The interdisciplinary approach: how to set up a diabetic foot clinic?

Dr. Kristien Van Acker

President elect  Diabetic Foot Programme IDF/ IWGDF
Diabetologist in Reet/Chimay
Consultant Tropical Institute- Bridges programme
Kristien’s Context

- 1st multidisciplinary DFC in Belgium in Antwerp 1989
- National implementation

1993-2001
- National implementation
- Active member of IWGDDiabetic Thé
Diabetic Foot Family

EURODIALE
Who are those Greece Family members – Google?

Nicolas Tentolouris & Christos Manes
and others like for example Kiriaki Kalligianni
Nicolas Tentolouris & Christos Manes
# Nicolas Tentolouris

## Diabetic Foot Study Group

### Executive & Scientific Committee

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chairman</td>
<td>Prof. Dr. Ralf Lobmann</td>
<td>Germany</td>
</tr>
<tr>
<td>Vice-Chairman</td>
<td>Dr. Klaus Kirkamp-Moeller</td>
<td>Denmark</td>
</tr>
<tr>
<td>Scientific Secretary</td>
<td>Assist. Prof. Dr. Nicolas Tentolouris</td>
<td>Greece</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Dr. Nina Petrova</td>
<td>Great Britain</td>
</tr>
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</table>

### DFGS

- Organisation
- Objectives
- Membership
- Executive & Scientific Committee
- Previous Meetings and Abstracts
- Links
- Research grants

### DFGS annual meeting

- Scientific Meeting
- Abstract Guidelines
- Poster Guidelines
- General Information
- Registration
- Sponsors & Exhibitors
Nicolas Tentolouris

Diabetic Foot Study Group

DFSG Organisation

The aim of the Diabetic Foot Study Group of the European Association for the Study of Diabetes is to promote an advancement of knowledge on all aspects of diabetic foot care through active co-operation and collaboration between diabetologists, podiatrists, specialist nurses, orthopaedic and vascular surgeons and all other specialists with an interest in caring for diabetic patients with foot problems.

DFSG 2013

September 20-22, 2013 Sitges, Spain.
Abstract submission deadline 01. April 2013
Early registration deadline 20. June 2013
Christos Manes

Manchester Royal Infirmerie-
Andrew Boulton- Aretsides Veves
Christos Manes

Manchester Royal Infirmerie- Andrew Boulton- Aristides Veyes
Content of our discussion

How to start?
Some advices of other national/international partners
Understanding the setting-importance of interdisciplinarity
Hospital administrators/policy makers
Quality control
In a network-context:
  Regional-national–international
In some places of Europe we started about 25 to 30 years ago with a brand new concept regarding foot ulcers and foot care for patients with diabetes: the multidisciplinary diabetic foot clinic. In Belgium we started in 1985. We didn’t have the actual gamma of treatment possibilities in cases of vascular disease. We were limited to upper limb bypass surgery, which was not always possible in our fragile diabetes patients who were suffering from co-morbidities. On the other hand, we did not have many patients with gangrene as a consequence of vascular impairment but we did have as a consequence of infection. As the prospects of better general diabetes care increased over the years with better survival rates, we observed a shift from pure neuropathic ulcers to more mixed neuro-ischemic ulcers. In favor of better care in this particular area we had observed an improvement in a short period of time in re-vascularization techniques with peripheral bypasses, and later in the mid ’90s the possibility to have an angioplasty and even today the very peripheral non-invasive re-vascularization. With this new technical approach we had to learn to treat patients as a whole and not only rely on pictures taken by angiography. For this reason the introduction of

**EYE OPENER: CASE OF CATHY**

A case report of a young patient with diabetes type 1 (DM 1) and a foot ulcer will demonstrate how important it is to work as a team to have the best results possible to keep this patient walking. Cathy, 44 years old and dealing with DM 1 for 18 years, had her first visit in our multidisciplinary foot clinic 14 months earlier with a longstanding foot problem after a fracture on her left foot 5 years earlier. A diagnosis of osteomyelitis of the fifth ray and Charcot foot of her left side was observed. She was treated with 4 insulin injections and had a very bad metabolic control with a HbA1c of 10.4% (90 mmol/ mol). She was properly treated with antibiotics and off-loading and healed completely. She continued her general diabetes treatment in another hospital.

