European Network for Rare Congential Anaemias (ENERCA)
Final Report

Final report of a project supported by the Community Rare Diseases Programme 2000-2002
European Network for Rare Congential Anaemias (ENERCA)

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ENERCA FINAL REPORT:
Part 1- Technical report
Prepared by: Sara Hurst
Project Coordinator
Barcelona

Signed and approved by:
HEAD OF PROJECT
Barcelona

Prepared by:
COORDINATOR
Barcelona
# PROJECT IDENTIFICATION

<table>
<thead>
<tr>
<th><strong>Title of the project</strong></th>
<th>European Network for Rare Congenital Anaemias</th>
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<tr>
<td><strong>Acronym of the project</strong></td>
<td>ENERCA</td>
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<td><strong>Type of contract</strong></td>
<td>SANCO. Public Health.</td>
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<td><strong>Total project cost (budget)</strong></td>
<td>280.195,68 €</td>
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<tr>
<td><strong>Reference number</strong></td>
<td>SPC. 2002362</td>
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<tr>
<td><strong>Duration</strong></td>
<td>18 Months</td>
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<td><strong>EU contribution (granted)</strong></td>
<td>195.042,40 €</td>
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<td><strong>Start date</strong></td>
<td>15th October 2003</td>
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<td><strong>Period covered by this report</strong></td>
<td>15 October 2002 – 15 April 2004 (full term)</td>
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# HEAD OF PROJECT (contact point for queries concerning this report)

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# Secretary

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# LIST OF PARTNERS

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<tr>
<th>Gordon Walker Stewart</th>
<th>Achille Iolascon</th>
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<tr>
<td>Ugo Testa</td>
<td>Angel F. Remacha</td>
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<td>Maria Paula Duarte Faustino Gonçalves</td>
<td>Palle Cristopherson</td>
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<td>Renzo Galanello</td>
<td>Claude Prehu</td>
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<td>Henrí Wajcman</td>
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<td>Hermann Heimpel</td>
<td>Isabelle Max-Audit</td>
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<td>Herbert Sandström</td>
<td>Serge Pissard</td>
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<td>Maria Leticia de Sousa Ribeiro</td>
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<td>Sarah Ball</td>
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<td>Jean Delauney</td>
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<td>Diane Maisin</td>
<td>Max Lakomek</td>
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<td>Philippe Marianne</td>
<td>Wilfred Kugler</td>
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<td>Arnulf Pekrun</td>
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# LIST OF COLLABORATORS (Non members)

| Henrik Birgens, Maria de Mar Mañiu | Mark Layton, Andreu Vidal |
## Section 1: Project Details – full 18 months

### Objectives:

1. To set up a website with database for European health professionals in the field to include those entries listed in annex 7 of the “integrated work plan 2002” and to keep the information current.
2. To facilitate clinicians in primary, secondary and tertiary care in rapidly identifying appropriate diagnostic and treatment centres/clinicians with particular expertise in specific rare congenital anaemias when referral or advice is needed.
3. To facilitate patient access to information about their condition by providing an easy to understand information pamphlet in their language. This would be available online from the website for doctors to download for patients and their relatives.
4. A personal Medical Alert Card (MAC) will also be provided for patients to carry with them containing their name, condition, current medication, their doctor’s telephone number, the website address and an emergency contact telephone number.
5. To make advances in the understanding of genetic mechanisms in congenital anaemias to improve early detection. Our project will create a core of expertise within the community and rapidly disseminate its findings by means of a web-based database.
6. To promote the surveillance of congenital anaemias by studying epidemiological data for countries and local geographical areas.
7. The final aim is to offer a much-improved service for patients in every aspect, from reducing detection time to providing a reliable service that will be standardised across the European Community.
Expected Results:

1. Improved detection time and uniform approach for prevention, diagnosis and treatment of rare congenital anaemias
2. Establishment of referral centres of excellence/experts to provide professional assistance and information throughout the European Community
3. Provision of readily available information for patients about their disease; A personal MAC will aid a prompt response in case of emergency
4. Provide an officially endorsed Website and restricted access database for professionals to provide an on-line forum and member newsletters.
5. Epidemiological data studies to monitor occurrence of congenital anaemias for countries and local geographical areas and create a registry for rare congenital anaemias.
6. Promote the exchange of information between the different research groups in order to contribute to improve the better understanding of molecular and genetic mechanisms of congenital rare anaemias.

Work plan

Month-by-month plan:

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Key:

- Purchase of equipment and “paper” design of website.

- Work with IT Professional to a) start website design, b) put pre-release version on-line for comment by steering committee and c) add any finishing touches before the final release.

d) 1st ENERCA Symposium to agree with steering committee on website and database content and interim report production. e) 2nd ENERCA Symposium open to all partners for comment on pre-release ENERCA site.

- Website and database design and modification.

- Website follow-up visits after pre-release version.

