

# **OZGROW**

The Australasian Paediatric Growth Hormone Database

## **ANNUAL REPORT**

**2007**

Prepared in February 2008 by:

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## TABLE OF CONTENTS

		<b>Page</b>
1	BACKGROUND INFORMATION REGARDING OZGROW	3
1.1	Introduction and rationale	3
1.2	Structure of OZGROW	4
1.3	OZGROW Database	4
1.4	Research opportunities	5
2	ACKNOWLEDGEMENTS	6
3	CURRENT STATUS OF THE OZGROW DATABASE 2007	7
3.1	History of data collection and the prospect of a new national database	7
3.2	Current data collection	7
3.2.1	Data collection from growth centres	8
3.2.2	Data retrieved from Department of Health and Aging (DoHA) Canberra	9
3.3	Offer to help with data entry backlog	9
3.4	OZGROW diagnosis codes	9
3.5	Adult height	10
3.6	A common GH patient database	10
4	DEMOGRAPHICS OF CHILDREN CURRENTLY RECEIVING GH THERAPY IN AUSTRALIA THROUGH THE GOVERNMENT-FUNDED PBAC PROGRAM - 2007	11
4.1	Total number of children	11
4.2	Patient gender	11
4.3	Indications for GH therapy	11
4.3.1	Trend in indications for GH treatment over time	14
4.3.2	Why so few girls or so many boys?	16
4.4	Distribution of current GH treated patients by state	16
4.5	Other demographic data	17
5	OTHER ACTIVITIES OF 2007	18
5.1	Publications and presentations	18
5.2	Liaison with key stakeholders	19
5.3	Research applications received	21
6	DIRECTIONS FOR 2008	21
7	OZGROW research Team contact details	22
App. 1	OZGROW Research Application Form	23
App. 2	OZGROW Research Memorandum of Understanding	24
App. 3	Database Requirements	25

## **1. BACKGROUND INFORMATION REGARDING OZGROW**

### **1.1 Introduction and rationale**

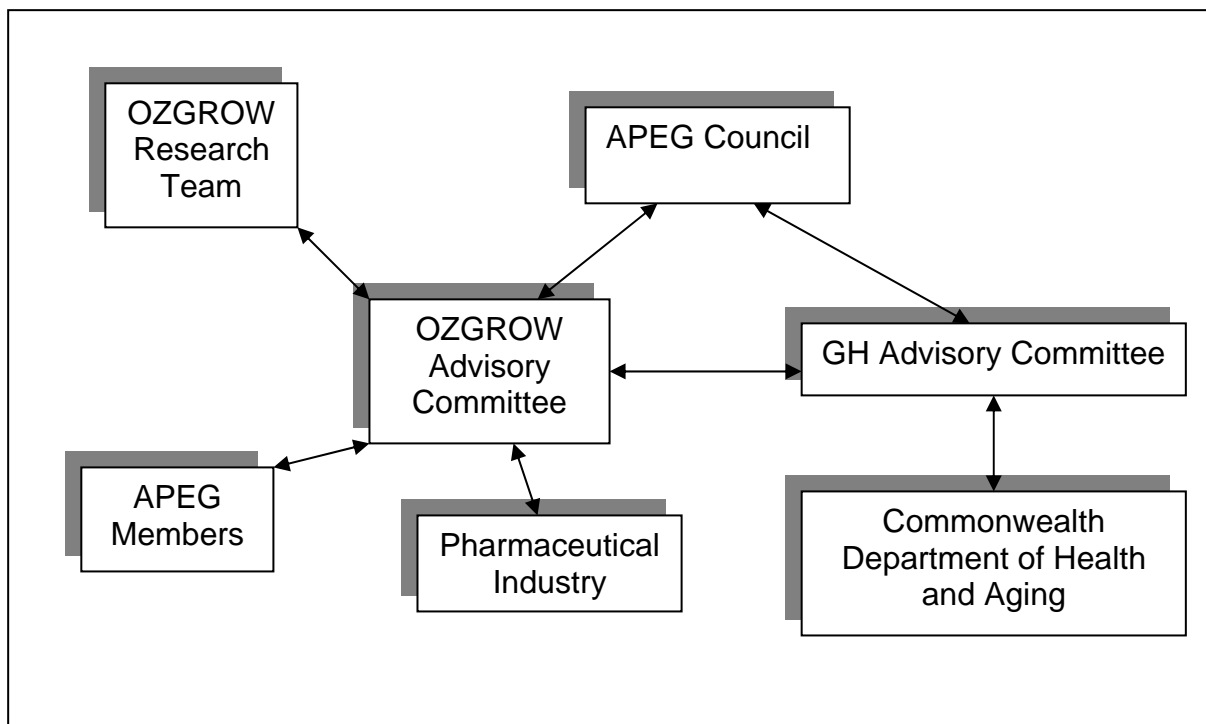
In Australia and New Zealand human Growth Hormone (GH) is prescribed for a variety of conditions that result in abnormally slow growth in children and hence short stature. The main aim of GH treatment in children is to improve adult height to the genetic potential of the individual or to an adult height that is considered functionally and socially acceptable. In addition, GH is used to treat neonatal hypoglycaemia resulting from GH deficiency. As with any medical intervention, it is important that children receiving GH treatment are individually monitored at regular intervals to determine the efficacy of the treatment in relation to the clinical goals and to note any adverse reactions to the treatment. It is also important to look at the overall efficacy of GH treatment across the different diagnostic indications throughout Australia and New Zealand. In this way, trends in patient outcomes can be monitored over time and with respect to any differences in treatment regimes or practices. This retrospective analysis also facilitates the identification of relatively rare complications or adverse effects. To fulfil the above requirements it is necessary to establish a database which can, subsequently, also be used as a research tool. It can be retrospectively interrogated, used for international comparisons, or can form a benchmark data set against which experimental data can be compared.

'OZGROW' is the name given to the initiative of the Australasian Paediatric Endocrine Group (APEG) to collect and record in a database diagnostic, GH treatment, and outcome data on children receiving GH throughout Australia and New Zealand. OZGROW was established in 1989 following the introduction of synthetic human GH to Australia in 1988. The OZGROW team was initially located at the Royal Alexandra Hospital for Children at Camperdown, Sydney but, with the hospital, was relocated to Westmead in 1995. In 2002 federal funding for the project ceased and the project entered a hiatus. But by 2004 APEG had resurrected OZGROW within the Children's Nutrition Research Centre (CNRC), located on site at the Royal Children's Hospital in Brisbane. In 2007 the OZGROW Research Team consisted of a 0.75 research position shared by Pamela Dodrill and Lisa Atkin, an overseeing role from the Director of the CNRC, A/Prof Peter S.W. Davies, and administrative support from Ms Marea Fox.

