Under my skin

Implementing a Subcutaneous Immunoglobulin (SCIg) Program

Clinical oversight: Governed by the Immunology (Dr Karen Morwood) and Haematology (Dr Christine Lambooy) Services
Program lead: Transfusion Clinical Nurse Consultant (Leanne Hollis)

Background

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

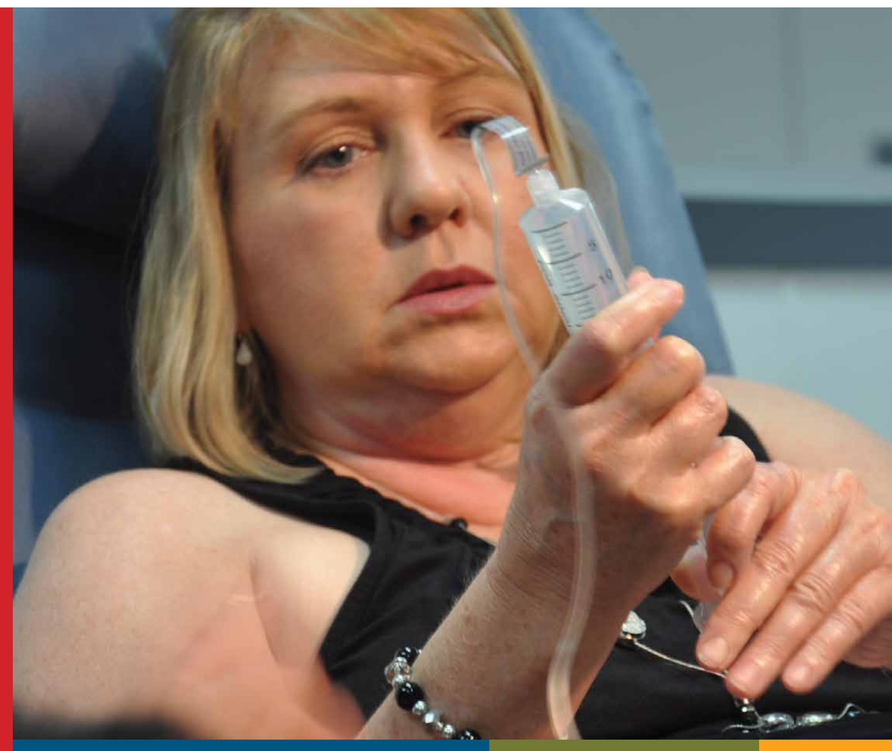
- Primary immunodeficiency with antibody deficiency
- Specific antibody deficiency
- Acquired hypogammaglobulinaemia secondary to haematological malignancy
- Secondary hypogammaglobulinaemia (including iatrogenic immunodeficiency).

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 dependant).
- 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 (weekly) subcutaneous injections allow for a stable immunoglobulin level with-out the patient experiencing peaks and troughs (as with the intravenous method).
- Treatment method 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 patient selection was based on the patient's ability (strength and dexterity) 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 30mLin 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 15 NIKI pumps and carry bags was granted for the SCIg Program, nine from Wishlist and Six from the external funding source.

Needles

Subcutaneous needles used for administration of SCIg in the SCHHS are

- Neria multi 27g x 8mm (dual lumen thumb needles) or;
- Hi FLO bifurcated multi lumen needles 26g x 9mm (up to 4 lumens) used for patients who require more than two lumen access or patients who require deeper 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 IVIg
- One patient required increased renal doses of immunotherapy, therefore required to return to IVIg
- 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 education, and, collection of the immunoglobulin product and consumables it was agreed that three of the four hospitals would offer the service in four day stay treatment units:

- **Nambour General Hospital**
  - Cancer Care Services – haematology patients
  - Day Unit Intervention and Therapy (DUIT) – immunology patients
- **Caloundra 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:

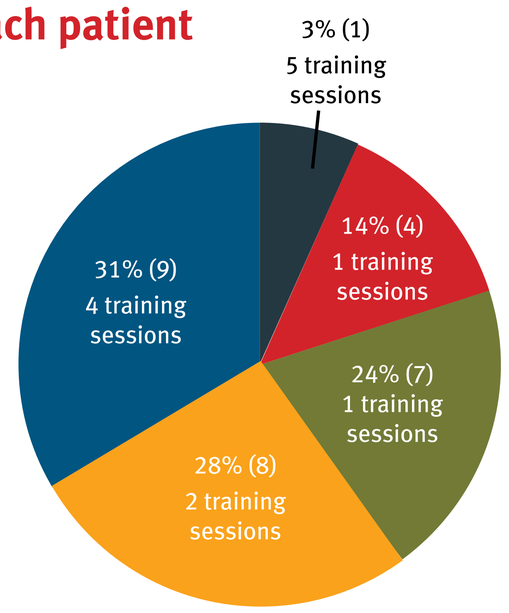
- **Immunological indications**
- **Haematological Indications**
- **Cost comparison: Intravenous vs SCIg**
- **Approval, Ordering and dispensing processes**
- **Product information: three products available**
  - Storage conditions
  - Indications
  - Administration methods
  - Adverse events
  - Benefits 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?

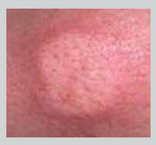
Patient education

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.

Issue	Outcome
Patient training	**One day per week for four weeks, key trained nurses only.** • First session three to four hours • Other sessions dependent on patient competence and rate of infusion (two to three hours).

Number of training sessions for each patient



Issue	Outcome
Adverse events 	**Mild site flare reactions** • Swelling • Tenderness and/or redness Size and severity dependent on patient. Reduced within 12 to 24 hours, eases within two to three months. --- **Systemic reaction (one patient)** • Rigors and flushing - 30 minutes post infusion and lasted one to two hours on two separate occasions. • Site flare reaction 10cm lasting three to four days (moderate) • **Change needle length (10mm) and location (thigh) four weeks. Change of product.** --- Abdominal abscess (one patient). Abdominal abscess developed post haematoma eight days after self injection OF SCIg - sixth treatment. Patient IgG level only 4.5 at the time of treatment.

Issue	Outcome
Training	100% (22) satisfied
Infections	37% (7) reported infection over winter (predominately respiratory/sinus) - no patients reported an increase number/severity from normal
Hospitalisations	5% (1) chest infction and renal deterioration from disease process (unrelated to SCIg)
Antibiotics	71% (5) of the patients with infection, seven required AB's
Issues	One month supply, patients still need to come to hospital monthly
Improvement of QOL	95% reported omprovement to lifestyle, one patient stated 'It's time consuming doing weekly injections'
What can we do better?	One month supply of product (approved by ARCBS to supply two months). Ability to collect product from non SCHHS hospitals for patients who live a distance away.

Other key stakeholders:

Executive Director Clinical Services
Executive Director of Medical Services
Director of Nursing Services
Service Director – Medical Services Group
Nursing Director – Medical Services
Director Anaesthetics – A/Chair Blood Management Committee
Clinical Director – Cancer Services
Nurse Educator – Medical Services
Manager Patient Safety and Quality Unit
Nurse Unit Managers – Treatment Units
Registered Nurses – Treatment Units
Pathology and Blood Bank representatives from the treating hospitals
Australian Red Cross Blood Service Representatives
National Blood Authority Representatives
Product Representatives

Queensland Government