. A further 29 PWCF under the age of 18 years reside in counties Leitrim, Longford and Meath (however, Cavan General Hospital’s catchment area includes part of these counties).

On the basis of current patient numbers (16 paediatric patients), there is a need for between 1-2 dedicated paediatric inpatient rooms. This is based on the guideline that the number of dedicated inpatient beds for PWCF should

admissions, in 2011, 56 percent of admissions had a duration of six days or more. The average stay in hospital for 2011 for these patients was seven days.
equate to 10 percent of the patient numbers. Within a period of approximately five years, the number of patients is likely to increase, and it would be prudent to seek a second dedicated inpatient room to provide for medium-term needs.

**Adult patients**

As mentioned above, the age profile of paediatric patients currently attending Cavan General Hospital indicates that within the next 5 years, approximately seven patients will make the transition to adult services, which would increase the patient numbers to 19 patients in the medium term.

However, given that there are also nine PWCF from County Monaghan who are not attending Cavan as a shared care centre, it is possible that this could add to the caseload of patients for this hospital. As dedicated facilities are built, it is likely that more PWCF will seek to access the services within the hospital. It is worth noting that according to 2011 CRFI figures, there are 16 PWCF who are aged 18 years or over in Cavan and Monaghan. For the counties of Leitrim, Meath and Longford, there are a further 26 PWCF 18 years or older.

On the basis of the current CF caseload of adult patients in Cavan General Hospital, there is an immediate need for one dedicated inpatient bed (again based on the 10 percent guideline). However, as in the case of paediatric patients, the need is likely to increase in the medium term, two dedicated inpatient beds are likely to be required because of an expected increase in the number of adults accessing services.

**Overall projected numbers of patients**

Projecting the overall number of patients in the medium term is difficult as there are a number of factors and variables at play. However, the tables below give some indication of possible patient numbers within a five year period.

<table>
<thead>
<tr>
<th>TABLE 3-2 ESTIMATE OF POTENTIAL PAEDIATRIC PATIENTS WITHIN FIVE YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current patients</td>
</tr>
</tbody>
</table>

27 It is not known the age profile of these nine patients, but CFRI statistics for 2011 report that 46% of PWCF in county Monaghan are over the age of 18 years.

28 Again, not all of these 26 people will come within the catchment area of Cavan General Hospital, as it covers North Longford, North Meath and East Leitrim rather than all of the county area.
<table>
<thead>
<tr>
<th>patients</th>
<th>currently accessing services$^{29}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Less 5-7 patients</td>
</tr>
<tr>
<td></td>
<td>Plus 4-6 patients</td>
</tr>
<tr>
<td></td>
<td>Plus 5 patients</td>
</tr>
<tr>
<td>18 - 22  patients</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 3-3 ESTIMATE OF POTENTIAL ADULT PATIENTS WITHIN FIVE YEARS**

<table>
<thead>
<tr>
<th>Current patients</th>
<th>Transition from existing paediatric patients</th>
<th>Potential increased demand from those not currently accessing services</th>
<th>Potential caseload</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Plus 5 - 7 patients</td>
<td>Plus 5 patients</td>
<td>22 - 24 patients</td>
</tr>
</tbody>
</table>

### 3.4 Current and projected needs for outpatient facilities

As mentioned earlier, a shared care centre will be accessed on an outpatient basis for scheduled appointments twice per year for people with CF. A further two scheduled appointments will be made for each PWCF in a specialist centre. These appointments usually take place on an alternate basis, such that the person with CF can expect to attend for an outpatient appointment in a shared care centre at least once every six months.

During the consultations, the point was made that scheduled visits is more likely to follow this pattern for paediatric patients than for adults with CF. This is because there is a need for more drop-in and unscheduled type outpatient services as the PWCF becomes older, as the disease becomes more severe. This means that there is a need for outpatient services that can be accessed by CF patients at short notice and on a more frequent basis.

The issues arising in the consultations around the use of outpatient facilities have included:

- It is essential that sharing outpatient space and waiting areas with other outpatients is avoided because of dangers and risks of cross-infection
- The need for outpatient facilities to be located in a position that minimises the need for the patient with CF to move through the hospital premises (to minimise cross-infection), and ideally has separate entrances and exits.