Recently she again was hospitalized in intensive care for a complete and severe septic shock. The reason was a serious deep infection of the right foot foot with thrombosis and wet gangrene. The foot team was “alarmed” by the emergency service and we got involved as a team so that all decisions were made as a group. The
Content of our discussion

How to start?

Some advices of other national/international partners

Understanding the setting-importance of interdisciplinarity

Hospital administrators/policy makers

Quality control

In a network-context:
  Regional - national - international
You are convinced for a reason…

- You want to improve world?
- You want to reduce amputation rate?
- You want to reduce hospitalization stay?
- You want to reduce costs?

OR....

- You director of hospital told you!
Understanding your own motivation....will play a key role in your Diabetic FOOT history/”memoire”
Some one is convincing you, however, **not** to start for the following reasons ...

- Lack of money
- Lack of personnel – podiatrists
- Lack of room
- Lack of equipment
- Lack of time
Balancing...
Content of our discussion

- How to start?
- Some advices of other national/international partners
- Understanding the setting-importance of interdisciplinarity
- Hospital administrators/policy makers
- Quality control
- In a network-context:
  - Regional-national-international
But how to start?

- Try to find some co-founders; *Never alone*!
- Try to learn from other examples: *step by step.*
But how to start?

- Try to find some co-founders; *Never alone!*
- Try to learn from other examples: *step by step.*
- Try from the beginning to integrate it in an holistic approach
  - *Interdisciplinary approach: patient oriented*
  - *Integrated in the hospital vision/philosophy*
  - *With a good referral and contra referral pattern (networking)*
Establishing Diabetic Foot Clinics

Step by step philosophy: minimal – intermediate – maximal

- Facilities
- Material
- Personnel
  - “TIME TO ACT”, 2005
2005
How to establish a diabetic foot clinic?

Diabetologist → Nurse → Patient
How to establish a diabetic foot clinic?

Communication!

Max Spraul, Noordwijkerhout, 1991
Understanding the pre-per- and post-ulcer phase
Understanding the pre-per- and post-ulcer phase

Pre ulcer  Ulcer  Post-ulcer

Amputation
Understanding the pre-per- and post-ulcer phase
Intermediate- maximal model
<table>
<thead>
<tr>
<th>Minimal</th>
<th>Intermediate</th>
<th>Maximal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention and basic curative care</td>
<td>Prevention and curative care for all types of out-patients</td>
<td>Prevention and specialized curative care for complex cases</td>
</tr>
<tr>
<td></td>
<td>More advanced assessment and diagnosis</td>
<td>To teach other centres</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To develop innovative care strategies</td>
</tr>
</tbody>
</table>
## Patients

<table>
<thead>
<tr>
<th>Minimal</th>
<th>Intermediate</th>
<th>Maximal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own population</td>
<td>From the regional catchment area of the hospital with possibly some referrals from outside the region</td>
<td>National, regional or even international referral centre</td>
</tr>
</tbody>
</table>
## Staff

<table>
<thead>
<tr>
<th>Minimal</th>
<th>Intermediate</th>
<th>Maximal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor Podiatrist and / or nurse</td>
<td>Diabetologist or GP Podiatrist and / or nurse Surgeon Orthotist</td>
<td>Diabetologist Surgeon (orthopaedic, vascular, general, plastic) Podiatrists Physiotherapist Microbiologist Dermatologist Psychiatrist Nurses Educators Casting technician Orthotist Administrative, reception and secretarial staff</td>
</tr>
</tbody>
</table>
## Equipment

