Implementing a Subcutaneous Immunoglobulin (SCIg) Program

Background

On 1 March 2013 the jurisdictional Blood Committee (JBC) approved the introduction and availability of subcutaneous immunoglobulin (SCIg) products for specific patient conditions:

- Primary immunodeficiency with antibody deficiency
- Specific antibody deficiency
- Acquired hypogammaglobulinaemia secondary to haematological malignancy
- Secondary hypogammaglobulinaemia (including iatrogenic immunodeficiency).

Participation in a SCIg Program required the Sunshine Coast Health Service (SCHHS) to establish a hospital-based program within the governing requirements set out by the National Blood Authority (http://www.blood.gov.au/SCIg).

SCHHS Haematology and Immunology services identified a need to implement a SCIg program for adult patients to:

- Reduce the number of inpatient/day patient admission episodes as current treatment required administration of intravenous immunoglobulin therapy for each patient – which occurs regularly each 3-4 weeks for a 4-6 hour period of time (dose and patient dependent).
- Patient convenience and lifestyle benefits as the product is administered in the home environment on a weekly basis.
- Improvement in patient condition and a decrease in infective episodes, thereby decreasing the number of admissions for hospital treatment. Regular maintenance subcutaneous injections allow for a stable immunoglobulin level with-out the patient experiencing peaks and troughs (as with the intravenous method).
- Treatment methods for patients who experience adverse reactions to the intravenous method or for patients with difficult venous access.
- Reduction in adverse events in comparison to the intravenous method.

The SCHHS endorsed the implementation of a SCIg Program in October 2013 and sought approval through the Health Service Executive in December 2013.

Administration

- **Pumps vs push**
  At implementation of the program SCHHS did not have access or funding to supply pumps. Therefore treatment selection was based on the patient’s ability and desire to physically push the product over an extended period of time (based on dose) i.e. 1-2 hours each week. Six patients were commenced on the push method.

- **Springfuser**
  Springfusers are used for patients who are not able to physically ‘push’ the product (decreased strength or dexterity). The Nursing Director of Medical Services approved the purchase of Springfusers and consumables by each treatment unit. The NIKI five minute infusion kits are used as the product is viscous (50mls injected in approximately two hours in a dual lumen line). Slower lines were trialled but infusions were prolonged.

- **NIKI pumps**
  NIKI pumps allow patients with limited physical strength and dexterity to administer SCIg. These pumps are only used for patients who are not able to push or use the springfuser. Funding was sought through Wishlist and an external provider and the purchase of 5 NIKI pumps and carry bags was granted for the SCIg Program, site from Wishlist and Six from the external funding source.

- **Needles**
  Subcutaneous needles used for administration of SCIg in the SCHHS are:
  - Nerlia multi 27g x 8mm (dual lumen thumb needles) or;
  - HI FLO bifurcated multi lumen needles 26g x 9mm (up to 4 lumen) used for patients who require more than two lumen access or patients who require deep injection.

Program commencement

The SCHHS SCIg program educated the first two patients on the 17 March 2014. The program has been very successful with 26 patients currently self-administering SCIg. Five haematology and 21 immunology.

Four patients have ceased treatment since commencement:
- One patient not coping with self-administration and chose to go back to IVg
- One patient required increased renal doses of immunotherapy, therefore required to return to IVg
- One patient has deferred his own treatment as feels very well
- One patient is travelling around Australia and chose to defer treatment.

Treatment units

The SCHHS covers a large geographical area and incorporates four hospitals, Nambour, Caloundra, Maleny and Gympie. To ensure patient convenience to attend to treatment units:
- Nambour General Hospital
  - Cancer Care Services – haematology patients
  - Day Unit Intervention and Therapy (DUIT) – immunology patients
- Sunshine Coast Health Service
  - Day procedure Unit
- Gympie Health Service
  - Chemo Unit

Staff education

The Transfusion Clinical Nurse Consultant (CNC) coordinated a training day to provide information to identified key staff from proposed treatment areas on:

- Immunological indications
- Haematological indications
- Cost comparison: Intra vs SCIg
- Approval, ordering and dispensing processes
- Product Information: three products available
  - Storage conditions
  - Indications
  - Administration methods
  - Adverse events
  - Benefits and risks
- Patient training
  - Choosing the correct patients for SCIg – choice, poor venous access, previous reactions to immunoglobulin products.
  - How to assess your patient
  - How to educate your patient
  - Equipment
  - Pumps
    - NIKI pumps
    - Push method
- Brainstorming and planning
  - Resources: what are available, what do we need?
  - Prescribing: how is the product prescribed by medical officers?
  - Distribution: how often can the product be ordered, how is it distributed to the patient?
  - Administration: nurse check (correct product and dose to correct patient), patient record of administering the dose.
- Consumables: what consumables are required each month for patient to safely administer, how do we access pumps?

Patient education

Patients attend training sessions at their choice of treatment unit to learn how to self-administer SCIg safely. The number of training sessions attended is based on nursing and patient assessment of competence and confidence.

Issues: Outcome

<table>
<thead>
<tr>
<th>Issue</th>
<th>Outcome</th>
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</thead>
<tbody>
<tr>
<td>Patient training</td>
<td>100% (22) satisfied</td>
</tr>
<tr>
<td>Infections</td>
<td>157% (7) reported infection over winter (predominantly respiratory/sinus) - no patients reported an increase number/severity from normal</td>
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<tr>
<td>Hospitalisations</td>
<td>5% (1) chest infection and renal deterioration from disease process (unrelated to SCIg)</td>
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<td>Antibiotics</td>
<td>71% (%) of the patients with infection, seven required ABx</td>
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<tr>
<td>Issues</td>
<td>One month supply, patients still need to come to hospital monthly</td>
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<tr>
<td>Improvement of QOL</td>
<td>95% reported improvement to lifestyle, one patient stated “it’s time consuming doing weekly injections”</td>
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<tr>
<td>What can we do better?</td>
<td>One month supply of product (approved by ARCS) to supply two months. Ability to select product from non SCHHS hospitals for patients who live a distance away.</td>
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Number of training sessions for each patient

<table>
<thead>
<tr>
<th>Issue</th>
<th>Outcome</th>
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<tbody>
<tr>
<td>SCIg</td>
<td>31 (9) 4 training sessions</td>
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<tr>
<td>NIKI pumps</td>
<td>34 (16) 1 training sessions</td>
</tr>
<tr>
<td>Needles</td>
<td>34 (17) 1 training sessions</td>
</tr>
<tr>
<td>Pumps vs push</td>
<td>28 (10) 2 training sessions</td>
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Other key stakeholders:

- Clinical governance and risk management
- Clinical director – Medical Services
- Clinical director – Cancer Services
- Manager – Pathology – Blood Bank
- National Blood Authority
- Australian Red Cross Blood Service
- Pathology and Blood Bank representatives from the treating hospitals
- Registered Nurses – Treatment Units
- Transfusion Clinical Nurse Consultant (Leanne Hollis)