$^{29}$ For example, this includes some of the six patients not currently attending Cavan and may include some of the nine patients in Monaghan.
Proposal for development of a shared care CF centre in Cavan General Hospital

- Importance of a drop-in type service for adults with CF (where scheduled three monthly visits may not meet adults’ needs in the same way as they might for paediatric patients).
- The importance of having access to all expertise in the hospital in the one room (i.e., multi-disciplinary team members attend to the patient in the one location, rather than the patient moving through the hospital to different team members’ spaces).
- Existing outpatient rooms that are not dedicated do not have air management systems to minimise cross-infection risks.
- Provision of a space for initial home IV treatment (initiating home IV treatment in an outpatient setting and initial observation of IVs prior to discharge) - a process that often takes a number of hours.

The paediatric consultant has started a dedicated CF clinic (using three rooms in the outpatient department) which runs on Tuesday mornings every month. This means that patients can access multi-disciplinary team members in the one space, and do not have to share a waiting space with other patients. However, for reasons specified above, a separate outpatient space (as well as separate clinic times) would be required which would provide for the needs of adults as well as paediatric patients.

The infrastructural options and specifications for dedicated inpatient and outpatient facilities are discussed in the next section.
4 Specifications for dedicated CF facilities

4.1 Introduction

The previous section identified a short term need for at least two dedicated CF inpatient rooms in Cavan General Hospital, comprising 1-2 paediatric bed and one adult bed. It also identifies a longer term need for four beds, comprising two beds for both paediatric and adult patients.

A dedicated outpatient space to allow for both paediatric and adult patients is also identified.

In this section, specifications for these facilities are given consideration.

4.2 Specifications for dedicated CF inpatient rooms

For people with CF, single rooms, each with separate en suite facilities are minimum requirements, given risks of cross-infection.

According to Health Building Notes (HBN)\textsuperscript{30} standards for single rooms for intensive treatment units, which have been adopted by the HSE\textsuperscript{31}, each single room should be at least 19 SqM in size, with an additional 6 SqM provided for en suite facilities (totalling 25 SqM). These are universal specifications which have been observed since 2005.

There are additional HBN provisions for isolation rooms. In addition to infection control and air management systems (discussed below), an isolation room will include additional space for a small ante room/lobby at the entrance to the single en suite rooms (as an infection control measure), of approximately 5 Sqm in size. The European Consensus Standards does not specify whether rooms should have a lobby and preparation area, but it is the preference of the CFI Cavan branch that single en suite rooms should also be isolation rooms. This would require a minimum size of 30 Sqm for each room.

LOCATION OF ROOMS

\textsuperscript{30} The Health Building Notes (HBN) are a series of publications that set the UK Department of Health's best practise standards in the planning and design of healthcare facilities. They inform project teams about accommodating specific department or service requirements. They have been adopted by the HSE. These specifications are based on HBN No. 4.

\textsuperscript{31} And which are used as standard in single rooms with en suite facilities in Beaumont Hospital.
There was a consensus that adult inpatient CF beds should be located in the Medical 1 ward, given the medical expertise of that ward.

For paediatric patients, inpatient rooms are required to be located in the dedicated paediatric ward.

### 4.3 Specifications for outpatient rooms

Two treatment rooms are required for outpatient facilities, to provide for routine appointments and for day treatments (the latter requiring an attendance for longer periods of time, for events such as starting IVs, etc.), as well as to facilitate drop-in clinics for adults. The outpatient space would be accessed by appointment by paediatric and adult patients.

Each treatment room should be at least 15m2 in size. In each room, the patient is attended by the multi-disciplinary team members who visit the room in a co-ordinated manner. The patient is therefore not required to leave the room during the visit.

A small reception/check-in area is provided for, and the patient, on arrival, is directed to one of the treatment rooms. There should be no waiting space in the outpatient facility.

Toilet facilities are required in the outpatient facility.

While the use of the outpatient facility may not be required on a whole-time basis by CF patients, protocols to ensure that there is not too high a turnover of patient until rooms can be cleaned and prepared leads to a higher usage of rooms.

