



Health-e-Child Newsletter



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Health-e-Child Celebrates OPBG's 140th Anniversary

As part of week-long celebrations commemorating the 140th anniversary of the founding of HeC partner *Ospedale Pediatrico Bambino Gesù* (OPBG), the HeC Consortium was the proud convenor of the two-day conference **The Diagnostic and Predictive Contribution of Health-e-Child within the Heuristic Perspective of the Virtual Physiological Human Framework** this past September 23rd and 24th. With the magnificent Palazzo Senatorio in Campidoglio - seat of Rome's municipal government and Mayor's office - serving as venue, the event was meant on the one hand to showcase the results thus far achieved by HeC and, on the other, to highlight network's role as a leading player in the Virtual Physiological Human (VPH) community.



Greeting the over 100 participants were Prof. Giuseppe Profiti, President of the OPBG, followed by the Mayor of Rome, Mr. Giovanni Alemanno. A keynote Lecture was then offered by His Eminence Monsignor Rino Fisichella, President of the Pontifical Academy for Life, who addressed the audience on "Ethical foundations in the treatment and in respect of the dignity of the child".

The morning session, Chaired by Prof. Gianfranco Bottazzo, Research Director of the OPBG, then continued with an enlightening talk on eHealth and the VPH given by Mr. Joël Bacquet, Head of Health Infrastructures - ICT for Health, European Commission.

The spotlight was then cast on **HeC's technological developments**, presented by HeC Technical Coordinator, Dr. Martin Huber of Siemens AG, followed by an overview of **the clinical significance of HeC** by Prof. Giacomo Pongiglione, Director of Cardiology, OPBG and HeC's Clinical Coordinator. Prof. Yannis Ioannidis, University of Athens then presented on the HeC's ongoing research efforts on the challenges faced in guaranteeing **intelligent information management for paediatrics**. Closing out the session was HeC Project Manager, Prof. Edwin Morley-Fletcher, President of Lynkeus, who summarised the expectations and outlooks for the HeC consortium in the future.

Focus of the afternoon session, Chair: Prof. G. Pongiglione) were HeC's clinical developments. Following a review by Dr. Andrew Taylor of Great Ormond Street Hospital (GOSH) **HeC's work in the field of cardiology**, Dr. Allen Everett of Johns Hopkins University Hospital presented on **Sim-e-Child**, an HeC spin-off project focusing on grid-enabled large-scale simulations in paediatric cardiology (see page 4 for more on **Sim-e-Child**). Dr. Samantha Mascelli of the Istituto Giannina Gaslini (IGG) then reported on developments in the HeC domain of **neuro-oncology**, specifically the ongoing work on gene expression profiling of childhood gliomas. An overview of the vertical integration of clinical, radiological and biological data under-



Mayor of Rome, Mr. Giovanni Alemanno (left), with OPBG President Prof. Giuseppe Profiti and H.E. Monsignor Rino Fisichella, President of the Pontifical Academy for Life



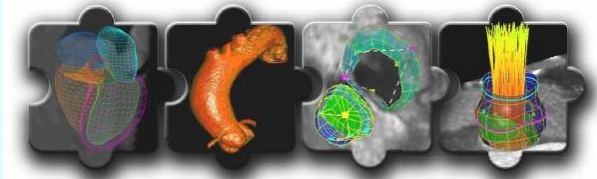
Palazzo Senatorio in Campidoglio





Sim-e-Child: Health-e-Child's first Spin-off

On the eve of the conclusion of HeC (now confirmed on April 30th, 2010), the past months have seen some intense efforts to ensure that the work started by the project has a sequel. One concrete endeavour has already been made: submitted in response to the April 2009

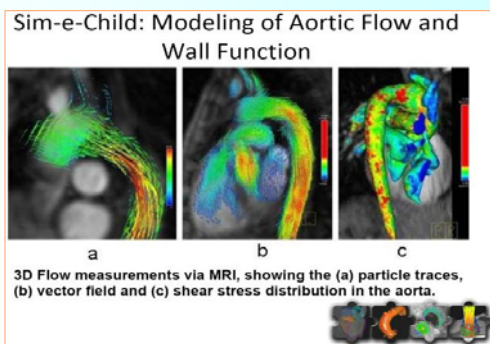


ICT Programme call for proposals on international cooperation on the virtual physiological human (VPH) (Programme Objective ICT-2009.5.4), the **Sim-e-Child** project, tentatively set to be launched in January 2010, will build on and carry forward the outstanding results achieved by HeC in the field of modelling of paediatric cardiology diseases.