<table>
<thead>
<tr>
<th>Minimal</th>
<th>Intermediate</th>
<th>Maximal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scalpel handles</td>
<td>10g monofilaments</td>
<td>As for intermediate centre plus: Transcutaneous oxymetry, angiography, angioplasty, arterial bypass</td>
</tr>
<tr>
<td>Scalpel blades</td>
<td>128 Hz tuning fork</td>
<td>fully equipped operating theatre, duplex scan, Intensive care unit, beds, CT scans, ultrasound, laser Doppler, pedobarogram, patient and operator's chairs,</td>
</tr>
<tr>
<td>Nail nippers</td>
<td>Biothesiometer</td>
<td>computerized record systems, fully equipped teaching facilities, fully equipped orthotics service, grinder</td>
</tr>
<tr>
<td>Nail files</td>
<td>Doppler</td>
<td></td>
</tr>
<tr>
<td>10g monofilaments</td>
<td>Operating theatre</td>
<td></td>
</tr>
<tr>
<td>128 Hz tuning fork</td>
<td>Full sets of podiatry instruments</td>
<td></td>
</tr>
<tr>
<td>Dressings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bandages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antiseptic instrument-cleaning equipment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Vilma Urbancic & KVA
## Setting

<table>
<thead>
<tr>
<th>Minimal</th>
<th>Intermediate</th>
<th>Maximal</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP's office</td>
<td>Hospital</td>
<td>Usually a large teaching or university hospital</td>
</tr>
<tr>
<td>Health centre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small regional hospital</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Vilma Urbancic & KVA
# Facilitating elements

<table>
<thead>
<tr>
<th>Minimal</th>
<th>Intermediate</th>
<th>Maximal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close collaboration with a referral centre</td>
<td>Motivated coordinator to inspire team</td>
<td>Organize regional, national or international meetings</td>
</tr>
<tr>
<td></td>
<td>Exchange of experiences with other centres</td>
<td>Allow providers to visit to improve knowledge and practical skills</td>
</tr>
<tr>
<td></td>
<td>Staff meetings to discuss diabetic foot pts</td>
<td>Active collaboration with other reference centres</td>
</tr>
<tr>
<td></td>
<td>Active collaboration with other depts within the hospital</td>
<td>Active participation in the development of guidelines</td>
</tr>
<tr>
<td></td>
<td>Active collaboration with extra-mural facilities (GPs, nursing homes...)</td>
<td></td>
</tr>
</tbody>
</table>

Vilma Urbancic & KVA
Content of our discussion

- How to start?
- Some advices of other national/international partners
- Understanding the setting-importance of interdisciplinary
- Hospital administrators/policy makers
- Quality control
- In a network-context:
  - Regional-national-international
Patient-experiences, beliefs

- no knowledge
- social and economical influences
- denial
- strong negative feelings (anger, guilt, anxiety, depression, ...)
Interdisciplinary team:
Integrate separate discipline approaches into a single consultation.
Interdisciplinary team:

Integrate separate discipline approaches into a single consultation.

That is, the patient-history taking, the team, together with the patient, conducts assessment, diagnosis, intervention and short- and long-term management goals at the one time.
Practical “golden rules” for teambuilding:

5 Golden RULES?
Practical “golden rules” for teambuilding:

- Activity or project management has 4 characteristics:
  - 1/ definite duration,
  - 2/ logic relationship with other activities in the project,
  - 3/ resource consumption (information, energy, know how, time financial resources) and
  - 4/ associated cost

- Define roles and boundaries:
  - everyone needs clarity on their own role and to be clear about what other team members do.
Practical “golden rules” for teambuilding:

- Be aware of power dynamics:
  - Are certain members competing for control? Do some have more status than others?

- Taking decisions:
  - How, who and when is important. Team members must learn to value each other’s contributions, look at how the group communicates.
Practical “golden rules “ for teambuilding:

- Be aware “ different professionals have different views”
- Don’t underestimate the value of listening to service users (patients)
Most frequent barriers to team success:

- Often small details are the biggest barriers to team success, so pay attention to possible or current problems within your team.
Most frequent barriers to team success:

- Often small details are the biggest barriers to team success, so pay attention to possible or current problems within your team.

