

World Federation of Pediatric Imaging



Strategic Framework 2012¹

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Preamble

1. Background

Diagnostic imaging services offered in modern medical settings have evolved enormously in recent decades, but **even state of the art healthcare can overlook the specificities of pediatric imaging**. Imaging children requires understanding the unique needs of the patient and family. A child is not a small adult; knowledge of illnesses and medical conditions specific to the pediatric population is a necessity. Equipment, procedures and staff need to be oriented to the special needs of children. **Radiation safety**, in particular, needs to be specifically addressed in this young population. **Subspecialty training** in pediatric radiology requires years of medical school, residency and fellowship – requirements which can impose a strain on the world's most advanced care centres.

Furthermore, organizations dedicated to pediatric imaging around the world **need to communicate better among themselves**, share knowledge and resources, and **federate at international level** to advocate for best practices and resource allocation.

¹ Finalized: August 2012. Contributors: Drs. Ines Boechat, Savvas Andronikou, Dorothy Bulas, Richard Fötter, Philippe Devred, Kassa Darge and Alexandra Monteiro.

While medical practice would suggest that around 80% of diagnostic problems can be solved using "basic" radiographic and/or ultrasound examinations, **the WHO nonetheless reports that some two-thirds² of the world's population has inadequate or no access to medical imaging.** It has defined technological availability as one of the world's major health infrastructure needs. Clinicians face many challenges in providing pediatric imaging services in low-resource settings: cost, access, a massive disease burden, climate, geographical dispersion, political instability and a lack of equipment, infrastructure and manpower. In human resources terms alone, fourteen countries in Africa have no radiologists at all, and most have less than 30. These difficulties are compounded by the need to allocate scarce resources to basic life-saving issues such as the supply of safe, clean water and nutrition. Appropriate policies for diagnostic imaging services are thus rarely integrated into national health plans and viewed as a priority. Health authorities are simply unaware of the live-saving diagnostic tools ; therefore they become unavailable.

2. Purpose

Created in 2011, the World Federation of Pediatric Imaging (WFPI) is a non-political, non-denominational and non-discriminatory organization operating for exclusively charitable, educational, scientific, research and outreach purposes. It provides an international platform for pediatric radiology organizations united to address the challenges in global pediatric imaging training and the delivery of services.

3. Goals

- ❖ The promotion of the status and standards of pediatric imaging and pediatric image-guided intervention for the benefit of child health worldwide.
- ❖ The advancement of internationally-driven education and/or research in pediatric imaging and pediatric image-guided intervention.
- ❖ The fostering of global child imaging safety and radiation protection.
- ❖ The stimulation of transnational resource allocation for pediatric imaging and pediatric image-guided intervention, focusing on places with acute needs.
- ❖ The fostering of opportunities for communication and collaboration between pediatric imaging practitioners across nations.
- ❖ Collaboration with global health organizations for the dissemination of best practices in pediatric imaging and pediatric image-guided intervention and appropriate imaging guidelines.

4. Structure and governance

The WFPI is composed of pediatric imaging organizations and its governing Council includes representation from North America, Europe, South America and Asia-Pacific (the SPR, ESPR, SLARP and AOSPR³ are founding societies). To ensure the WFPI's global span, it is open to other regional societies such as Africa and the Middle East and national and supranational⁴ organizations. Together, the WFPI's members offer extensive international reach in terms of contacts, networks, access to meetings, conferences, training courses, educational platforms and publications.

² World Health Organization. Essential diagnostic imaging. Available at: www.who.int/eht/en/DiagnosticImaging.pdf
Accessed January 1, 2011.

³ The Society for Pediatric Radiology, the European Society of Pediatric Radiology, the Latin American Society of Pediatric Radiology & the Asian and Oceanic Society for Pediatric Radiology.

⁴ Supranational organizations are built up on linguistic or other, non-geographical criteria. E.G. Europe's German-speaking pediatric radiology society (GPR) which draws members from Germany, Austria, Switzerland and the Netherlands.

5. The WFPI's approach

WFPI representatives from around the world will **lead the organization into global forums** to highlight the importance of imaging in disease diagnosis in children everywhere and the need for physicians and physicists with special knowledge in pediatrics to diagnose correctly, efficiently and safely. **Their advocacy will raise awareness** on the sub-speciality's practices, the education and training it requires, resource allocation and patient safety **to shape future policy and practice.**

In low-resource countries the WFPI can also make a contribution **to alleviating the shortage of pediatric imaging providers.** As virtual communication progresses, telemedicine is key to transferring medical skills and resources. The possibility of remote involvement can draw higher numbers into international outreach. Although expensive and time-consuming, on-site imaging provider training must also be envisaged to reinforce standards and patient safety. Furthermore, wider operational constraints must be taken into account such as equipment maintenance and Internet access within those facilities the WFPI aims to assist. So, it is important for the WFPI to join forces with the initiatives of established organizations to secure **viable, sustainable** working environments, which also **avoids unnecessary duplication** amongst imaging partners.