Sim-e-Child brings together current HeC Partners **Siemens AG**, **Lynkeus SRL**, **maat GKnowledge**, and the **Ospedale Paediatrico Bambino Gesù**, will include the Technical University of Munich, and - in keeping with the priority set by the call to to facilitate global cooperation by linking on-going EU projects with non EU projects and initiatives that reflect common goals and objectives - will bring three US partners, namely, **Siemens Corporate Research** (Princeton), **Johns Hopkins University** (Baltimore) and the **American College of Cardiology** (Washington, DC). The overriding objective of Sim-e-Child is to strengthen the impact of HeC by creating an international simulation and validation environment for paediatric cardiology, supported by integrated data repositories. The project will advance the state-of-the-art by providing comprehensive and patient specific models for the dynamic and longitudinal interactions occurring in the left heart, with a focus on the congenital aortic arch disease and repair.

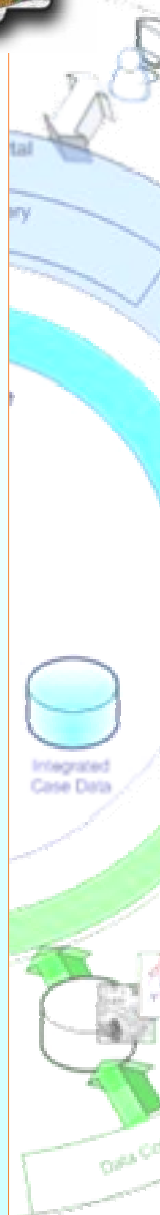
Specifically, the Sim-e-Child project proposes to develop a grid-enabled platform for large scale simulations in paediatric cardiology, providing a collaborative environment for constructing and validating multi-scale and personalized models of a growing heart and vessels. Existing models of the aorta, aortic valve and mitral valve (developed by Siemens Corporate Research) will be expanded through integration of blood flow modelling and flow visualization (Technical University of Munich). The new and comprehensive heart model will be applied to congenital aortic disease, thus enriching the portfolio of applications available in HeC and broadening its end-user community.

Further linking of transatlantic actions sharing common goals and objectives will be accomplished by implementing pertinent HeC tools and applications in the



COAST Coarctation Of Aorta Stent Trial (COAST) a US FDA safety trial sponsored by Johns Hopkins University investigating whether Cheatham Platinum bare metal stents are safe and effective in the treatment of native and recurrent aortic coarctation in selected children. Pre- and post-stent MRI studies will be used to model the aorta, aortic valve, left ventricle and mitral valve for personalized modeling for improved decision support.

Sim-e-Child will integrate and extend several existing tools to build a powerful simulation, collaboration and validation platform, supported by a web portal that provides access to distributed clinical databases, that assists in the design of experimental workflows and allows their submission for the computation, the retrieval and the visualization of results.





Health-e-Child Unveils its New Website

In compliance with recommendations emerging from its Annual EC Review to endeavour to guarantee a greater uptake of HeC tools and applications, in particular to ensure that the project's results are exploitable and utilisable by future clinical users, the Consortium over the past few months has taken steps to redesign its primary channel of communications: its website.

To promote its work to the clinical community, the web site will feature a section addressed specifically to medical practitioners and biomedical researchers focusing on the consortium's ongoing work on the three diseases tackled by the project, with short written descriptions complemented by videos of HeC applications and tools illustrating how these are impacting on clinical procedures at the partner hospitals.



In addition, the website will be populated by a series of *learning objects* - i.e. short, self-standing and reusable multimedia e-learning resources - developed by HeC partners Lynkeus, EGF, maat Gknowledge and the University of the West of England to provide interested users with detailed information on a variety of project-related subjects: a presentation of the project and its advancement; access to HeC platform; the retrieval and control of patient information; access and usage of different HeC applications like CaseReasoner Treemaps, Similarity search, Heatmaps, CardioViz, AITON, etc.. A close link with HeC's spin-off project [Sim-e-Child](#) will also be available.

Finally, for purposes of dissemination and awareness raising, the portal will also make public videos, slides and posters presented by HeC partners at both IT and medical conferences throughout the duration of the project.

Visit HeC soon!





3rd EGF Training Course - "The Genetic Basis of Brain Tumours" September 4 –7, 2009, Bologna

"The Genetic Basis of Brain Tumours", the third and final training course organised by the [European Genetics Foundation](#) was held this past September 4-7, 2009 c/o the EuroMediterranean University Centre of Ronzano (Bologna, Italy).