- Some of the biggest barriers include unclear goals, unhealthy communication, playing it 'safe', individual goals and poor leadership.
Example:
**onze ploeg HFR**

* **Artsen:**
  - K Van acker/ D. Lambrechts/ M. Van Kerckhoven
  - Drs Tondu en Thiessens

* **Paramedici:**
  - Ilse Heyvaert, Chloé, Matthieu Quidouse: podologen
  - Sandra, Elodie: wondzorgverpleegkundigen
  - Lieve en Monique: gipsverpleegkundigen

* **Schoentechnieker**
  - Marius Bajart
Casus of Cathy

* 44 y
* since 18 Yr DM type 1
* HBA1c 10,4% (90 mmol/mol)

* 14 months ago:
  ✓ Osteomyelitis ray 5 + Charcot L

* 14 aug 2012 acute H sepsis intens care
Cathy, 14 aug
Time is Tissue
But how to start?

Try to find some co-founders; Never alone!
Debridement?
21 augustus:
Angiosomen concept
Case report

arcus plantaris preop

arcus plantaris postop
Pre – ulcus phase

Table 1: Overview of Risk Categories

<table>
<thead>
<tr>
<th>Risk Group</th>
<th>Risk Category</th>
<th>Foot Examination Frequency</th>
<th>Examiner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Low Risk</td>
<td>Annual</td>
<td>Primary care nurse</td>
</tr>
<tr>
<td>Amber</td>
<td>At Risk (Moderate Risk Category)</td>
<td>Annual or more frequently as required</td>
<td>GP/primary care nurse. Annual review by podiatrist either in community or hospital.</td>
</tr>
<tr>
<td>Pink</td>
<td>At Risk (High Risk Category)</td>
<td>Annual or more frequently as required</td>
<td>GP/primary care nurse or hospital diabetes clinic, Plus scheduled annual review or more frequent review as required by member of foot protection team.</td>
</tr>
<tr>
<td>Red</td>
<td>Active Foot Disease</td>
<td>At least once weekly or as required</td>
<td>Diabetes multidisciplinary foot care service</td>
</tr>
</tbody>
</table>
Pre – ulcus phase

EDUCATION

!!!
Post – ulcus phase

Podologie opvolging ter preventieve controle
1x/maand
Content of our discussion

- How to start?
- Some advices of other national/international partners
- Understanding the setting-importance of interdisciplinarity
- **Hospital administrators/policy makers**
- Quality control
- In a network-context:
  - Regional – national – international
Policy makers
Ulcer Characteristics in Europe:
The Eurodiale Project
Distribution of costs (%) for all patients included in costing analysis (N=821)
Diabetic Foot Clinic?
Let’s talk business!

Dirk Ramaekers,
Med Director ZNA

After the evidence gap:
How to close the management gap?
THE MOST IMPORTANT THING!

Spend less than you earn!

(Handwritten text shows:

\[
\begin{align*}
\text{How much you make} & \quad \text{How much you spend} \\
\text{Goal: make it as big as you can!} & \\
\text{Spend less than you earn!}
\end{align*}
\]
THE MOST IMPORTANT THING!
SPEND LESS THAN YOU EARN!

HOW MUCH YOU MAKE

\{ \}

$\}

HOW MUCH YOU SPEND

\{ THE GAP \}

GOAL
MAKE IT AS BIG AS YOU CAN!
COSTS for your hospital?
COSTS for your hospital?
Ipswich Diabetic Foot Unit
Main Treatment Room
Match costs & revenues

CLINICAL PATHWAY = PRIMARY PRODUCT

- Medical department
- Hospital wards
- One day hospital
- Outpatient clinic
- Operating theatres
- Ancillary department
- ICU
- X-ray
- Lab
- ETC
- Nursing department
- Supporting departments
- Paramedical departments
3 steps for a business plan

1. Research
   - current and future number of patients? number of referrals? (gatekeeping ?)
   - care process? consequences?
   - patients’ preferences
   - competitors’ strengths and weaknesses
   - best practices
   - required human resources (!)
   - ongoing costs of operation
   - costs of launching the business and possible financing sources
3 steps for a business plan

1. Calculation
   - projected financials of the business using a financial model appropriate for health care
   - estimate the time horizon for profit
   - taxes, loan interest, fiscal deduction
   - use an automated spreadsheet

2. Writing
   - distinguish strategic from operational objectives
   - use a template
   - executive summary
   - never think outside the box!
3 steps for a business plan

1. Research
   - current and future number of patients? number of referrals? (gatekeeping ?)
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   - best practices
   - required human resources (!)
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   - use an automated spreadsheet