## 1.2 Structure of OZGROW

The current management structure of OZGROW is shown in Figure 1. The OZGROW Research Team reports directly to the OZGROW Advisory Committee of APEG which meets every two months. In terms of the day to day functioning of OZGROW the research team also communicates directly with APEG members with respect to data collection and research projects, as well as with the Department of Health and Aging (DoHA), and members of the pharmaceutical industry.

**Figure 1.** OZGROW Management Structure.



## 1.3 OZGROW database

- As of the 3<sup>rd</sup> of December 2007, the OZGROW Database holds data from 4728 children from Australia of whom 1521 are currently authorized to receive GH treatment as part of a government-funded program. Additionally, the database holds records of 664 New Zealand children of which 241 are currently receiving GH.
- Analyses of the database with respect to clinical indications, state and gender breakdowns, demography, and treatment outcomes are given later in this report.

- Upon request, through the OZGROW Advisory Committee of APEG, the OZGROW Research Team were able to use the OZGROW Database to provide detailed reports for APEG members summarising diagnostic and auxological data on Australasian children who have received GH treatment.
- Similarly, the OZGROW Research Team was also able to provide detailed reports on specific topics of interest to APEG members, such as growth outcomes of children with specific disorders (e.g. chronic renal failure, or Turner, Russell-Silver, Prader-Willi, or Noonan syndromes), response to dosage of GH, and complications associated with GH therapy. Adult height outcomes for children treated with GH, the ultimate measure of treatment efficacy, can also be provided although, as is discussed later, this is data that is severely lacking from the database.

#### **1.4 Research opportunities**

- APEG members were encouraged to utilize the research potential of the OZGROW database and the research skills and experience of the OZGROW Research Team.
- In 2007, to facilitate collaboration between practicing endocrine clinicians and the OZGROW Research Team, the OZGROW Advisory Committee provided guidelines to the establishment of collaborations and produced a form to be used when applying to utilize data held in the OZGROW database and the services of the OZGROW Research Team. This form, "APPLICATION FORM: PROPOSAL TO CONDUCT RESEARCH UTILISING DATA HELD ON THE OZGROW DATABASE", appears in Appendix 1 of this report.
- Ideas for research topics may originate from individual clinicians, the OZGROW Advisory Committee, or the OZGROW research team. While it is expected and encouraged that clinicians and the OZGROW Research Team will informally communicate on possible research projects any application is to be made through the OZGROW Advisory Committee using the application form mentioned above.
- Once the OZGROW Advisory Committee approves an application the applicants will be advised by letter.
- The OZGROW Research team will then contact the clinicians involved to discuss the details of the proposed project and to work through a

memorandum of understanding that lists the investigators and their roles, defines the roles of the OZGROW Research Team, and defines the process of publication and authorship. A “Memorandum of Understanding” form was developed and is shown in Appendix 2.

- Any papers written are sent to the OZGROW Advisory Committee prior to publication and are published on behalf of the OZGROW Advisory Committee of APEG.
- Research applications received in 2007 are listed in section 5 below.

## **2. ACKNOWLEDGEMENTS**

The OZGROW Research Team would like to acknowledge the support and guidance of the OZGROW Advisory Committee of APEG:

- Dr Andrew Cotterill (Chair), Dr Cathy Choong, Dr Chris Cowell, Dr Wayne Cutfield, and Dr Kim Donaghue.

The OZGROW Research Team would also like to acknowledge the continuing financial support of the following companies:

- Eli-Lilly Australia Pty. Ltd.
- Ipsen Pty. Ltd.
- NovoNordisk Pharmaceuticals Pty. Ltd.
- Pfizer Australia Pty. Ltd.
- Sandoz Australia Pty. Ltd.
- SciGen Pty. Ltd.
- Serono Australia Pty. Ltd.

In addition, the OZGROW Research Team would also like to thank the clinical teams at the following growth centres for their time and effort spent in the collection and entering of patient data, and for their ongoing support of the work conducted by OZGROW:

- Adelaide Women’s and Children’s Hospital
- Dr Mike Thomsett’s Private Clinic, Brisbane
- Liggins Institute, Auckland, New Zealand
- Mater Children’s Hospital, Brisbane
- Monash Medical Centre, Melbourne

- Princess Margaret Hospital, Perth
- Royal Children's Hospital, Brisbane
- Royal Children's Hospital, Melbourne
- Royal Hobart Hospital
- Sydney Children's Hospital
- The Children's Hospital at Westmead
- The John Hunter Hospital, Newcastle
- Commonwealth Department of Health and Aging (DoHA), Canberra.

The current (2008) OZGROW Research Team would also like to acknowledge Pamela Dodrill and Lisa Atkin for their valuable contributions to OZGROW in 2007, and previously, and wish them all the best in their future careers.

### **3. CURRENT STATUS OF THE OZGROW DATABASE**

#### **3.1 History of data Collection and the prospect of a new national database**

Prior to 2000, data on children receiving GH treatment within Australia were collected on a purpose-built OZGROW Database, which operated on the DOS platform. Major growth centres throughout Australia entered data regarding their patients on GH treatment onto a local copy of the Database. Every month data were sent on disc to the national OZGROW Co-ordination Team, which, at that time, consisted of staff from the Children's Hospital at Westmead. The national OZGROW Database was then 'recreated' each month from the latest data sent from each centre.

However this national database was abandoned amid Y2K concerns and was never replaced. Growth centres and smaller paediatric clinics now use a variety of database platforms and paper based forms to enter and store their growth data which is then forwarded on to the DoHA and the OZGROW research team. Some centres developed their own database platforms. Other centres chose to use a database developed by one of the pharmaceutical companies who supply GH. As will be appreciated from the following paragraphs there is a need and the time is appropriate to again establish a National GH database.

#### **3.2 Current data collection**

OZGROW receives data from the following sources:

- The Children's Hospital at Westmead

- Data supplied from a database unique to this hospital.
- Sydney Children's Hospital
  - Data supplied from an Access database unique to this hospital.
- Other major growth centres within Australia
  - Data supplied from a combination of database systems made available by various pharmaceutical companies.
- Liggins Institute, New Zealand
  - Data supplied from a database developed by a pharmaceutical company.
- DoHA Canberra
  - Data supplied from a database unique to this department.