Those attending outpatient visits should minimise contact with other patients to minimise risk of cross-infection, and so location of outpatient space as close as is practicable to entrance and exit areas of the hospital is preferable.

**LOCATION**

The outpatient space should be located close to the respiratory and physiotherapy department in the hospital, as these are services mostly accessed by outpatients.

### 4.4 Infection control provisions: air exchange and air pressure systems

Infection control provisions (in terms of facility specifications) for CF inpatient rooms must be of a higher specification than other patients, particularly in respect of air management. There are no Irish standards for specialised
ventilation and air management systems: recommendations for specialist air conditioning laid out in the UK’s Health Technical Memorandum (HTM32-03-01) Specialised Ventilation for Healthcare Premises (formerly HTM2025) are specifications used in Ireland in infection control environments.

The following outline is based on practice elsewhere and drawn from NHS documents.

AIR EXCHANGE

While there are no specific guidelines for air exchange systems for CF outpatients, consideration could be given to including an air exchange system of between 10-12 air changes per hour for outpatient rooms (this is the number of air exchanges per hour in the CF clinic in Drogheda and Beaumont respectively). In the case of the Drogheda development, the air management system is set at 4 air exchanges per hour while the patient is using the room, and then set to 10 air exchanges during a purge cycle in between patients.

For inpatient rooms, it is regarded that an air management system does not need to facilitate as many air exchanges per hour, because there is less of a turnover of patient than is the case with outpatient facilities. However, according to NHS guidelines for isolation rooms:

The patient’s bedroom is to have 10 air changes per hour... The en-suite room is to have at least 10 air changes per hour and be at a negative pressure with respect to the patient’s bedroom.(p.8)

As in the case of Drogheda, consideration could be given to four air exchanges per hour while the PWCF is using the inpatient room, with a purge cycle in between patients of 10 air exchanges per hour.

POSITIVE/NEGATIVE PRESSURE

The NHS HBN 4 supplement comments on the use of positive/negative air pressure systems. It notes that the use of positive and negative pressure systems in single en suite rooms have been used:

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32 Health Technical Memorandum, published by the Department of Health in the UK. This HTM focuses on the design and validation of specialised ventilation systems, specifically in healthcare premises.
33 It compares with an air exchange of approximately four per hour in general hospital rooms and twenty per hour in hospital operating theatres.
35 The purge cycle in the Drogheda development will lasts for approximately 15 minutes (during this purge surface wipe down protocols are also undertaken)
to protect the patient from infection, or a negative pressure to prevent a patient from infecting others, or the ventilation may be switchable from positive to negative. These rooms rely on staff being able to assess the type of ventilation required when a patient arrives on the ward and, for switchable systems, knowing how to select the correct ventilation mode. Patients can be put at risk if the ventilation mode is not set correctly. The provision of isolation rooms that are switchable from positive to negative air pressure is no longer recommended because of the risk to people inside and outside the room in the event of the setting being incorrect.

An enhanced single room with a positive pressure ventilated entry lobby and en-suite facilities with extract ventilation provides both source and protective isolation. The positive pressure lobby ensures that air from the corridor does not enter the isolation room, and that air from the room does not escape into the corridor. This simple design enables the suite to be used for both source and protective isolation without the need for switchable ventilation or special training for staff. (p.3)

Similarly, a HEPA air filtering system would be a preferred option for all dedicated facilities, particularly where exhaust air cannot be brought 3 metres above roof level. In this instance, HEPA filtering minimises risk of recirculation of potentially contaminated air back into room supply air.

In the case of outpatient space, where there is no lobby area, the pressure different between the treatment rooms and the corridor could be neutral and maintained at zero.