- End of project report and website on-line.
Section 2: Progress and Performance

A. Preparation activities:

(Essential for project start up. Not necessarily in this order but all done in the first 2 months of the project)

- All 36 members were informed that the project had been accepted and a steering committee was formed from 1 representative in each country (see annex 1 – steering committee list). This was the fairest way to choose the team to direct the project. In some countries there is only one member and in others, there can be up to 8. This means each country is equally represented and where there is more than one member in the country, it promotes the establishment of “within-country” networks.
- The office space was acquired and conditioned. (Furniture, lighting, air-conditioning, decoration, telephones...)
- The photocopier/fax and computer were ordered.
- The advertisement and interviews were done to find the secretary. This process was started a couple of weeks before start so that she could start officially on day one.
- Contracts were drawn up for the coordinator and secretary.
- The first Symposium was planned and flights and hotel booked.

B. Meeting objectives set:

1. To set up a website with database for European health professionals in the field to include those entries listed in annex 7 of the "integrated work plan 2002" and to keep the information current.

   - We have created a web portal for patients and professionals working in the field of rare congenital anaemias. It is online for comment at: www.enerca.org.
   - The website contents were agreed by everyone in the first symposium. This was: the 9 members of the steering committee, the project head, the project coordinator and the project secretary (See annex 2 – minutes for symposium I). Ricard Huguet, the “then” project head from Software AG (the IT company) was also there and he ran a workshop with the group to help define the group’s IT needs. (The Software AG project head was later changed to Ivan Pellicer)
   - The data base fields specified in annex 7 of the "integrated work plan 2002" are included along with some more suggested by ENERCA members (see annex 3). It was decided that many of the fields could be combined in one document (the technical description) instead of having them as separate entries. (see annex 5) For example: 1, 2, 3a, 5, 6, 7, 8, 9, 10a and sometimes 13 and 14 too.
   - Our members have provided some of these technical descriptions but most of them are provided by links, IE: to the OMIM database. The group discussed this in symposiums I and II and agreed that this was the best way to avoid duplication of efforts (see annexes 2 and 4 – minutes for symposiums I and II) The links to OMIM will be updated automatically by them so the information will always be current and maintenance for the ENERCA team is kept to a minimum. (See also part F: Deviations from work specified in contract)
• The registry for rare congenital anaemias was created during Symposium I and revised in later discussions. The current version can be found in annex 6 although, as new forms of rare congenital anaemias emerge, this list will be subject to change in the future.
• The general design for the website and database can be found in annex 7.

2. To facilitate clinicians in primary, secondary and tertiary care in rapidly identifying appropriate diagnostic and treatment centres/clinicians with particular expertise in specific rare congenital anaemias when referral or advice is needed.
This objective is met largely by the ENERCA extranet (The “registered users only” part of the ENERCA website and database). In collaboration with the 36 members we have incorporated many more features than originally planned and feel that this will be a really useful tool for them, especially in cases where there is little or no experience and data available.
These features are listed below:
• Full list of specialist centres and experts with services offered. This aids doctors in the search for specialist advice, specialist services, referrals, etc. We have included full contact details of each centre and specialist and the area of expertise for each specialist. These records are organised into countries and then listed by cities.
• Doctors are able to download a technical description of each illness included in the project. This helps doctors who are new to the field or who simply have not had a patient with this condition before. (See also comments made in 1, above)

3. To facilitate patient access to information about their condition by providing an easy to understand information pamphlet in their language. This would be available on-line from the website for doctors to download for patients and their relatives.
• This is the MAC. See section 4 below

4. A personal Medical Alert Card (MAC) will also be provided for patients to carry with them containing their name, condition, current medication, their doctor’s telephone number, the website address and an emergency contact telephone number.
• It will be a simple, easy-to-understand description in their language displayed together with their name, condition, current medication, their doctor’s telephone number, the website address and an emergency contact telephone number.
• Some of the details will be added by the doctor before printing. The additional personal details will have to be added by hand so that no personal data is stored in accordance with the data protection act. The final design is shown in annex 8.
• The aim of this document is twofold: i) it serves to inform the patient and provide a reliable fact sheet for them in their language ii) it speeds up response time in an emergency by facilitating contact details and diagnosis to the emergency team.
• The concept of a MAC was very popular within the group. Most people agreed that it is something that is needed and, as such, were in favour of it’s development.
• The system has been set up to make MAC production quick and easy but the doctor concerned must do it from within the extranet. The patient is able to download the same description of their own accord from the open part of the website but it will not have the contact details or the medical information. In this way, a patient is unable to demonstrate diagnosis of a particular condition without the doctor’s consent.
5. To make advances in the understanding of genetic mechanisms in congenital anaemias to improve early detection. Our project will create a core of expertise within the community and rapidly disseminate its findings by means of a web-based database.

Our project is not a research project. This objective refers to the promotion of the transfer of knowledge within the group. This is vital in cases where there is little or no data available. The various centres involved in the project already exist but the project serves to bring them together in an officially recognised way so that they can better serve each other and Europe. The collective experience of the group is a rich information source available for all those working in the field. They only need to register in the website to access the data and the specialists.