### 3.2.1 Data collection from growth centres

Data retrieval from several of the Australasian growth centres in 2007 continued to be problematic for a number of reasons:

- Many centres have had problems entering data into their local database, and/or downloading information from their database to send to OZGROW.
- Currently, some centres have patient data spread over different databases, or periods where patient data has not been entered into any database.
- The most commonly used database is KGS supplied by Pfizer. In 2005 Pfizer introduced endoKIGS a web based database system of the Kabi International Growth Study (KIGS) that replaced the previous version of the KIGS database. The previous version included the KGS database system which allowed for local access and analysis of data. Many Australasian growth centres used, and continue to use, the KGS system despite the fact that it is no longer supported by Pfizer and consequently have increasingly experienced problems with its operation. Centres have been reluctant to use endoKIGS as data is transmitted to an offshore database and requires ethics approval.

As a result of the problems described above, data submission from Centres to OZGROW was sporadic in late 2006 and early 2007. Due to the obvious difficulties being experienced by Centres, and the incompleteness of the data being received, OZGROW decided to cease formal requests to Centres for data from March 2007.



In 2006 the OZGROW Research Team undertook numerous discussions with the companies who supply GH patient databases asking that greater support be provided for the users of their databases and to modify and improve database functions to reflect the needs of Australian and New Zealand clinicians. For a variety of reasons, and despite the best intents of the local representatives, the companies were unable to adequately respond to these requests in 2007. In 2007 the OZGROW Research Team began looking at the possibility of a common database system that could be used by all Centres, obviate the need for double data entry, and provide the clinical and administrative requirements of each Centre (see below).

### 3.2.2 Data retrieval from Department of Health and Aging (DoHA) in Canberra

In 2007 the OZGROW Research Team was able to obtain data directly from DoHA in a readily usable and complete format. This follows on from ongoing meetings and visits with DoHA and the active and enthusiastic assistance in achieving this goal by Ms Aracelli Storn and Mr Robert Nichols of DoHA. Consequently, the majority of the analyses undertaken on the 2007 data were done so utilizing only the DoHA data.

However it should be realized that this data is limited in a number of regards.

- Only data that Canberra currently requests on the *Application for Growth Hormone* and *Growth and Treatment* record forms is available.
- Not all data requested on the forms is entered onto the DoHA's electronic database and there are errors with data entry.

### **3.3 Offer to help with data entry backlog**

Due to the problems mentioned above it is recognized that many centres have been unable to maintain data entry to their local databases and as a result face a significant challenge in the near future to catch up the backlog. To aid centres in this task the OZGROW Research Team is offering to supply relevant data back to the centres that has been collected via the DoHA. Please contact the team if this would be of benefit to your centre.

### **3.4 OZGROW diagnosis codes**

APEG members are reminded that to help improve the utility of the OZGROW database and the value of any analyses of the data within it, it is important to list the diagnosis as accurately as possible by using the OZGROW diagnosis codes. An

electronic copy of these codes has been made available on the APEG website at: <http://www.apeg.org.au/Subcommittees/OzGrow/tabid/122/Default.aspx>.

### **3.5 Adult height**

One piece of clinical information that is lacking, not only from the DoHA data set, but also from the OZGROW database as a whole is Adult Height. This is the endpoint of any GH treatment procedure as reflected in the DoHA's "Specific Aims of hGH Therapy", where it is stated as an aim, "To allow children to achieve their familial genetic adult height potential, and where possible to achieve a final height within the normal population range". Obviously, a final Adult Height record is also very important in any research looking at response to GH therapy. The problem is not confined to Australia and New Zealand but is a general phenomenon. Adult height analyses generally focus on patients who are followed extensively (eg. Turners) and excludes patients who stop treatment prematurely, or reach a predetermined target, and hence cease treatment and height recording, prior to growth cessation. APEG members are invited to consider new strategies whereby Adult Height can routinely be collected. In 2007 the OZGROW Research team contacted the Centres to discuss collection of Adult Height data.

### **3.6 A common GH patient database**

The nature of GH data collection across Australia and New Zealand is very varied and in many cases inefficient, leading to double entry of data and an increased risk or errors. This is particularly the case with respect to the data fields required by the Department of Health and Ageing (DoHA) in Canberra. One of the most important 2007 initiatives of OZGROW and the OZGROW Advisory Committee is to investigate and ultimately develop and launch a common database across all centres and smaller paediatric units to streamline data collection. It is envisaged that such a system would require a single entry of data, electronic transfer of relevant data to DoHA, and fulfil all clinical and administrative requirements. By the end of 2007 the OZGROW Research Team had drawn up a document listing the "Essential and Desirable Features of a GH Patient Database" (Appendix 3). In 2008 teleconferences will be conducted with all the major centres to discuss the idea of a common database with respect to the specific situations and requirements of each. The OZGROW Research Team is interested in the concept of the ideal database and

how it might be introduced into the IT infrastructure of all clinics in Australia and New Zealand.

#### **4. DEMOGRAPHICS OF CHILDREN CURRENTLY RECEIVING GH THERAPY IN AUSTRALIA THROUGH THE GOVERNMENT-FUNDED PBAC PROGRAM - 2007**

##### **4.1 Total number of children**

The number of children currently receiving GH therapy in Australia is 1521 which is an increase of 168 from 2006. In New Zealand 241 children currently receive GH.