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36 i.e., negative pressure.
38 HEPA is an acronym for 'high efficiency particulate arrestance'.
40 Source: Declan Keane Consulting Engineers: Op Cit.
4.5 **Additional specifications for facilities**

According to CF advocates and people with CF consulted, there are a number of additional specifications required, as people with CF must avoid interaction with other patients to avoid cross infection. Moreover, PWCF tend to experience longer and more frequent stays in hospital than the general hospital population. These include:

- Significantly larger space for CF inpatients, on account of their relatively higher frequency of inpatient stays, as well as a longer duration of stay.
- Inpatient room size must account for exercise space, space for additional beds (particularly for paediatric rooms, for space for parents), and an adequate play area for paediatric patients with CF (as they cannot share play facilities with other patients).
- Provisions for communication and internet facilities. It was noted that young people with CF often undertake study and course work whilst in hospital on an inpatient basis.
- The character of the rooms should be cheerful, uplifting and environmentally interesting, with natural light throughout.
- Consideration of privacy needs of patients as well as supervision requirements: for example, provision of glass doors to facilitate supervision, with screens or blinds that can also be used for privacy.

Additional specifications including those identified by the CFI Cavan Branch for both outpatient and inpatient rooms include:

- Doors without handles but sliding doors with infrared controls
- Sinks and wash hand basins stainless steel and handle free
- Sinks within rooms (as well as en suite and lobby areas) for washing of nebulisers and for clinical manipulations
- Light switches to be sensor and not touch operated
- Floors to be marmoleum type with anti-microbial surface treatment
- Anti-microbial paints to be used
- Rooms to be equipped with an internal system directly linked to the nurse base
- UVC light in the rooms to disinfect surfaces (and UVC toy box for inpatient paediatric room and outpatient centre)
- Internal wall surfaces cladding
- A pull down sofa in each room (inpatient rooms)
- Space for exercise equipment, e.g., bicycle ergometer (inpatient rooms)
5 Options for delivery of dedicated facilities

5.1 Options discussed and evaluated

As part of the discussions that took place in completing this proposal, a number of options for providing dedicated facilities for a CF shared care facility were identified and evaluated. It should be noted that Cavan General Hospital has no spare capacity or space to provide dedicated inpatient or outpatient facilities for adult and paediatric patients with CF.

The options are summarised below and in the table that follows overleaf.

**ADULT INPATIENT FACILITIES - OPTIONS DISCUSSED AND EVALUATED**

- Access to a dedicated inpatient room in Surgical 3 ward for CF adult patients was proposed as a short-term measure. This room is part of the day ward which is being currently reallocated as a short stay (48 hour ward), and has an air management system in place.

- New build (extension) project to Medical 1 ward which would facilitate additional space (approximately 130m2) which could provide for two adult inpatient rooms. The extension would be to the outer part of the building, and the existing Coronary Care Unit (on the first floor) would be moved to the extension area.

- There is a proposal to develop a new endoscopy unit in the hospital (a three storey building, top storey developed as a shell) which would be an extension to Surgical 3 ward. Some plans for this have been drawn up - and an estimated cost for build is €1.2million, which may increase to €2million including fit out, etc. In the event of this development, the existing Surgical 3 ward would become an acute medical ward which could include two inpatient rooms for adult PWCF on the third floor of this building. There would be a significant lead-in time for this project.

**PAEDIATRIC INPATIENT FACILITIES - OPTIONS DISCUSSED AND EVALUATED**

- Extension to the paediatric ward (for example, onto a flat roof adjoining the ward) to facilitate movement of ancillary space such as the playroom, dining and pantry space, utility and/ or office rooms. The resulting space
vacated in the main ward area could be refurbished which would facilitate dedicated inpatient rooms for paediatric patients.\(^{41}\)

**Outpatient Space - Options Discussed and Evaluated**

- Provision of dedicated clinics for CF patients in six outpatient consultation rooms developed in the hospital.\(^{42}\)
- Utilising some of the space in a proposed extension to the paediatric ward for adult and paediatric outpatient space.
- Refurbishment of the Occupational Therapy (OT) office and storage area on the ground floor of the hospital next to the respiratory/physiotherapy departments.
- New build of new outpatient space onto courtyard next to the respiratory, physiotherapy department and OT office area.

An outline of some of these options and their evaluation is outlined in the table below.

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\(^{41}\) Inpatient rooms could not be included in the extension area as they would need to be closer to the nurses’ station in the paediatric ward.