3. Writing
   - distinguish strategic from operational objectives
   - use a template
   - executive summary
   - never think outside the box!
New material: 10 Euro’s afschrijvingen
Podologie: 20 Euro

1 patient contact in a DFC: 75-100 euro of costs for the hospital manager
After costing all activity associated with the clinic, there was an overall saving of 114,063 Euro’s per year associated with the introduction of the MDFPC.
All depends in whom’s pocket....
Content of our discussion

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- Quality control
- In a network-context:
  - Regional - national - international
“Third Line Curative Diabetic Foot Clinics”

Critiria:

“Experience”: 52 new diabetic foot ulcers patient (Wagner 2/Charcot)

Specialised multidisciplinary team must be present at the out patient clinics during at least 48 weeks a year and at minimum a half day a week

Minimum members of the team:
- Diabetologist
- Surgeon
- Podiatrist
- Diabetic nurse/educator
- Orthotist
Standards of Quality for Specialized Diabetic Foot Clinics according to the Criteria of the Diabetic Foot Working Group of the German Diabetes Association (DDG)

1.1. **Structural quality**
   a) Equipment  
   b) Documentation  
   c) Staff  

1.2. **Structural- and Process quality**  
   Interdisciplinary cooperation by contract  

1.3. **Process quality**  
   a) Clinical pathways/standard operation procedures (SOP)  
   b) Hygiene plans  
   c) MRSA management plan  

1.4. **Audit** (active und passive)  
1.5. **Quality of performance**  
   Treatment results of 30 consecutive patients
Geographical spread

Location of foot clinic

Number of patients by municipality:
- 6 or more (46)
- 3 to 5 patients (185)
- 1 to 2 patients (280)
- 1 patient (2109)
- No patient (7718)
Belgian Benchmarking system

Off-loading (example of benchmarking)

Sample size 1600 patients
Content of our discussion

- How to start?
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- Understanding the setting-importance of interdisciplinarity
- Quality control

In a network-context:
- Regional - national - international
- 60% no current abnormality
  - Routine annual screening

- 20% increased risk
  - Regular `foot protection`

- 15% high risk
  - Intensive `foot protection`

- 5% active ulcers, infection, revascularisation, amputation
  - Multidisciplinary foot care team management

Integrated care

- Community Nurses
- Foot Protection Team
- Multidisciplinary foot care team
- In-patient service
- GP practices

Skills
Knowledge
Respect
Co-operation
Communication
Awareness
Education for healthcare professionals
Organization of care

Targets:

- Primary care integration
- Referral and contra referral system

Health Centre
Family health programme

Hospital
Specialized interdisciplinary team
Organization of care

Wound DF
> 2 weeks

Health Centre
Family health programme

Hospital
Specialized interdisciplinary team
Organization of care

DFWound > 2 weeks

Primary care

Diabetes clinic
Minimal model

DF wound > 1 month

Charcot
Complex revascularisation

Reference centre, DFC

Intermediate model, DFC
SUMMARY BOOK

Step by Step
IMPROVING DIABETES FOOT CARE
in the developing world
A pilot project for India - Tanzania
and
Nepal, Bangladesh, Sri Lanka

Funded by: WDF
With academic support from:
“Step by step” - improving diabetes foot care in the developing world

Funded by the World Diabetes Foundation (WDF)
<table>
<thead>
<tr>
<th>Regio</th>
<th>Hoofdstad</th>
<th>Opp. (km²)</th>
<th>Inw. (2001)</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Ziguinchor</td>
<td>Ziguinchor</td>
<td>7339</td>
<td>557.606</td>
</tr>
</tbody>
</table>
February 2013 Mark Sankale
Diabetic Foot Clinics: Implementation in Brazil - 1992

Example:
Spirit of IWGDF
1996 in een cel/hotelkamer in Amsterdam
Deligates of IWGDF 2011
„A journey of a thousand miles begins with one step“

Lao Tzu, China, 6th century
„All world-wide known diabetic foot clinics, so called centers of excellence, were created one step at a time“

K. van Acker, Belgium, 21st century
Thank you on behalf of our patients.....