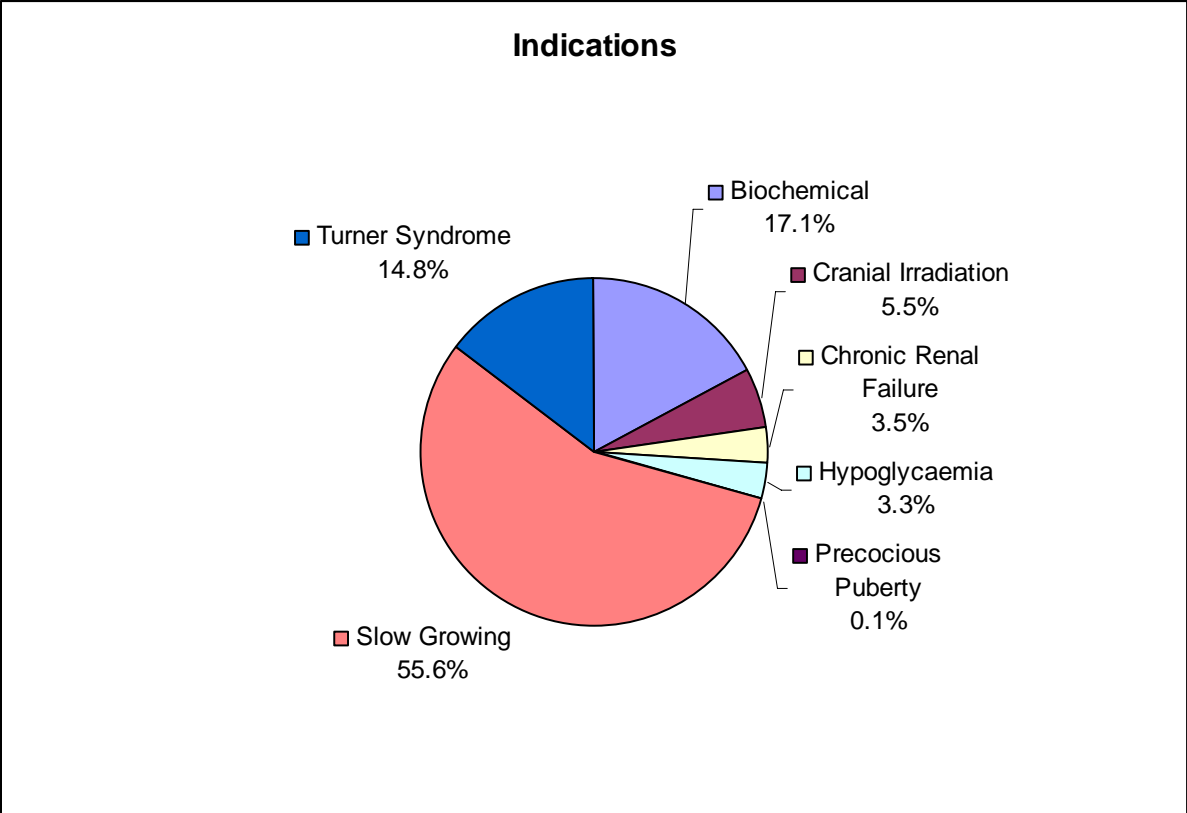
##### **4.2 Patient gender**

The gender of patients currently receiving GH therapy in Australia is: Female 45.1%, Male 54.9%. If those girls being treated for Turner syndrome are removed from the comparison the proportions are Female 35.6% and Male 64.4%. This gender difference is highly significant ( $P=9.1\times 10^{-21}$ ) in comparison to the population proportions of boys and girls <17 years of age in Australia which is Female 48.7% and Male 51.3%.

##### **4.3 Indications for GH therapy**

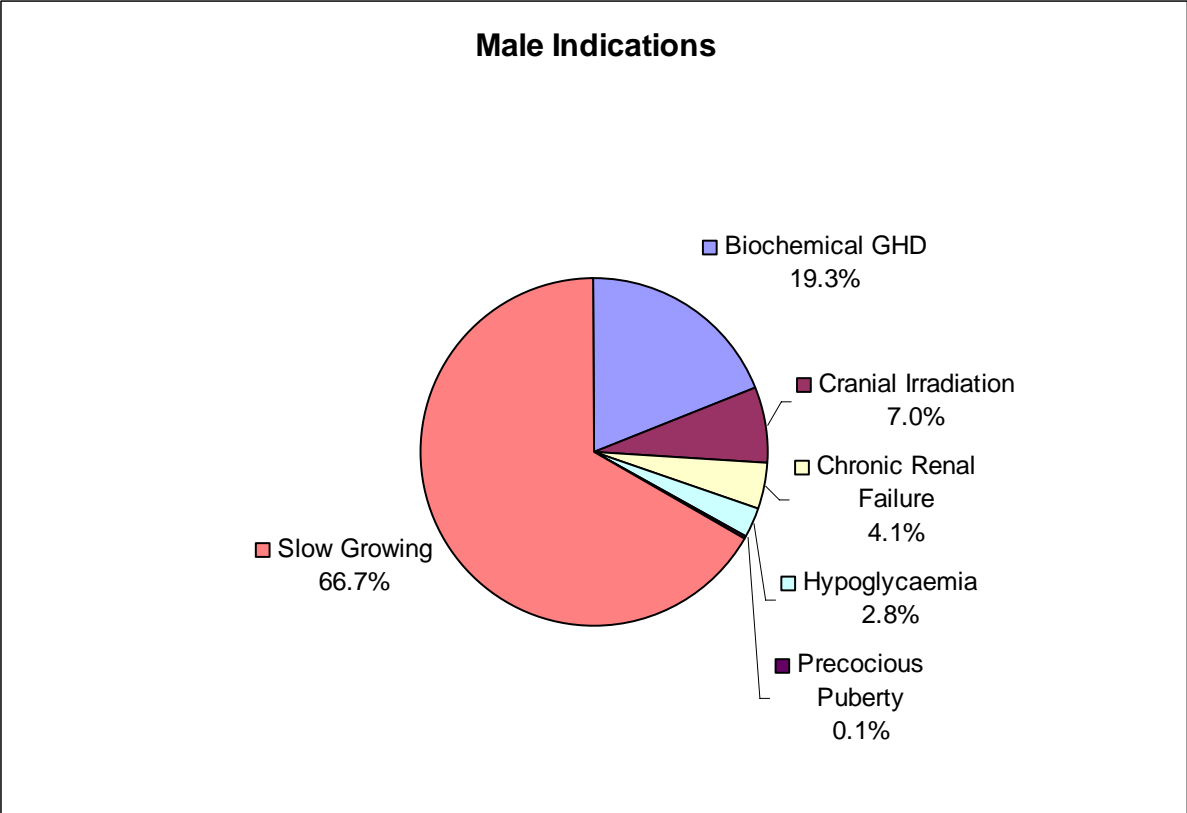
The DoHA broadly categorizes indications for GH therapy into Biochemical GHD, Cranial Irradiation, Chronic Renal Failure, Hypoglycaemia, Precocious Puberty, and Slow Growing based on criteria for receiving GH therapy through the government funded GH program listed in the DoHA document *Guidelines for the Availability of Human Growth Hormone (hGH) as a Pharmaceutical Benefit*. Figure 2., below, shows the current proportions of each indication category.