\(^{42}\) These new rooms replace former outpatient facilities and are located in the space previously occupied by the training rooms of the cardiac treatment facility.
## 5.2 Summary of initial options discussed and their evaluation

<table>
<thead>
<tr>
<th>Options for dedicated facilities for CF patients</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adult inpatient rooms</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Single isolation room (Surgical 3)               | - Immediate access to dedicated inpatient room with air management system in situ  
- Short-term / interim solution                   | - Lack of access to medical expertise in Medical 1 Ward Room  
- Space is small (21m² in total - room excluding en suite is 14m²) |
| Extension to medical 1                           | - Two rooms - to meet long-term need  
- Ability to design to meet patient needs (e.g., space)  
- Access to medical expertise in Medical 1           | - Not available in the short term and significant costs associated with this option |
| Proposed new endoscopy unit                      | - New acute ward to be developed could include two new dedicated inpatient rooms | - This is a large scale and longer term project with no identified timescale |
| **Paediatric inpatient rooms**                   |           |            |
| Additional space in paediatric ward - extension to Paediatric ward | - Two rooms - to meet long-term need  
- Ability to design space to meet patient needs  
- May be able to access additional space in the extension area | - Poor value for money if expectation for CFI to fund all of the project. |
| **Outpatient space**                             |           |            |
| Access to space in extension to Paediatric ward | - Dedicated outpatient space for adult and paediatric patients - the layout of the extension area is not finalised - scope for change.  
- Would have entrance separate to main hospital area | - Unlikely to be feasible from the perspective of shared adult/paediatric space and may not be able to facilitate separate entrances.  
- If it was feasible, there would be very costly modifications for separating paediatric and adult space (entrances, lifts, etc.).  
- Does not resolve immediate outpatient requirements. |
| Securing dedicated clinic times for paeds and adults in new outpatient space | - Would not require significant capital costs  
- Would have entrance/exit separate from main hospital area  
- Is a project which will be completed in the short-term | - Not a dedicated space, but a dedicated clinic time.  
- The needs of patients (especially adults) are drop-in related - unlikely that this could be facilitated in the new development as the number of outpatient consultation rooms being developed is lower than the number previously available in hospital.  
- There is no air management system in the outpatient rooms |
| Refurbishment of OT space                        | - Ideal location close to the respiratory department  
- Would provide a dedicated space for outpatients | - Dependent on OT access to alternative space.  
- Would require refurbishment and air management system installed (the latter may be expensive) |
| New build of room onto courtyard                 | - Ideal location close to the respiratory department  
- Would provide a dedicated space for outpatients | - Would be very costly and complex to construct (requiring cranes to complete construction). |
The options which have been accepted as the most feasible and preferable are discussed below.

5.3 **Provision of dedicated inpatient beds for adult CF patients**

**MEDICAL 1 WARD DEVELOPMENT**

Medical 1 ward is the preferred location for dedicated inpatient rooms for adults with CF. There is no space currently available in Medical 1 ward that could be used for this purpose. A proposal for an extension to the medical 1 ward (to the rear of the existing Coronary Care Unit (CCU)) would require a two storey build from the ground level (as medical 1 ward is on the first floor). The option of a full extension to the medical 1 ward that has been proposed includes the following three storey development, with each floor providing for an approximate 200m² in space:

- **Ground floor - non-designated space**
- **First floor - an extension to Medical 1 ward.** This extension would facilitate a move of the CCU (and the displaced space arising from the move would provide two dedicated CF isolated inpatient rooms and a corridor for access to the new CCU space). The amount of space gained for the purposes of two dedicated inpatient rooms (isolation rooms with lobby area, en suite 25 m² rooms) and corridor is approximately 117m².
- **Second floor - the extension could be used as a day ward and 2 new isolation rooms (for general medical use, and not for the purposes of providing space for CF patients).**

**ESTIMATED COSTS OF DEVELOPMENT**

Estimates for the new build development for the CCU unit have been provided by architects commissioned by the hospital to devise outline drawings for the development (including air management provisions, and technical fees), as outlined in the table below.
5.4 **Provision of dedicated inpatient beds for paediatric CF patients**

**EXTENSION TO THE PAEDIATRIC WARD**

There is a proposal to extend the paediatric ward onto an adjoining roof in the paediatric ward area to facilitate the displacement of a pantry dining area and a play room. The existing pantry, dining and play rooms would be refurbished for use as dedicated inpatient rooms for paediatric CF patients.