- Through the forum and virtual notice board they can share knowledge and experience, cases of interest, doubts or ask advice to a group of about 70 experts in 14 countries.
- The “find a partner” option on the virtual notice board promotes the joint application of European projects so they can build upon their current knowledge.
- In the bibliography section, they can find a wide range of relevant publications. Again, the group has been asked for recommendations here.
- At the time of writing, there are about 70 users registered on the website from 14 countries. There are also about 100 experts published in 10 countries.
- There are an average of about 200 different visitors to the site every month. As you can see from the graph below, at the start of the project, there were a lot of visits made by a relatively small number of people. Now, the situation is changing: there are more and more new visitors each day.

![Statistics for www.enerca.org](image)

- The use of the MAC for epidemiological data collection, helps the experts quickly identify the centres where there is a patient with a specific condition. For example: If a doctor has a case of pyropoikilocytosis and he has no experience with that condition, he can look at the stats produced by the MAC and find the other European centres that have pyropoikilocytosis patients and subsequently the doctors details from the expert registry.
6. To promote the surveillance of congenital anaemias by studying epidemiological data for countries and local geographical areas.
   - There is an area for displaying the abstracts of any existing epidemiological publications. References have been requested from each centre and searched for amongst the specialist press.
   - The database provides dynamic, up-to-the-minute data for each centre participating in project. This is achieved via the MAC. (See annex 9)
   - The idea of using the MAC for epidemiological data capture met with a very mixed response in both the symposiums. (See section F: deviations from work specified in contract) However, the system has been set to produce two types of statistical report: i) illness, by race, by number of patients or ii) illness by country, by centre, by number of patients.

7. The final aim is to offer a much-improved service for patients in every aspect, from reducing detection time to providing a reliable service that will be standardised across the European Community.
   - Patients have access to an informative, officially endorsed website. At present we have the support of the Generalitat (Government of Catalonia), the Ministerio de Sanidad (Spanish Government) and the Institut de Salud Carlos III in Madrid (official Spanish research organisation). We are actively seeking more collaborators at present. We hope this will give them a sense of security when they access the site.
   - There is a full list of specialist centres organised by country and then by city, complete with contact details. This helps patients find a centre near their home.
   - They also have access to a list of national and international patient support organisations and other related links which can offer them further information and advice.
   - In the patient notice board, patients can contact people in a similar position and parents can share their experiences. It is hoped that, at best, this will facilitate the establishment of patient support groups and, at worst, it will help patients to contact others in the same situation.
   - See objective 3: Illness description
   - See objective 4: MAC
C. Appropriate use of funding
(See PART 2: financial report)

As you can see from the attached financial report, we have made huge savings on the predicted expenses and this is with the inclusion of vat in the budget. (Annex 22)

D. Adherence to time plan:

1. Overview: The ENERCA project has been run according to the plan sent in the original proposal.

2. The late start and finish of the website / database work:

The work started a few weeks later than planned and finished much later than planned. The principal causes are listed below:

- The process of preparing the ENERCA office took longer than planned which delayed project start.
- We were forced into changing the IT company chosen. We had significant doubts about the company specified in the contract and, as such, are now working with Software AG.
- When we ordered the PC for the office, they company sent one with a lower specification and without some of the extra components requested. The process of correcting the mistake and installing the new components has delayed our progress.
- Software AG said it was a good idea to wait until after Symposium I. In this way, they could present their proposal and agree it directly with the steering committee.
- The head of project for Software AG was changed halfway through the work so the whole design / analysis stage took much longer than normal. Consequently there were several discrepancies between the work agreed with the first head of project and the work delivered by the second.
- The current situation is that the work has been finished according to the original agreement and some small modifications have been incorporated after discussion in symposium II (see annex 4)

3. Symposium I

This was held in Hotel Antemare from 23rd –25th January and was attended by all the steering committee and the ENERCA head of project, coordinator and secretary. It was very successful and some of the conclusions drawn have been mentioned here. The official minutes are available if necessary.

4. Italy feedback trip

The coordinator visited 4 of the Italian members in Milan on the 2nd of June. The meeting was very useful to confirm the present state of the work. Again official minutes are available (see annex 10).

5. Belgium and Germany feedback trip
Belgium:

The coordinator visited 2 of the Belgian members and a Belgian collaborator in Brussels on the 28\textsuperscript{th} of July. The meeting was very useful to confirm the present state of the work. Again official minutes are available (see annex 11).

Germany:

The coordinator visited 1 of the German members and 4 German collaborators in Gottingen on the 29\textsuperscript{th} of June. She also spoke to 2 more members by phone whilst there to get their feedback too. The meeting was very useful to confirm the present state of the work. Again official minutes are available (see annex 12).

6. Sweden and Denmark feedback trip

Sweden:

The coordinator visited the Swedish member in Umea on the 8th of August. The meeting was very useful to confirm the present state of the work. Again official minutes were prepared and are available (see annex 13).

Denmark:

The coordinator visited the Danish member in Copenhagen on the 9\textsuperscript{th} of August. The meeting was very useful to confirm the present state of the work. Again official minutes were prepared and are available (see annex 14).

7. Portugal feedback trip

The coordinator visited 2 of the Portuguese members in Lisbon on the 22\textsuperscript{nd} of August. The meeting was very useful to confirm the present state of the work. Again official minutes were prepared and are available (see annex 15).