**Figure 2. Indications for GH Therapy. Combined Genders**



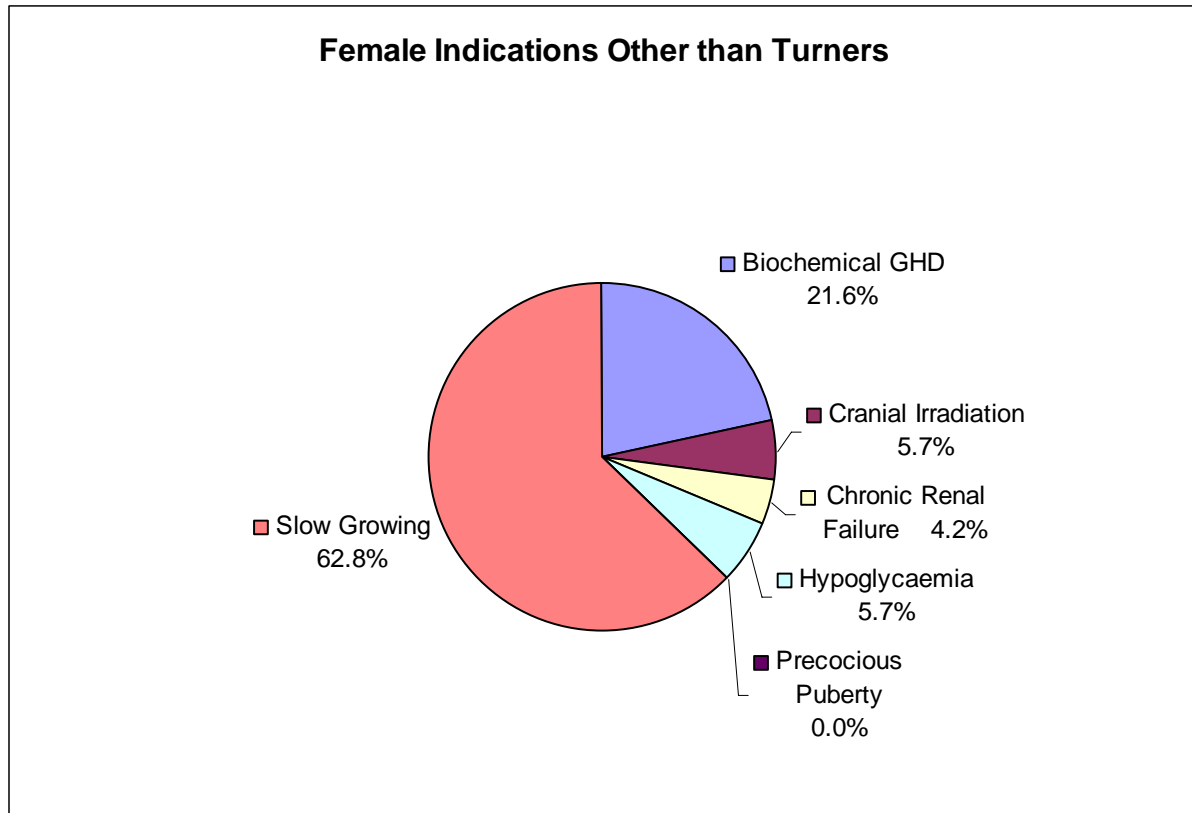
By far the most frequent indication for GH treatment is “Slow Growing” which is defined as height <1<sup>st</sup> percentile according to Centres for Disease Control growth data. Turner syndrome is the second most frequent indication for GH treatment despite this diagnosis only applying to girls. Because of the importance and sex limited nature of Turner syndrome to indications for GH therapy it is useful to look at indications on a gender basis and with and without Turner syndrome included. Figure 3, below, shows the proportions of indications within male GH recipients.

**Figure 3. Male Indications**



Of all females receiving GH treatment 32.7% have been diagnosed with Turner syndrome. The remaining 67.3% is divided between the other indications as shown in Figure 4.