Following the previous courses on paediatric rheumatology (2008) and paediatric cardiology (2008) funded in part by HeC as part of its Workpackage 15 on targeted training actions, the course - which drew over 30 participants (including basic and translational investigators, clinical geneticists, medical oncologists and pathologists) focused on the **clinical and histopathological features of childhood brain tumours, genomic landscapes of brain tumours, and infantile brain tumours.** These plenary sessions were complemented afternoon workshops on each of the three days of the course on:

- Posterior fossa tumours in children: from the patient to the bench;
- Childhood brain tumours urgently needing novel therapies: the clinical point of view and an open discussion with basic research scientists;
- Cancer genome profiling and targeted therapies: the present and the future;
- Genome-wide Analysis of Brain Tumors
- Dedifferentiation and gliomagenesis
- Genetic predisposition syndromes with brain tumors
- Current status of the tumor-initiating cells hypothesis in adult and pediatric gliomas
- The Biology of Childhood Medulloblastoma
- How to characterize a cancer stem cell?;
- Cancer Predisposition Syndromes and Brain Tumours: an emerging problem?;
- Bioinformatic analysis of medulloblastoma.



An update on the brain tumour genetic studies coordinated by the [Istituto Giannina Gaslini](#) and performed jointly with the EGF and [Asper Biotech](#) within HeC was also showcased.

Finally, HeC itself was given ample visibility, with a special closing presentation by Technical Coordinator on the project and what it promises in terms of return for the management of patients.

For further information contact the [EGF](#).



Special Announcement

Mark your calendars!

Health-e-Child announces the final conference commemorating completion of the project

April 23-24, 2010

Convento dell'Annunziata, Sestri Levante Italy





Health-e-Child FactSheet

Health-e-Child in figures

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|---|-----------------------------------|
| Project Identifier | IST-2004-027749 |
| Timeframe | January 1, 2006 to April 30, 2010 |
| Total cost | 16.7 million € |
| European Union funding | 12.2 million € |
| Number of partners | 15 |
| Number of Workpackages | 16 |
| Number of Deliverables | 91 |
| Total estimated efforts (in man/months) | 2363 |

Who's Who in Health-e-Child

| | |
|--|---|
| Coordinator and Executive Board Chairman | Jörg Freund - Siemens Medical Solutions |
| Governing Board Chairman | Dorin Comaniciu - Siemens Corporate Research |
| Project Management Team Leader | Edwin Morley-Fletcher - Lynkeus, S.r.l. |
| Scientific Committee Chairman | Dorin Comaniciu - Siemens Corporate Research |
| Technical Coordinator | Martin Huber - Siemens Corporate Technology |
| Clinical Coordinator | Giacomo Pongiglione - Ospedale Bambino Gesù |
| Ethical and Legal Issues Committee Chairman | Alberto Martini - Istituto Giannina Gaslini |
| Intellectual Property Rights Committee Co-Chairmen | Yannis Ioannidis - University of Athens Alessandro Verri - University of Genoa |

Health-e-Child Workpackages and Workpackage Leaders

| | | |
|------|---|-----------------------------------|
| WP1 | Project Management | Siemens Medical Solutions |
| WP2 | User requirements specifications | University of the West of England |
| WP3 | Legal, Ethical and regulatory issues | Istituto Giannina Gaslini |
| WP4 | Privacy and security | Siemens Medical Solutions |
| WP5 | Grid platform | maat GKnowledge |
| WP6 | Medical knowledge representation—ontologies | University of the West of England |
| WP7 | Data management layer and data integration mechanisms | maat GKnowledge |
| WP8 | Medical query processing algorithms | University of Athens |
| WP9 | Data collection | Istituto Giannina Gaslini |
| WP10 | Ground truth and clinical knowledge gathering | Istituto Giannina Gaslini |
| WP11 | Integrated disease modelling | INRIA, Sophie Antipolis |
| WP12 | Decision support systems | Siemens Medical Solutions |
| WP13 | Biomedical knowledge discovery | University of Athens |
| WP14 | Deployment of data management system and grid gateway | maat GKnowledge |
| WP15 | Training | European Genetics Foundation |
| WP16 | Dissemination | Lynkeus, S.r.l. |

Health-e-Child Project Support

| | | |
|--|--|---|
| Health-e-Child Project Management Team | Alessandro Sattaino Antonella Trezzani William McFadden | Lynkeus, S.r.l. Lynkeus, S.r.l. Lynkeus, S.r.l. |
| Health-e-Child Newsletter Editor | Thomas Wiley | Fondazione Gerolamo Gaslini |

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