8. France and England feedback trip

England:

The coordinator visited 3 of the English members in London on the 26\textsuperscript{th} of September. The meeting was very useful to confirm the present state of the work. Again official minutes were prepared and are available (see annex 16).

France:

The coordinator visited 4 of the French members in Paris on the 30\textsuperscript{th} of September. The meeting was very useful to confirm the present state of the work. Again official minutes were prepared and are available (see annex 17).
E. Subcontractors

- **Xerox** - hire of photocopier. No problems.

- **Betagamma** - PC. Company changed due to serious doubts about working practices. Eventually ordered through **ID group** who are subcontracted by Hospital Clinic. Problems detailed in section D above.

- **Betagamma** - Website / database / design / consultation Company changed due to serious doubts about working practices. See section D, above. **Software AG** was chosen as a replacement since it has ISO 9000 certification and we felt this would give some protection. Unfortunately this was not the case. See also section F.

- **Telefónica** - Spanish telephone service provider No problems. Originally we contracted two telephone lines but this was later changed to one, as there was no real need for two.

- **Ibis Copisteria** - offset printers for business cards, posters, etc. No problems.

- **Ultramar Express** - Organisation of travel needs: flights, hotels, etc. Significant problems. Negotiations with this company over the organisation of Symposium I resulted costly in both money and time. As soon as this stage was completed, a change was made to **Viajes El Corte Ingles**. The service has improved in every aspect.

- **Hotel Antemare** - Symposium I conference facilities No problems.

- **Web Studio** – Hosting Company changed on the advice of IT contractors. Now **Hostalia Internet**. No problems.

- **Web Studio** – Domain Company changed on the advice of IT contractors. Now **Nominalia**. No problems.

- **Debat traductores** No problems
F. Deviations from work specified in contract

1. Exploitation and dissemination activities.
   a) Congresses
   We have been actively promoting the project in national and international congresses. This has involved poster presentation (see annex 18) and has generated a lot of interest within the community, especially in terms of motivating experts to register in the website. We have also used these conferences as an opportunity to network with other groups working in the field.

   We have presented in:

   - XLIV Reunión Nacional AEHH, 17-19 October 2002, Tarragona (Spain)
   - 14th Meeting of the European Association for Red Cell Research, 24-28 April 2003, Roscoff (France)
   - 8th Congress of EHA (European Haematology Association), 12-15 June 2003, Lyon (France)
   - Alliance - Maladies Rares (European Conference on Rare Disorders and Disabilities), 16-17 October 2003, Paris (France)
   - 17th Meeting of the ISH (International Society of Haematology) – European and African Division, 7-10 September 2003, Graz (Austria)
   - XLV Reunión Nacional AEHH (Asociación Española de Hematologia y Hemoterapia), 23-25 October 2003, Santiago de Compostela (Spain)
   - VI Congrès Català de Cienciès de Laboratori Clínic – ACCLC, 4-6 March 2004, Perpignan (France)

   b) Sponsors
   - We have been promoting the project in our search for sponsors and, to this end, have prepared a PowerPoint presentation (see annex 19). We would like to believe that this process has also provoked an interest into research of these illnesses.
   - The search has been successful so far in that we have received:
     - Loan of Projector, notepads and biros from BIO-RAD
     - Payment of Domain (10 years) From MERCK
     - 600 Euros from ROCHE (used for the meeting room and a special dinner in Symposium I and for photocopier toner and 1 month's hosting)
     - Logistic support from Generalitat
   - We are still actively seeking sponsors for many reasons. We believe it will lead to a better service to the members and to the community, to a reduction in the funding requested and to potentially securing the future of ENERCA.
2. Project Quality Assurance

- We have obtained permission to add various seals of quality to the website: Generalitat (Government of Catalonia), the Ministerio de Sanidad (Spanish Government) and the Instituto de Salud Carlos III in Madrid (official Spanish research organisation).
- Sr. Andreu Vidal, Webmaster for the Generalitat, made a full assessment of website: Usability, completeness etc. before closing the deal with SOFTWARE AG.

3. Added value for centres involved and for Europe

- The on-line forum opens up communications between the various experts.
- The virtual notice board for the patients helps them get in contact with other people in the same condition as themselves. It is hoped that it will also help bring people together to establish support groups too.
- The “find a partner” option on the virtual notice board encourages cooperation and helps to forge collaboration agreements when applying for multi-centre grants.
- The MAC also offers the users an anonymous “patient locating” device. The use of the MAC for epidemiological data collection helps the experts quickly identify the centres where there is a patient with a specific condition. For example: If a doctor has a case of pyropoikilocytosis and he has no experience with that condition, he can look at the stats produced by the MAC and find the other European centres that have pyropoikilocytosis patients and then subsequently find the doctor’s details from the expert registry.
- The fact that a centre can use the statistical functions of the MAC for its internal “stocktaking” of the patients provides a good argument for that centre joining ENERCA.

