Continuous Intraperitoneal Insulin Infusion – A Valuable Option When Subcutaneous Insulin Delivery Fails
Continuous Intraperitoneal Insulin Infusion (CIPII) – a valuable option when subcutaneous insulin delivery fails $^{1,2}$

Insulin delivered by CIPII acts faster than when delivered by continuous subcutaneous insulin infusion (CSII) or multiple daily injections (MDI).$^3$ Therefore CIPII more closely mimics physiological insulin secretion.$^1$

In subcutaneous insulin pump therapy, rapid-acting insulin analogs or buffered regular human insulin are continuously infused into the subcutaneous tissue. Unreliable absorption of subcutaneously administered insulin can lead to poor glycemic control. Sometimes, subcutaneous insulin is not tolerated at all.

CIPII offers an effective$^2$ and more physiological way of delivering insulin than CSII or MDI. Most insulin administered intraperitoneally rapidly enters the portal venous system. Thus, insulin concentrations are high in the portal circulation while avoiding peripheral hyperinsulinemia.$^3$
The Accu-Chek DiaPort system enables a fast and effective method of insulin delivery

Faster insulin delivery through intraperitoneal infusion results in a more physiological plasma insulin profile compared to subcutaneous insulin delivery\textsuperscript{1,3,4}

![Graph showing plasma free insulin levels with intraperitoneal (IP) and subcutaneous (SC) delivery]

- **Plasma free insulin (µU/ml)**
- **Hour**: 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
- **Breakfast**, **Lunch**, **Dinner**
- **Intraperitoneal insulin infusion (IP)**
- **Subcutaneous insulin injection (SC)**

short-acting insulin was administered 15 min prior to meal

When delivering insulin via the Accu-Chek DiaPort system, the onset of insulin action occurs within a few minutes, thus it more closely mimics normal physiological delivery of insulin, which may assist in improving the blood glucose profile.\textsuperscript{3}
Improved medical outcome: $^{1,2,5,6}$

The incidence of severe hypoglycemia with CIPII was less than half of the incidence with CSII. $^1$

Substantial improvements in quality of life with the Accu-Chek DiaPort system: $^1$
- For the overall Diabetes-Quality-of-Life (DQoL) score
- Less weight gain
Therapeutic advantages with the Accu-Chek DiaPort system

Intraperitoneal insulin therapy with the Accu-Chek DiaPort system has the following advantages over subcutaneous insulin injections or infusion:

- **More rapid onset of insulin action**\(^3,4\)
  Most insulin administered intraperitoneally rapidly enters the portal venous system. It therefore reaches the liver first without being distributed in the peripheral circulation. Insulin action starts much faster than with insulin delivered subcutaneously.

- **Reduction of the frequency of severe hypoglycemia**\(^1,2\)

- **Lower HbA\(_1c\)**\(^2,5\)

- **Beneficial for those suffering subcutaneous site issues**\(^3,4,5,6\)
  Such as allergic reactions to tapes or nickel or unreliable insulin absorption

- **Improved quality of life**\(^1,5,6\)
Is the Accu-Chek DiaPort system right for your patient?

The port may be a suitable solution for your patients presenting with one of the following indications while on optimized subcutaneous insulin pump therapy:

- Frequent severe hypoglycemia
- Hypoglycemic unawareness
- Subcutaneous insulin resistance
- HbA1c targets not reached (or only at the expense of an increased frequency of hypoglycemic episodes)
- Lipoatrophy
- Insulin-associated lipohypertrophy not controlled by injection site
- Skin disorders interfering with subcutaneous insulin administration
- Subcutaneous site issues, such as allergic reactions to tapes, nickel or Teflon®, as well as insulin absorption issues
Input from healthcare professionals and port users has led to major technical improvements of the second generation system*

The current Accu-Chek DiaPort system is distinguished by its technical advances regarding its titanium body, the infusion set and handling aid, the membrane and the catheter that extends into the peritoneal cavity.

A larger handling aid makes it easier to connect and disconnect the infusion set.