**ESTIMATED COSTS OF DEVELOPMENT**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
<th>Cost per M2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a New build play room on existing flat roof and day/dining room</td>
<td>€187,500 plus VAT @ 13.5%</td>
<td>€2,550 per m2 plus VAT</td>
</tr>
<tr>
<td>b Refurbishment of play room to provide dedicated isolation inpatient room for paediatric patients (this cost includes refurbishment for replacement of pantry space)</td>
<td>€215,070 plus VAT @ 13.5%</td>
<td>€2,750 per m2 plus VAT</td>
</tr>
<tr>
<td>c Refurbishment of former pantry/dining area (c. 38m2)</td>
<td>€104,400 plus VAT @ 13.5%</td>
<td>€2,747 per m2 plus VAT</td>
</tr>
<tr>
<td>Total project cost</td>
<td>€506,970 plus VAT</td>
<td></td>
</tr>
</tbody>
</table>

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43 There may be some VAT chargeable at the higher rate of 23% for professional fees, which may equate to approximately 10% of project costs.

44 As the size of both rooms equates to approximately 84 m2, the cost per square metre for the rooms net of corridor space is €3,830 plus VAT.

45 As above, there may be some VAT chargeable at the higher rate of 23% for professional fees, which may equate to approximately 10% of project costs.
The technical estimates represent a high cost per sq metre for new build and for refurbishment. New build generally has an estimate rate of €2,200 to €2,500 per square metre, including air management provisions and for technical fees. In exceptional circumstances, the cost per square metre can extend to €3,000 where there is significant mechanical and electrical works associated with retrofitting air management systems. Refurbishment costs have a general estimated cost of €1,500 per Sq metre in other hospitals (plus additional air management costs).

5.5 Provision of dedicated outpatient space for CF patients

The current Occupational Therapy (OT) space (which is c. 36m2) is favoured as a space to provide two rooms for outpatient clinics (paediatrics and adults) as well as a treatment room for IVs. It is adjacent to the respiratory and physiotherapy departments on the ground floor of the hospital, and is a suitable location for CF patients. As this facility would not be used on a full-time basis by CF patients, it has been suggested that it could also be used for other clinics at specific times (e.g., asthma, COPD and other respiratory-related clinics).

Refurbishment and remodelling of this space would be required as would air management systems (which more than likely could have control panel located to the exterior of the building, in the courtyard area). An alternative space for OT staff would be required.

Estimated costs of development

<table>
<thead>
<tr>
<th>TABLE 5-3 ESTIMATE COST OF DEVELOPMENT OF OCCUPATIONAL THERAPY SPACE FOR DEDICATED OUTPATIENT SPACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
</tr>
<tr>
<td>2 new CF outpatient rooms arising from refurbishment of OT office/ storage space</td>
</tr>
<tr>
<td>Replacement cost for existing OT staff (unidentified area)</td>
</tr>
<tr>
<td>Total project cost</td>
</tr>
</tbody>
</table>

The estimated costs represent a high cost per m2 for refurbishment of the OT space, as refurbishment costs are usually cheaper than rebuild costs.

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46 Based on an estimated room size of 36m2.
5.6 Costs of project

The costs of each of these developments are - at this stage - outline costs. However it is worth noting that they all exceed a provision for €2,500 per square metre new build costs (which usually includes air management) and €1,500 refurbishment costs per square metre (which may not include air management). It would be hoped that the estimates are outline costs at this stage and could be reduced on further analysis.

5.7 Potential sources of funding

In this section, sources of funding for capital costs are evaluated and considerations in accessing funding identified.

CAVAN GENERAL HOSPITAL

Cavan General Hospital does not have a capital budget from which to draw upon for the above projects. All capital projects undertaken in recent years have been completed on the basis of ad hoc funding made available. There is a small foundation in the hospital, but this is a small scale foundation with limited funds and funds that are available are generally allocated to equipment.

This means that a proposal and application for capital costs would have to be made to the HSE. Hospital management believes that the best way of securing capital costs would be to seek to lever funding from the HSE on the basis of a partnership with CFI.

It was also noted that there has been some feedback in the past from the HSE indicating that there may be some capital project funding available for small projects.