4. The technical descriptions

- It was decided that many of the database fields could be combined in one document (the technical description) instead of having them as separate entries. (see annex 5) For example: 1, 2, 3a, 5, 6, 7, 8, 9, 10a and sometimes 13 and 14 too.

Our members have provided some of these technical descriptions but most of them are provided by links, IE: to the OMIM database. The group discussed this in symposiums I and II and agreed that this was the best way to avoid duplication of efforts (see annexes 2 and 4 – minutes for symposiums I and II) The links to OMIM will be updated automatically by them so the information will always be current and maintenance for the ENERCA team is kept to a minimum.
5. The MAC

- Patients’ descriptions:
  At the time of writing, very few patient descriptions had been received. Unfortunately, this means that this part of the project will not be carried out to completion. The group were asked to help with this aspect but the only suggestion received was to put a link to established sites to save duplication of efforts. This is a valid argument but the way the database compiles the MAC document means that you must input a text, not a link. This defeats the objective of providing them with the description and makes controlling the languages that are available impossible. Depending on the country of residence and socio-economic level of the patient, maybe they won’t even have access to a computer. The thinking behind this objective was to help the patient by providing them with a description. A link cannot do this. (See annex 8)

- Epidemiological data collection:
  Some doctors said it was impossible to implement this system in their country due to restrictions caused by the data protection act. We then devised the system for maintaining patient data confidential and removal of the need to enter the family name. (See annex 9) Again people said that, depending on the nationality of the patient; they may spell their name differently every time, thus creating a new record upon each entry. In theory, the system should reject duplicates but if the name is spelt differently, the record will not be considered a duplicate.

There were also several comments about the scientific value of the statistics produced. It was pointed out that unless every centre in a given country participates in the MAC data collection, the data would be of little or no value since all the cases need to be captured. Most people agreed with this but said they might use the “find a patient” and “stocktaking” capabilities of the system. (See point 3. Added value for centres involved and for Europe)

In the second symposium, held in November 2003, the members present discussed the race box. They made several suggestions and finally agreed that the list of races should be more detailed. Unfortunately when they were asked, at a later date, to specify a new list, nobody was able to provide one. As such, it has been left the same as before.

6. Collaboration agreements
In the congresses and symposiums attended, contact was made with Eurordis, Orphanet and Feder. At the time of writing, a collaboration agreement has been drawn up with Eurordis and Orphanet (see annex 20) and negotiations are underway with Feder.
7. **Changes to the budget** (see PART 2 for details)
The total amount requested has not changed but some modifications have been made and they are listed below:

- Telephone bills have been included in the budget (see **Part 3: Bills for services rendered**)
- The head of project and coordinator attended the “Alliance - Maladies Rares (European Conference on Rare Disorders and Disabilities”, 16-17 October 2003, Paris (France). This was not on the original budget but permission was requested and granted for this trip. (See **annex 21**)
- VAT needs to be included in the budget since it represents a cost to the company and cannot be reclaimed. A letter to this effect has been sent to the Commission and has been approved (see **annex 22**)
- Eventually it was decided to rent the PC instead of buying it. The amount requested remains the same.
- Some of the trips were combined to save money. This means that sometime more than one day of subsistence has been claimed. The net saving is substantial.
Section 3: CONCLUSIONS

Overall the project has been a success. The time plan has been adhered to and, with the exception of a few minor changes, the objectives have been met. We have made significant savings compared with the original amount requested. (See part 2) The members are also happy with the progress that has been made in these 18 months. Some of them were already working together but ENERCA has served to reinforce these alliances and to bring together new experts working in this field. There is a vast discrepancy between the various member states in the services available to both patients and specialists working in this field and there is an increasing interest from specialists. It is important to continue to promote the project in congresses and industry so that more people become aware of its existence. The feedback we have received about the project has been very positive from both ENERCA members and people from industry. People have said that the site is attractive, very complete and very easy to use. Collaboration agreements with groups like Eurordis also help to strengthen the ENERCA network.

At the time of writing, there are about 70 users registered on the website from 14 countries. Communication between these experts has been facilitated greatly as has been demonstrated by the many queries we have received during the course of the work. These queries usually relate to the location of an expert or a centre for a specific condition. All these experts are able to interact through the web portal via the forum or the notice board. Alternatively, they can simply consult the expert or centre registry and phone or mail the person directly. As well as doctor’s queries, ENERCA has also received queries from the patients. The site receives an average of about 200 different visitors every month with more and more new visitors each day. These visitors may be patients, experts or indeed anyone from the general public. Patients have requested specialist advice and consultations and ENERCA has put the patients in contact with their nearest specialist. Given that ENERCA has only been online for a relatively short time, these queries really serve to demonstrate the respect that ENERCA has received in the community. Whilst it continues to serve the community well in this way we feel our efforts have been justified.

There are currently about 100 experts listed from 10 countries. When the affidavits were sent out during the original partner search, there were many doctors who returned the form too late. These doctors have now been invited to join and many have even offered their services on a “non-official” basis to the original members.