The infusion set connects the port with an Accu-Chek insulin pump. Only Accu-Chek pumps are intended for use with the port.** Clearer tubing makes it easier to see bubbles. The infusion set has a ball-shaped cannula. No needle stick injuries.

The membrane seals the port enabling patients to disconnect for showers, water activities or sports. It now needs to be changed only every 6 months instead of every 3 months.

A more flexible fixation disc provides greater comfort. The fixation disc is placed around the outer end of the port body, resting on top of the skin to increase stability. It is important to wear the disc at all times to avoid stress on the tissue that surrounds the port.

A flatter flower-shaped plate (diameter of 26 mm) placed under the skin helps to securely anchor the port body in the abdominal wall, supported by a newly integrated polyester felt band. The top of the port (with a diameter of 9 mm) extends approximately 5 millimeters above the surface of the skin.

* compared to the first generation of the Accu-Chek DiaPort device.
** The port is intended for use with the Accu-Chek Spirit Combo insulin pump.
Where is the Accu-Chek DiaPort system available?

Starting therapy with the Accu-Chek DiaPort system is only possible through dedicated centers: These are known as the “Accu-Chek DiaPort Centers Of Excellence”.

**Australia:**

**Royal Perth Hospital**
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**Mater Children’s Hospital**
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Dr. Craig McBride
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**Westmead Hospital**
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**France:**

**Hôpital Lapeyronie AMTIM**
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**Switzerland:**

**University Hospital Berne (Inselspital Bern)**
Prof. Diem
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P +41 (0) 31 632 40 70

**eSwiss Medical & Surgical Center**
Prof. Dr. Bernd Schultes
Brauerstr. 97
9016 St. Gallen
P +41 (0) 71 282 2050
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**Italy:**

**Azienda Ospedaliera Universitaria Città della Salute e della Scienza di Torino**
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Starting therapy with the Accu-Chek DiaPort system is only possible through dedicated centers: These are known as the “Accu-Chek DiaPort Centers Of Excellence”.

**Germany:**
- **Fachklinik Bad Heilbrunn**
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- **Diabetes Zentrum Mergentheim**
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- **Uni-Klinikum Dresden**
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- **Diabetologicum Duisburg**
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  E diabetologie@ruhrpraxen.de

- **Gemeinschaftskrankenhaus (Kinderklinik)**
  Dr. Dörte Hilgard
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  58313 Herdecke
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**United Kingdom:**
- **Wolfson Diabetes Endocrine Clinic**
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  Dr. Mark Evans
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  Box 281 Addenbrookes Hospital,
  Hills Road
  Cambridge CB20QQ
  P +44 (0) 1223 586505  Ext: 6505

- **The Queen Elizabeth Hospital**
  Dr. Parth Narendran
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- **A center for Wales will be advised soon. Please contact Susie.Read@roche.com for more details.**

- **King’s College London**
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- **Imperial College London**
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- **James Cook University Hospital**
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References


6 Hilgard D, Laengler A. Severe subcutaneous insulin infusion resistance in a 13 year old child - a case report of successfully performed therapy with a DiaPort system. Poster session ISPAD: 2009 Sep 2 – 5: Ljubljana, Slovenia.
CIPII - a valuable option when subcutaneous insulin delivery fails$^{1,2}$

**Improved diabetes treatment through continuous intraperitoneal insulin infusion with the Accu-Chek DiaPort system:**$^{1,2}$
Assisting in reaching therapy goals despite severe hypoglycemia, subcutaneous insulin resistance, lipohypertrophy/lipoatrophy, skin problems or allergies to needles

**Improved medical outcome:**$^{1,2,5,6}$
- Quality of life improvements
- Significant reduction of severe hypoglycemia
- Less weight gain
- Improved HbA$_1c$ values$^{2,5}$

**Improved mode of action:**$^{2,3,4}$
- More rapid uptake of insulin into the liver
- Closely mimics physiological insulin delivery

The Accu-Chek DiaPort system offers a valuable solution when subcutaneous insulin is not tolerated or reliably absorbed. It can also assist those suffering from subcutaneous site issues$^{3,4,5,6}$ – such as allergic reactions to tapes, nickel or Teflon$^®$.$^{5,6}$

Experience what’s possible.