CYSTIC FIBROSIS IRELAND (CFI)

CFI is committed to ensuring that a shared care centre, with dedicated inpatient facilities as outlined above, would be an integral part of the Cavan General Hospital plan.

The CFI has contributed to capital projects throughout Ireland for PWCF, but stresses that in order to contribute to a capital project, value for money and need are two key considerations that must be met. In relation to this project, the following points have been raised which would be fundamental to any proposal:

- Value for money must be secured. This would be based on an acceptable cost per square metre for the dedicated facilities secured for PWCF.
The CFI does not meet costs for replacement of facilities (i.e., for movement and development of new facilities such as the coronary care unit, and facilities in the paediatric ward) in addition to the costs for dedicated CF facilities. The CFI makes the point that in the past, replacement costs have not been requested in other capital projects in other hospitals.

By way of comparison, the table below illustrates the contribution in costs provided by the CFI in other projects.

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our Lady of Lourdes Hospital Drogheda</td>
<td>Dedicated outpatient facility, including purchase of house and conversion</td>
<td>€500,000</td>
</tr>
<tr>
<td>Waterford Regional Hospital</td>
<td>4 inpatient rooms for children - total refurbishment of 4 existing rooms</td>
<td>€300,000</td>
</tr>
<tr>
<td>Castlebar</td>
<td>Bespoke view build outpatient and day-care centre with inpatient rooms for adults and children</td>
<td>€1,100,000</td>
</tr>
<tr>
<td>Crumlin Children’s Hospital</td>
<td>4 state of the art en suite inpatient rooms and nurse station</td>
<td>€750,000</td>
</tr>
</tbody>
</table>

On the basis of the above, the CFI estimates that a maximum of €500,000 could be contributed towards the capital costs of this project.

HSE CAPITAL BUDGETS

This project will not be feasible unless capital funding is made available from the HSE. The HSE’s 2013 capital allocation (excluding ICT) amounts to €341m. According to its latest service plan, the *HSE Capital Plan 2013-2017* prioritises progressing the major priority projects - the Children’s Hospital, the Central Mental Hospital, the National Programme for Radiation Oncology and the continued roll out of primary care infrastructure in line with the National Primary Care Strategy.

The establishment of National Clinical Programme for Cystic Fibrosis will establish guidelines for treatment of CF, and this will enable a case to be made for upgrading of facilities. It will be important in this regard that Cavan General Hospital is formally designated as a shared care centre for people with CF, and there is a clear rationale for this, given the patient numbers in the area.

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47 Health Service Executive *National Service Plan* 2013
48 Yet to be published.
As HSE funding will be an essential element for the above proposal, any proposal made needs to make a strong case that this project will contribute to the delivery of a quality shared care service in Cavan as part of a national service for CF patients, in collaboration with specialist CF centres. Moreover, the development of a shared care centre with the above facilities would be fundamental to achievement of HSE objectives and strategies for quality shared care provision for PWCF and in line with consensus standards which the HSE acknowledges.

Two other points could be made: first, it is worth noting that there should be no new staffing requirements in the above capital projects. Second, there could be a strong business case made for the capital development of the isolation rooms: during times that they would not be in use by CF patients, they could generate income for Cavan General Hospital. Moreover, the redevelopment of the CCU provides for four separate rooms, one of which is an isolation room, which too could generate income for the hospital if used by private patients.
6 Conclusions and recommendations

This report has outlined the current and projected need for shared care facilities (including dedicated inpatient beds and outpatient facilities) for PWCF in Cavan General Hospital.

There are 16 paediatric patients and 12 adults accessing services from Cavan General Hospital on a shared care basis.

On the basis of the current CRFI registry figures for 2011, there are 37 PWCF in the County Monaghan and Cavan area.\(^{49}\) 21 of these are younger than 18 years of age, and 16 are 18 years of age or older.

In the counties surrounding Cavan part of which come within the catchment area of Cavan General Hospital,\(^{50}\) there are 55 PWCF - of these 29 are younger than 18 years, and 26 are 18 years or older. Part of this group will come within the catchment area of Cavan General Hospital.