On a more negative note, there have been problems with some members of the team. These problems arose for a couple of reasons. Firstly the affidavits were signed somewhat “blindly” in the project proposal stage. The experts were keen to be involved in the project but weren’t aware at the time what that involvement would imply. They simply signed the form. If an expert doesn’t have his institute’s backing, it is very difficult for them to later dedicate the time necessary to assure the project’s success. Some of the experts collaborated wholeheartedly with the work whilst others have not yet registered in the extranet and indeed, have never even communicated with the base in Barcelona during the course of the project. The differences in work carried out by each member then, are vast, and inevitably the burden of the majority of the work has been carried by a relatively small group of people, who aren’t necessarily the best qualified for the job.
Secondly, it is important that everyone in the group agrees the project objectives. Due to time constraints at the proposal stage, the proposed members were presented with a project overview when they signed the affidavits and this was then adjusted and defined in the first symposium. This meant that some of the experts didn’t seem to get as involved with the project as expected. They maybe didn’t feel like it was “their” project. On several occasions during the course of the work, their advice and suggestions were sought but the overall impression received was that some of the objectives (i.e.: the MAC) were never really accepted, whilst there were things that they would have liked to do that were not included in the original plan. The net result of this problem with the members is that a) some of the objectives were not achieved and b) some of the work was not carried out to the desired level of quality.

With hindsight, a solicitor should have been included in the budget to oversee the contracts for the work carried out by third parties, especially for the IT work. This represented a large part of the funding requested and really needed a tighter control. There were several problems with the company, even though they have ISO 9000 quality control. There were also problems with late delivery of work, disagreements over the work to be carried out (detailed in section D. Adherence to time plan), the price, and the secretary and coordinator designed most of the website (layout and colours). The company cut several corners with the work and the final service received bore no resemblance to the services offered in the original consultation. There were also problems with the company for PC rental.

In summary then, these 18 months have served to demonstrate that there is a lot of interest amongst the experts in this area and that there is also a corresponding need for more work to be done. The group is now established on a more secure basis and I have no doubt that they will continue to work together in the future. The website is still relatively new and so the next stage will be see how much use the web site gets on the both levels: patient and doctor and to identify new group needs and to work together to meet them. The site is open to more data and its administration is really easy. We specifically requested a site that would be easy to maintain and would not require advanced IT skills.
## Section 4: FUTURE ACTION

- Negotiations will continue with FEDER and other groups to look for collaboration agreements.
- A second proposal for a SANCO grant has been prepared with new objectives to take ENERCA into the future.
- Meetings will continue with the Generalitat to continue our close collaboration with them.
- Further contact will be made with the Ministerio de Sanidad to see our collaboration prospects.
- Continuing efforts will be made with possible sponsors.
- The head of project will continue to actively promote ENERCA in national and international congresses.
ENERCA FINAL REPORT:

Part 2 - Annexes
### Section 5: ANNEXES

<table>
<thead>
<tr>
<th>Annex</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:</td>
<td>Steering committee</td>
</tr>
<tr>
<td>2:</td>
<td>Minutes, symposium I</td>
</tr>
<tr>
<td>3:</td>
<td>Data base fields</td>
</tr>
<tr>
<td>4:</td>
<td>Minutes, symposium II</td>
</tr>
<tr>
<td>5:</td>
<td>Example technical description</td>
</tr>
<tr>
<td>6:</td>
<td>Rare congenital anaemias list</td>
</tr>
<tr>
<td>7:</td>
<td>Website overview</td>
</tr>
<tr>
<td>8:</td>
<td>Example MAC</td>
</tr>
<tr>
<td>9:</td>
<td>Explanation of MAC</td>
</tr>
<tr>
<td>10:</td>
<td>Minutes, Italy trip.</td>
</tr>
<tr>
<td>11:</td>
<td>Minutes, Germany trip.</td>
</tr>
<tr>
<td>12:</td>
<td>Minutes, Belgium trip.</td>
</tr>
<tr>
<td>13:</td>
<td>Minutes, Sweden trip.</td>
</tr>
<tr>
<td>14:</td>
<td>Minutes, Denmark trip.</td>
</tr>
<tr>
<td>15:</td>
<td>Minutes, Portugal trip.</td>
</tr>
<tr>
<td>16:</td>
<td>Minutes, England trip.</td>
</tr>
<tr>
<td>17:</td>
<td>Minutes, France trip.</td>
</tr>
<tr>
<td>18:</td>
<td>Congress poster</td>
</tr>
<tr>
<td>19:</td>
<td>Sponsors Presentation</td>
</tr>
<tr>
<td>20:</td>
<td>Eurordis collaboration agreement</td>
</tr>
<tr>
<td>21:</td>
<td>Letters for Paris congress</td>
</tr>
<tr>
<td>22:</td>
<td>Letter accepting VAT payments</td>
</tr>
</tbody>
</table>