**Figure 4. Female Indications. Turner's Patients Removed**

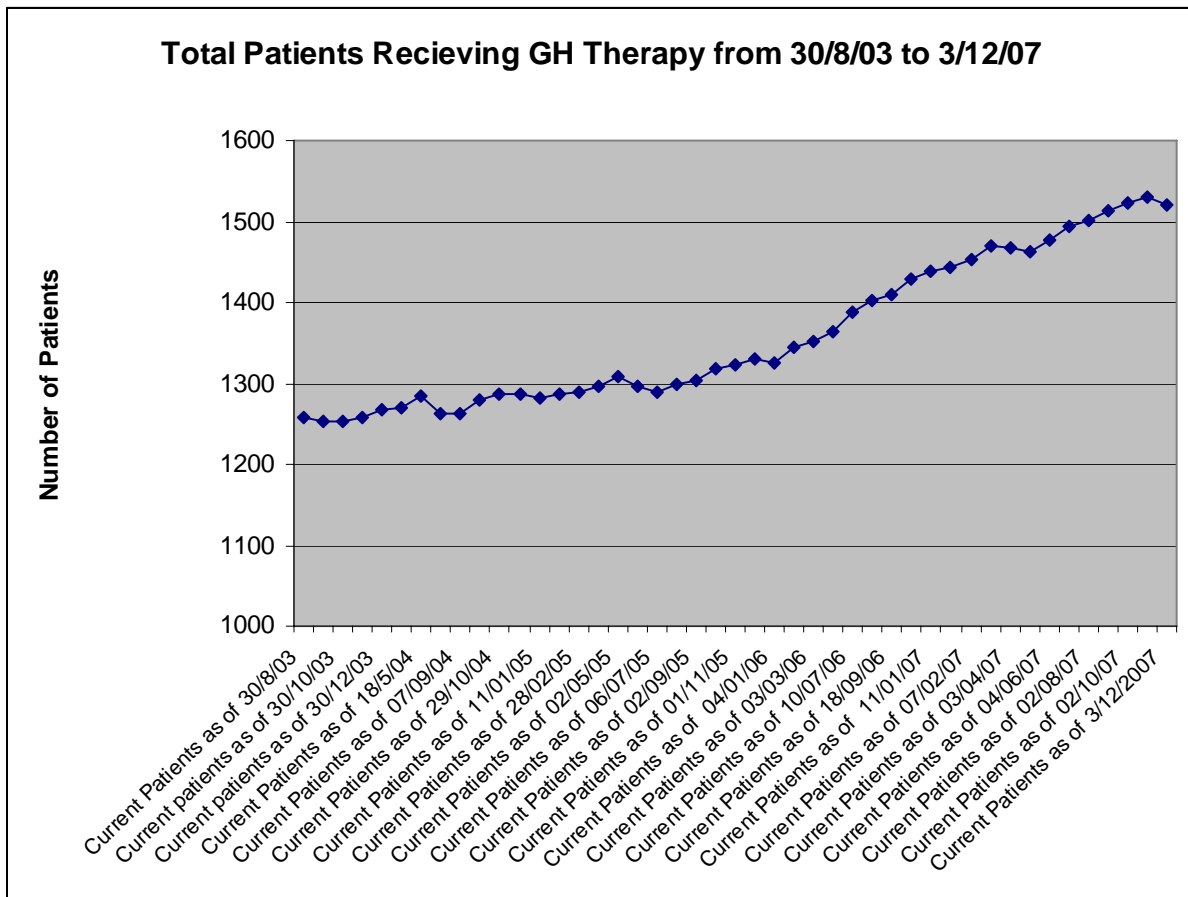


In comparing the distribution of indications between males and females (excluding Turner's) there was no significant overall difference ( $P=0.071$ ). However, taken on its own, hypoglycaemia was an indication for GH treatment significantly more frequently in girls prescribed GH than in boys prescribed GH ( $P=0.014$ ). From this result it is apparent that the difference between the proportion of boys and girls being treated with GH is not due to a particular relative susceptibility of boys over girls for one particular indication for GH therapy. It would appear, with the exception of hypoglycaemia, that girls are proportionately less represented across all categories.

#### 4.3.1 Trend in indications for GH treatment over time

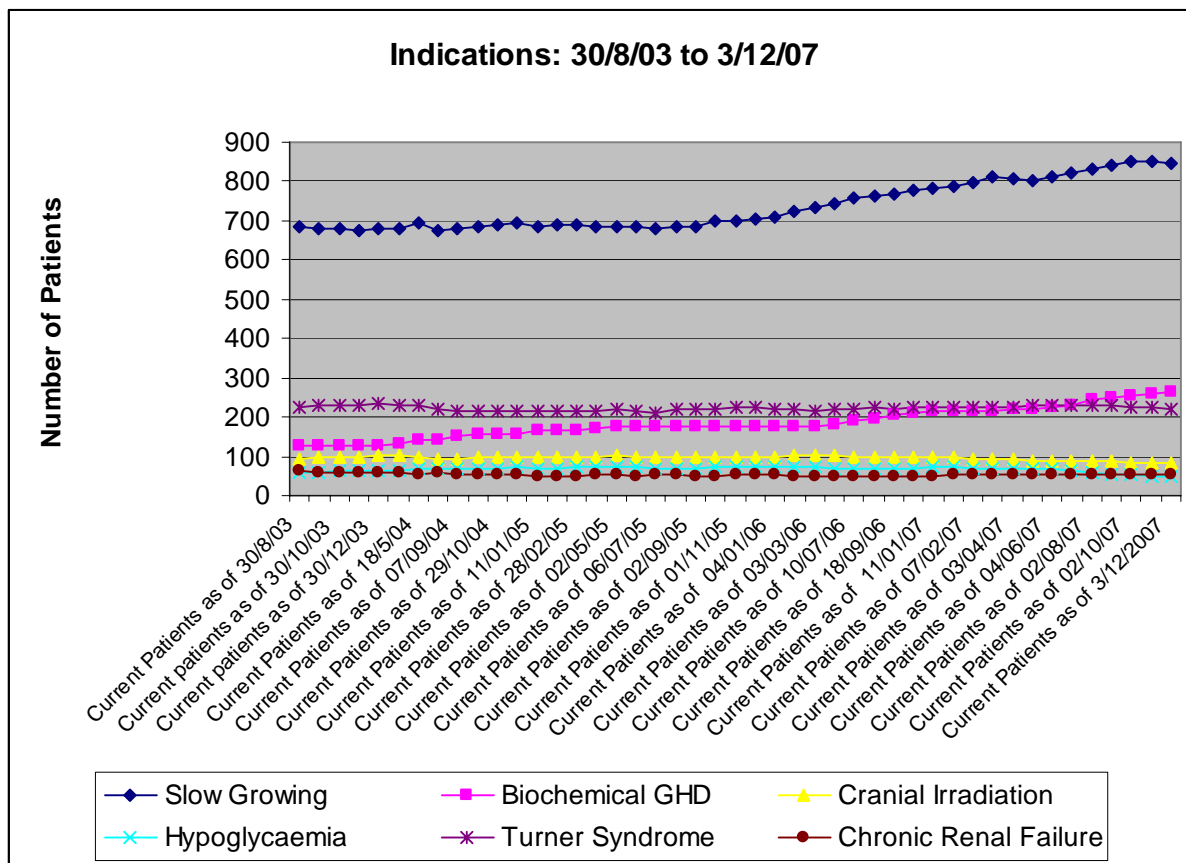
As can be seen from Figure 5., there has been a steady increase in patients receiving GH treatment from 2003 to the present day.

**Figure 5. Numbers of Children Receiving GH Therapy Over Time**



When this trend is broken down into indication categories it is interesting to note, from Figure 6., that only the “Slow Growing” and “Biochemical GHD” have shown any real increase since 2003. This suggests that the trend is not due to an increasing population base but better ascertainment of these individuals.

**Figure 6. Indications for GH Therapy Over Time**



**4.3.2 Why So Few Girls or So Many Boys?**

As was stated earlier, boys are significantly over represented amongst those children receiving GH therapy. This is true for most indications: Biochemical GHD (Male:Female, 1.61,  $P=8.3 \times 10^{-4}$ ), Cranial Irradiation (2.19,  $P=1.5 \times 10^{-3}$ ), and Slow Growing (1.92,  $P=6.87 \times 10^{-17}$ ). Only Chronic Renal Failure (1.79,  $P=0.061$ ) and Hypoglycaemia (0.88,  $P=0.54$ ) were non-significant, at the  $P<0.05$  level, with respect to gender bias. Are girls less susceptible to disorders of growth in general or are they less represented because short girls are less frequently referred to growth centres because, as it has been suggested, it is socially more acceptable for girls to be short than boys? This question has been addressed by the OZGROW research team and is being prepared for publication.

**4.4 Distribution of current GH treated patients by state**

Data available by October 2007 enabled a state by state analysis to be performed on the 1496 children being prescribed GH at that time. Table 1 shows the distribution of patients by state and Table 2, the numbers per 100,000 children under 17 years of age in each state according to ABS figures as of June 2007.