It is conservatively estimated that within a five year period, the paediatric patient caseload could be 18-22 in number and there could be 22-24 adults accessing services within the hospital.

On the basis of current and projected patient caseload, and drawing from European consensus on standards of care, there is a short to medium term need for two dedicated inpatient beds in the hospital for paediatric patients and two dedicated inpatient beds for adults. There is also a need for dedicated outpatient facilities to meet the current needs of adult and paediatric patients.

With this in mind, a number of proposed options for meeting these dedicated facilities have been outlined. These outline as a minimum requirement certain specifications which include isolation rooms with en suite facilities for all inpatients and air management systems to achieve optimum infection control. Two outpatient and treatment rooms with ancillary space for reception, toilet facilities, etc are proposed.

All parties consulted as part of this proposal expressed their commitment to meeting the needs for dedicated inpatient beds for CF patients.

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\(^{49}\) These counties fall within the catchment area of the hospital. There are 15 known people in the county who do not access services from Cavan General Hospital.

\(^{50}\) Leitrim, Longford and Meath.
Arising from the discussions, the following is proposed:

- The development of dedicated facilities for PWCF comprising 2 inpatient beds for adults, 2 inpatient beds for paediatric patients and a dedicated outpatient facility should be pursued. These plans for a shared care centre should be included in any capital plan of Cavan General Hospital.

- Funding should be sought from both the HSE’s capital budget and from CFI, on the basis of the discussion outlined in section 5.7.

- Funding from HSE for capital costs should be pursued on the basis that the new dedicated facilities will constitute a development of a national shared care service for CF patients, consistent with consensus standards and HSE objectives for care and service delivery to PWCF. A business planning exercise identifying the potential income that could be generated by the hospital for partial use of facilities for private patients could be included in part of a proposal made to the HSE.

- As part of the National Clinical Programme for Cystic Fibrosis, Cavan General Hospital should be specifically designated as a centre for shared care, given the current and projected numbers attending the service, the fact that there is no shared care centre north of the area that extends between Drogheda and Galway, and given the expertise in relation to CF that already exists in the hospital. The numbers of PWCF attending the hospital exceed the minimum numbers required for a shared care centre, and will continue to exceed the minimum in years to come. This is in keeping with HSE stated objectives for CF provision in Ireland. Cavan General Hospital and the CFI could engage with National Clinical Programme for CF to this effect and seek designation as a shared care centre.

- In the event that partial funding is available from the HSE, the project may need to be developed on a phased basis. Phase 1 of the project would be the development of the outpatient facility, and this should proceed with immediate effect. Phases 2 and 3 of the project would incorporate the dedicated inpatient beds for adults with CF and for paediatric patients with CF. These phases should be incorporated into the Cavan General Hospital Development plan. The timing of these phases will be based on the availability of funding, and discussions around these issues should continue to take place.

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51 Consensus standards of care specify that shared care centres should have a minimum of 20 patients – and current patient caseload in Cavan General Hospital is 28 patients.

52 The minimum figure recommended for a centre for shared care is 20 patients.

53 HSE (2009). Services for People with Cystic Fibrosis in Ireland Conclusions of a Working Group established by the Health Service Executive. Dublin: HSE
References and bibliography

Cavan Branch CFAI - a proposal from Cavan Branch of the Cystic Fibrosis Association of Ireland for a Shared Care Centre in Cavan General Hospital. June 2012.


Health Service Executive National Service Plan 2013

HSE (2009). Services for People with Cystic Fibrosis in Ireland Conclusions of a Working Group established by the Health Service Executive. Dublin: HSE


Summary of Air Management Strategy for CFAI Day Care Centre, Drogheda, Declan Keane Consulting Engineers and Anello Architects

Appendices

Appendix 1 | preliminary sketches for adult inpatient rooms in Medical Ward 1 and extension for Coronary Care Unit
Appendix 2 | preliminary sketches for proposed outpatient facility
Appendix 2 | Preliminary sketches for proposed paediatric inpatient isolation rooms in paediatric ward
Proposal for development of a shared care CF centre in Cavan General Hospital
Proposal for development of a shared care CF centre in Cavan General Hospital

Appendix 3 | Preliminary sketches for new Occupational Therapy office space