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### Annex 1: STEERING COMMITTEE
<table>
<thead>
<tr>
<th>PARTNER:</th>
<th>COUNTRY:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Béatrice Gulbis</td>
<td>Belgium</td>
</tr>
<tr>
<td>Palle Christophersen</td>
<td>Denmark</td>
</tr>
<tr>
<td>Henri Wajcman</td>
<td>France</td>
</tr>
<tr>
<td>Max Lakomek</td>
<td>Germany</td>
</tr>
<tr>
<td>Achile Iolascon</td>
<td>Italy</td>
</tr>
<tr>
<td>Leticia Ribeiro</td>
<td>Portugal</td>
</tr>
<tr>
<td>Angel Remacha</td>
<td>Spain</td>
</tr>
<tr>
<td>Herbert Sandstrom</td>
<td>Sweden</td>
</tr>
<tr>
<td>Gordon Stewart</td>
<td>United Kingdom</td>
</tr>
</tbody>
</table>

Annex 2: MINUTES, SYMPOSIUM 1

Annex 3: DATABASE FIELDS
1) Disease name:
   a. medical terminology
   b. synonyms
   c. abbreviations
   d. keywords (for search possibilities)

2) OMIM link

3) General description of disorder
   a. Professional (symptoms and physical signs)
   b. basic (for MAC) for patient

4) Diagnostic procedure:
   Flowchart

5) Aetiology

6) Heredity

7) Current treatment:
   a. Treatments (where available)

8) Genetic counselling

9) Preventative measures

10) Epidemiology:
   a) Current Situation
   b) Generated from database (dynamic)
      I) Prevalence
      II) Race
      I) Incidence
      II) e-mail address
      III) areas of expertise
11) Specialist centres:
   a) country
   b) city
   c) address
   d) telephone number
   e) fax number
   f) e-mail
   g) website
   h) services offered: e.g.: phenotype, genotype, etc.
   i) specialist registry:
      I) name
      II) country
      III) telephone number
      IV) e-mail address
      V) areas of expertise telephone number

12) Patient organisations
   j) Europe
   k) Outside Europe

13) Bibliography
   a. title
   b. authors
   l) reference
   m) abstract

14) Epidemiology papers
   a. title
   b. authors
   c. reference
   d) abstract

15) Projects in progress

16) Last modification date
CONGENITAL RED CELL ENZYMOPATHIES

6-phosphogluconate dehydrogenase deficiency - 6PGD-
Adenosine deaminase hyperactivity - ADA-
Adenylate kinase deficiency - AK-
Aldolase deficiency - ALD-
Bisphosphoglycerate mutase-synthetase deficiency - BPGAM-
Enolase deficiency - ENOL-
g-Glutamyl cysteine synthetase deficiency - GCS-
Glucose phosphate isomerase deficiency - GPI-
Glucose-6-phosphate dehydrogenase deficiency - G6PD-
Glutathione peroxidase deficiency - GP-
Glutathione reductase deficiency - GR-
Glutathione synthetase deficiency - GS-
Glyceraldehyde phosphate dehydrogenase deficiency - GAPD-
Hexokinase deficiency - HK-
Lactic dehydrogenase deficiency - LDH-
Phosphofructokinase deficiency - PFK-
Phosphoglycerate kinase deficiency - PGK-
Phosphoglycerate mutase deficiency - PGAM-
Pyrimidine 5' Nucleotidase deficiency - P5'N-
Pyruvate kinase deficiency - PK-
Triose phosphate isomerase deficiency - TPI-

HAEMOGLOBINOPATHIES

alpha thalassaemia - Haemoglobin H Disease-
beta thalassaemia
Synonym: intermediate thalassaemia
Synonym: Cooley Disease
Delta Beta thalassaemia - Homozygous-
Haemoglobin C - Harlem-
Haemoglobin C -Homozygous-
Haemoglobin D
Haemoglobin E
Haemoglobin J
Haemoglobin M -associated with haemolysis-
Haemoglobin S
   Synonym: Sickle Cell Disease
Heinz bodies anaemias
Hereditary persistance of foetal haemoglobin
   Synonym: HPFH
Unstable Haemoglobins

CONGENITAL RED CELL MEMBRANE DEFECTS

Adenosine triphosphatase -ATPase- deficiency
Alpha-beta lipoproteinaemia -ABL-
Atypical hereditary elliptocytosis
   Synonym: HE
Cryohydrocytosis -CH-
Hereditary elliptocytosis -HE-
hereditary hydrocytosis -overhydrated form-
Hereditary pseudohyperkaliemia -HPHK-
Hereditary pyropoikilocytosis -HPP-
Hereditary spherocytosis HS (View Details)
   Synonym: Minkowski-Chauffard Disease
hereditary xerocytosis -dehydrated form-
Huntington’s Chorea
Leach Phenotype
Lecithin cholesterol acyltransferase -LCAT- deficiency
   Synonym: Hereditary Lipidic Abnormality of Red Cell Membrane
   Synonym: Congenital Target Cell Syndromes
Lutheran null Phenotype
Mc Leod Syndrome
Rh null Syndrome (View Details)
Rhesus-unlinked elliptocytosis
Spherocytic ovalocytosis