**Table 1. Distribution of Current GH Treated Patients by State**

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Total
Biochemical	4	109	1	44	15	5	41	37	<b>256</b>
Cranial Irradiation	2	30	0	10	2	3	29	7	<b>83</b>
Chronic Renal Failure	0	12	0	14	1	1	18	7	<b>53</b>
Hypoglycaemia	0	24	0	8	2	0	11	4	<b>49</b>
Precocious Puberty	0	1	0	0	0	0	0	0	<b>1</b>
Slow Growing	14	315	6	145	49	20	180	103	<b>832</b>
Turner Syndrome	4	76	4	54	11	5	45	23	<b>222</b>
<b>Total</b>	<b>24</b>	<b>576</b>	<b>11</b>	<b>275</b>	<b>80</b>	<b>34</b>	<b>324</b>	<b>181</b>	<b>1496</b>

**Table 2. GH Treated Children per 100,000 Children <17 Years of Age in that State**

	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Biochemical	5.50	7.23	1.71	4.64	4.69	4.56	3.74	7.94
Cranial Irradiation	2.75	1.99	0.00	1.05	0.63	2.73	2.64	1.50
Chronic Renal Failure	0.00	0.80	0.00	1.48	0.31	0.91	1.64	1.50
Hypoglycaemia	0.00	1.59	0.00	0.84	0.63	0.00	1.00	0.86
Precocious Puberty	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Slow Growing	19.25	20.90	10.28	15.28	15.32	18.23	16.40	22.10
Turner Syndrome	5.50	5.04	6.85	5.69	3.44	4.56	4.10	4.94
<b>Total</b>	<b>33.01</b>	<b>37.62</b>	<b>18.84</b>	<b>28.99</b>	<b>25.01</b>	<b>30.99</b>	<b>29.52</b>	<b>38.84</b>

A goodness of fit test assuming that the numbers of children receiving GH in each state should be proportional to the number of children 16 years and younger in each state showed that there was a significant deviation from the numbers expected ( $P=5.6 \times 10^{-5}$ ). This was due to higher than expected numbers in NSW ( $P=1.1 \times 10^{-6}$ ) and WA ( $P=2.4 \times 10^{-4}$ ). As might be expected from the over all increasing trend in the “Slow Growing” and “Biochemical” indications it was these categories that contributed most to the larger numbers seen in NSW and WA.

#### 4.5 Other demographic data

If APEG members require any other demographic data please contact Dr Ian Hughes. The OZGROW Research Team is currently performing further, more in depth analyses, on patient gender bias and other important questions such as response to treatment.

## 5. OTHER ACTIVITIES OF 2007

### 5.1 Publications and Presentations:

- Oral presentations
  - Conference presentations:
    - Dodrill P.M.M., “OZGROW Update”. 25<sup>th</sup> APEG ASM, Broome 2007.
    - Lisa Atkin presented to the Australian Endocrine Specialist Nurses at the HumatroPen™ 3 launch (Lilly) Meeting in Christchurch, New Zealand, September 2, 2007 prior to the ENSA Conference.
  - Other presentations and representations
    - Assoc. Prof. Peter Davies represented OZGROW and APEG at the 2007 Idiopathic Short Stature (ISS) Consensus Workshop held in Santa Monica, California. The workshop’s objectives were to review and, where appropriate, incorporate recent scientific advances in the diagnosis and management of children with ISS and consequently publish a consensus statement on the conclusions reached. A panel of 39 invited experts and representatives of relevant professional societies worked through a structured format of review lectures and written material, development of a set of unresolved questions in relation to ISS, breakout group discussions, and drafting of written group reports. Each report was critically reviewed by all delegates and combined into a consensus draft of the final document. Delegates then voted and agreed on each section of the document. A final version was circulated and signed off on by each delegate. The final document, “Consensus Guidelines for the Diagnosis and Treatment of Children with Idiopathic Short Stature: A Summary Statement of the Growth Hormone Research Society in Association with the Lawson Wilkins Pediatric Endocrine Society and the European Society for Pediatric Endocrinology”, was endorsed by APEG and all other world paediatric endocrine societies and has been submitted for publication in 2008.

- Written publications
  - Articles (published):
    - Davies P.S.W. (2007). Growth charts for use in Australia. *Journal of Paediatrics and Child Health*. **43** (1-2): 4–5.
  - Articles (In Press)
    - Dodrill P.M.M., Atkin L.-M., Davies P.S.W. (2008). A comparison of published criteria for assuming attainment of adult height in girls who have received GH treatment. *Journal of Pediatric Endocrinology and Metabolism*.
  - Articles (in preparation for publication):
    - Hughes, I.P. and Davies, P.S.W. (2008). New target height calculations for use in the clinic. *Journal of Paediatrics and Child Health*.
    - Hughes, I.P., and Davies, P.S.W. (2008). Gender bias in children treated with Growth Hormone in Australia. *The Journal of Pediatrics*.
  - APEG newsletter:
    - Dodrill P.M.M., Atkin L.-M., Davies P.S.W. Update on OZGROW 2007.
  
- Other
  - Conferences attended
    - Lisa Atkin attended the Brisbane Winter Endocrine Symposium 2007 on 27<sup>th</sup> July 2007.
  - Clinician queries:
    - Relevant data were extracted from the OZGROW Database and provided to the requesting clinicians.

## **5.2 Liaison with key stakeholders:**

- OZGROW Advisory Committee
  - Regular meetings and liaison between the Chair of the OZGROW Advisory Committee and the OZGROW Research Team.
  - Quarterly teleconferences between the OZGROW Advisory Committee and the OZGROW Research Team.
  - OZGROW Strategic Planning Meeting, 10<sup>th</sup> August 2007.

- A number of topics important for the future operation of OZGROW were discussed and actioned. The name “OZGROW” was discussed with a view to more prominently acknowledging it as an entity under APEG. It was resolved to keep the name but to represent it as an APEG initiative in presentations and publications. Future funding of OZGROW was discussed and different models proposed. Data collection and the need for a common database was initiated at this meeting. Similarly, the idea of Growth Centres taking on specialist research roles and for the OZGROW Advisory Committee to call for expressions of interest for research projects involving the database were first canvassed here.
- DoHA Canberra
  - The OZGROW Research Team frequently communicated with the DoHA GH staff via telephone and email throughout 2007. On November 15<sup>th</sup> 2007 Peter Davies and Pamela Dodrill travelled to Canberra to meet with Araceli Storn and Robert Nichols of DoHA and were joined in teleconference by Andrew Cotterill and Phil Bergman from APEG. A number of issues were discussed including the possibility of OZGROW providing in-service training to DoHA staff but most notably the idea of a common database. A discussion document was drawn up to help facilitate APEG members to come to a consensus on the preferred database and data collection method of the future. As will have been appreciated throughout this report, this is a major issue for OZGROW and APEG going forward into 2008.
- Growth Centres
  - Frequent telephone and email communications were made with all Australian and New Zealand Growth Centres with occasional face to face visits with some centres.
- Growth Hormone Advisory Committee (GHAC)
  - Informal communication in relation to the role OZGROW might play in regard to in-service training of DoHA staff.