CONGENITAL DEFECTS OF ERYTHROPOIESIS

Aceruloplasminaemia (View Details)
A transferrinaemia - Hypotransferrinaemia -
Autosomal congenital Sideroblastic anaemia - A-CSA -
Blackfan Diamond Syndrome
Congenital defects of Erythropoietin Receptor - Epo-R -
Congenital defects of haptocorrin
Congenital deficiency of methylcobalamine
  Synonym: Homocysteinuria
Congenital deficiency of IRP1-IRP2
Congenital deficiency of gut folate conjugase
Congenital deficiency of HFE
  Synonym: Hereditary Haemochromatosis
Congenital deficiency of ileal receptor
  Synonym: Grasbeck Syndrome
  Synonym: Imerslund
Congenital deficiency of Intrinsic Factor
  Synonym: Juvenile Pernicious Anaemia
Congenital deficiency of Ireg 1
Congenital deficiency of Transcobalamin II
  Synonym: Congenital megaloblastic anaemia
Congenital deficiency of transferrin receptor - TFR -
Congenital dyserythropoietic anaemia type I - CDA I - (View Details)
Congenital dyserythropoietic anaemia type II - CDA II - (View Details)
Congenital dyserythropoietic anaemia type III - CDA III - (View Details)
Congenital erythropoietic porphyria - CEP -
Congenital hydrofolate reductase - DHFR -
Congenital hyperhomocysteinaemia
Congenital sideroblastic anaemia with ataxia
Congenital sideroblastic anaemia with erythrocyte dimorphism
Dyskeratosis congenita
Fanconi Anaemia
Hereditary deficiency of Methyl tetrahydrofolate reductase - MTHFR -
Hereditary folate malabsorption
Hereditary Orotic aciduria
Inherited disorders of cobalamin malabsorption
  Synonym: vitamin B12
  Synonym: Cbl
Iron deficiency anaemia due to congenital intestinal malabsorption
Lesch-Nyhan Syndrome
Pearson syndrome
Purine nucleoside phosphorylase deficiency
  Synonym: PNP
Thiamine-responsive megaloblastic anaemia
Synonym: TRMA

X-linked congenital sideroblastic anaemia -X-CSA-

Annex 7: WEBSITE OVERVIEW

Annex 8: EXAMPLE MAC
Annex 9: EXPLANATION OF MAC

Doctor enters patient details.

Unique code generated

If the patient is already on the system, the record is rejected.

Yes

No

Yes

If the record is rejected but the patient is new i.e. new born.

Email to Enerca (Enerca inputs manually)

If the record exists?

Record added to existing epidemiological data.

Yes

No
| Annex 10: MINUTES, ITALY TRIP |
| Annex 11: MINUTES, BELGIUM TRIP |
| Annex 12: MINUTES, GERMANY TRIP |
| Annex 13: MINUTES, SWEDEN TRIP |
| Annex 14: MINUTES, DENMARK TRIP |
| Annex 15: MINUTES, PORTUGAL TRIP |
| Annex 16: MINUTES, ENGLAND TRIP |
| Annex 17: MINUTES, FRANCE TRIP |
| Annex 18: CONGRESS POSTER |
EURORDIS:
Letter of intent - Collaboration between ENERCA and EURORDIS
Draft 1 as of March 10\textsuperscript{th}, 2004

1. EURORDIS and ENERCA will identify in their respective websites the pages where links can be built from one site to the other.

2. ENERCA and EURORDIS representatives will be mutually invited to contribute to conferences concerning actions related to rare congenital anaemias.

3. EURORDIS will include in its newsletter or on its website articles to be provided by ENERCA concerning developments in ENERCA as they arise.

4. ENERCA will provide EURORDIS with epidemiologic advice, on request, as to the collection or interpretation of epidemiologic data on rare diseases.

5. EURORDIS will give ENERCA a yearly report on its evaluation of the ENERCA website from the point of view of patients and patient organisations, suggesting what new information may be added, and how existing information may be clarified for users. This report will be submitted to the ENERCA Steering Committee to decide action, subject to funding.

Paris, March, 2004
(issued in two original copies)

Joan-Lluís Vives Corrons        Yann Le Cam
Project leader                Chief Executive Officer
ENERCA                        EURORDIS
Further to several contacts, it has been decided to reinforce the collaboration between Orphanet and ENERCA through the search for synergies and complementary approaches in the benefit of users around the ENERCA and Orphanet portals.

1. Content building and links between the two websites
Orphanet and ENERCA agrees to cooperate on content pages of both websites and links to useful databases. Whenever possible links will be built between the two websites to avoid duplication and increase exchanges.

2. Directory of services
The directory of services (clinical laboratories, specialised clinics, support groups) will be established in common for the diseases which are covered by ENERCA. Both teams will transmit to the other the relevant information for updating their website. More broadly, it is envisaged for both structures to share information on events of interest at European level for publication on both websites as well as other information tools.

The two partners will also invite a member of the other organisation to meetings discussing topics of potential mutual interest.

Paris, 2004
(issued in two original copies)

Joan-LLuis Vives Corrons  Ségolène Aymé
Leader of ENERCA team  Scientific Director
ENERCA  Orphanet

Annex 21: LETTERS FOR PARIS CONGRESS

Annex 22: LETTER ACCEPTING VAT PAYMENT