- Adverse Drug Reaction Advisory Council (ADRAC)
  - Correspondence to obtain adverse event data relating to the use of GH therapy held by ADRAC. This complemented 10 adverse events reported directly to OZGROW by growth centres.
  
- Pharmaceutical Benefits Advisory Council (PBAC)
  - Peter Davies continued to liaise with the PBAC in his capacity as Chair of the Prader-Willi Association Scientific Advisory Committee.
  
- Pharmaceutical companies
  - OZGROW has maintained continued contact with all pharmaceutical companies providing GH in Australia and New Zealand.

### **5.3 Research applications received**

Three research applications were received to utilize the OZGROW database and the research skills and experience of the OZGROW Research Team.

- “Final Height in Turner Syndrome: relation to growth hormone dose and oestrogen treatment”.
- “Early commencement of Growth Hormone (GH) in children with Prader Willi Syndrome and its affect on growth and Body Mass Index (BMI)”.
- “End-organ Metabolic Responses to Recombinant Growth Hormone Therapy in Idiopathic Short Stature”.

The researchers involved in these projects are from The Royal Children’s Hospital, Melbourne, The Monash Medical Centre, Melbourne, and the Mater Children’s Hospital, Brisbane.

## **6. DIRECTIONS FOR 2008**

In January 2008 Dr Ian Hughes took on the full-time position of OZGROW research Fellow.

The major goals for the OZGROW Research Team in 2008 are:

- To talk to all centres and other stakeholders with respect to designing, building, and making available a common GH database for use across all growth centres and paediatric clinics in Australia and New Zealand.

- To commission the development of such a database and work with the developers to ensure all required and desired features are included.
- To continue to collect data for the OZGROW Database, both:
  - Directly from growth centres, and
  - Via DoHA, Canberra.
- To continue to work on merging patient data provided in different formats, while investigating more efficient options to allow data to be collected in the same format across the various growth centres.
- To undertake analyses of the OZGROW data and to publish, on behalf of APEG, outcomes in appropriate international journals while informing APEG directly of interesting or useful findings.
- To work with APEG researchers following approval of research applications.
- To approach APEG members to collaborate on research ideas stimulated by outcomes of OZGROW data analysis.

## 7. OZGROW Research Team Contact Details

**Email**            [ozgrow@uq.edu.au](mailto:ozgrow@uq.edu.au)

**Website**        [www.apeg.org.au](http://www.apeg.org.au)

- Dr Ian Hughes
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- Assoc/Prof. Peter Davies
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  - [ps.davies@uq.edu.au](mailto:ps.davies@uq.edu.au)
- Ms Marea Fox
  - 07 3365 5263
  - [marea.fox@uq.edu.au](mailto:marea.fox@uq.edu.au)

## Appendix 1. OZGROW Research Application Form

### APPLICATION FORM: PROPOSAL TO CONDUCT RESEARCH UTILISING DATA HELD ON THE OZGROW DATABASE

1. Name of centre:
2. Name of primary contact at centre for this proposal:
3. Patient group of interest:
4. Hypotheses to be tested:
5. Data fields required:
6. Expected n:
7. Rationale/ justification (500 words maximum):
8. Please complete memorandum of understanding attached to this form

## Appendix 2. OZGROW Research Memorandum of Understanding

### MEMORANDUM OF UNDERSTANDING FOR CROSS-INSTITUTIONAL RESEARCH

Title of Research Project:

--

Investigators:

Name	Department	Institution
1.		
2.		
3.		
4.		
5.		

Role in various stages of the research project:

Investigators	1	2	3	4	5
Formulation of research Question					
Data collection					
Data analysis					
Data interpretation					
Formulation of written manuscript Methods/ results Introduction/ discussion					
Revision of written manuscript					
Submitting for publication					
Storage of data					
Expected authorship					
Expected first or last authorship					

Communication between the OZGROW Research Team and the clinical investigators is expected to occur as follows:

Type	Frequency/ dates
Planning	
Writing	
Revision/ finalisation	

Expected communication process to occur if circumstances change (e.g. annual leave, maternity leave, resignation, etc.):

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Expected Completion Date of Research: \_\_\_ / \_\_\_ / \_\_\_



### Appendix 3. Database Requirements

#### ESSENTIAL AND DESIRABLE FEATURES OF A GH PATIENT DATABASE, AS IDENTIFIED BY AUSTRALIAN CLINICIANS

Note: Features listed in roman text have been identified by clinicians as essential  
Features listed in italics have been identified as desirable, but not essential

#### DATABASE PROGRAM

- ✓ Ability to use program for all GH patients regardless of brand of GH
- ✓ *Ability to use program for all endocrine patients (not just GH)*
  
- ✓ Ability to use program for daily clinical record entry
  - Patient name, DOB, and address
  - Doctor
  - Primary growth diagnosis (OZGROW codes)
  - Additional diagnoses
  - Chronological age
  - Bone age
  - Height (height SDS, height velocity, 6mth height velocity, 6mth height velocity SDS – calculated relative to chronological age and bone age, 12mth height velocity, 12mth height velocity SDS – calculated relative to chronological age and bone age)
  - Weight (weight SDS)
  - Pubic hair stage
  - Genital stage
  - Left/ right testis
  - Head circumference
  - Arm span
  - Sitting height
  - Lower segment
  - Predicted adult height
  - Body surface area
  - Results of any secretion tests
  - Results of IGF-1/ IGFBP-3 tests etc.
  - Dates of any tests
  - GH dose/ week
  - GH dose/ KG/ week
  - GH dose/ M2/ week
  - Concurrent medication
  - *Free fields for general notes*
  
- ✓ Automatic (live) calculations of information in brackets
- ✓ *Diagnosis specific entry forms for Turner's syndrome, GH deficiency following childhood tumor etc.*
  
- ✓ CDC referenced growth curves
- ✓ Turner specific growth curves
  
- ✓ 5 visit summary

- ✓ Application for GH letter
- ✓ Re-application for GH letter
- ✓ Cessation of GH letter

#### IT SUPPORT PROVIDED BY SUPPLIER OF DATABASE PROGRAM

- ✓ Initial training / training manual
- ✓ Infrequent changes to program
- ✓ Ongoing IT support within Australia
  
- ✓ Assistance writing program for transferring old data onto new system
  
- ✓ Ability to enter data offline
- ✓ Ability to save data on hard drive
- ✓ Ability to download data to send to OZGROW