Working Avenues

The following working avenues have been defined for the WFPI's first three years:

1. Communication and collaboration between pediatric imaging practitioners, via their organizations
2. Advocating for appropriate practices and resource allocation for children
3. Education
4. Patient safety, in particular radiation safety and protection
5. Outreach and training in lower resource settings
6. Research
7. Information
8. Institutional high performance

1. Communication and collaboration between pediatric imaging practitioners, via their organizations

Through:

- The WFPI membership network: regional, supranational and national societies,
- The WFPI committees and working groups,
- WFPI projects,
- The WFPI website (www.wfpiweb.org),
- Meetings and courses.

There are no current plans to host international meetings through the WFPI.

2. Advocating for appropriate practices and resource allocation for children

The WFPI is looking for active involvement with global organizations and initiatives offering advocacy platforms and/or working groups involving imaging care. It aims to reinforce these forums with its pediatric imaging expertise and raise awareness on education and training needs, resource allocation, best practices and child imaging safety (see section 4 below) as recommendations are developed. The WFPI will set up a committee to spearhead these efforts.

PROJECTS

i/ Major radiology societies

The WFPI will support and reinforce the international efforts of major radiology societies with an expanded pediatric focus. When possible, permanent WFPI engagement will be assured via seats on working groups. Involvement in the American College of Radiology's education/outreach work in Haiti will be developed and a WFPI member from South Africa has joined the International Society of Radiology's (IRS) tuberculosis steering committee. Alliances with the Radiological Society of North America, The European Society of Radiology, the Inter-American College of Radiology and the IRS will be explored.

ii/ Other global partnerships: IAEA, WHO and others

Since the WFPI's launch in 2011, contacts have been initiated with the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and the World Federation for Ultrasound in Medicine and Biology (WFUMB). This network will continue to grow, with advocacy efforts reflecting regional disparities.

iii/ Regional and national imaging societies and health authorities

The WFPI will support and reinforce the advocacy efforts of its regional and national member organizations with their regional and national counterparts and respective health authorities.

3. Education

As levels of specialist education differ within and between nations, the WFPI will whenever possible divide its educational output into beginner, intermediate and advanced levels.

PROJECTS

i/ The WFPI education committee

This committee is focused on online educational content for the WFPI's new website and is currently evaluating existing online content, basic pediatric imaging needs and association with international partners. The WFPI will draw upon similar endeavours including those of the ESPR, American College of Radiology, Radiology Society of North America, International Society of Radiology, European School of Radiology, RAD-AID, RADPED and the UERJ Telehealth Centre, Rio de Janeiro. Issues to address include training of non-radiologists and general and pediatric radiologists. Translation/ languages will need to be addressed as educational material develops. Assessment tools, competencies and curriculum will help standardize the quality of worldwide advanced pediatric radiology training.

ii/ The Pediatric Radiology journal and GORAD

Pending publisher consent (Springer), the managing editors of the Pediatric Radiology journal have been invited to join the International Society of Radiology's initiative, GORAD⁵ (Global Outreach-Radiology). GORAD is a consortium of 30+ continental/multinational/national society journals whose aim is greater global exchange of radiologic knowledge and subsequent positive impact on healthcare. It provides a vehicle for worldwide dissemination of peer-reviewed, open-access, published educational and scientific content selected for radiologists and related healthcare providers working in developing nations and medically underserved areas.

iii/ Courses and meetings: a shift to virtual platforms

Through its network and external alliances, the WFPI aims to facilitate course and meeting attendance. But this will generate major costs if physical presence is required, so the WFPI will support only the most viable sustainable approaches, largely online. Virtual meetings will be a key to affordable international education. Issues include infrastructure, interactive capacity, international times lines and intellectual property concerns. Yet just as Brazil's extensive land

⁵ www.isradiology.org/gorad

mass has compelled it to offer virtual educational and scientific platforms, so worldwide webinar use is on the rise. The aim: trans-continental coverage for maximum numbers, as opposed to travel costs for brief visits that do not result in sustainable improvements. The WFPI will also promote virtual initiatives already underway: the Radiological Society of South Africa's newly purchased webinar, the ISR's virtual conferences and RADPED in Brazil, which hopes to extend its existing network (below) through WFPI contacts with Africa and Asia.



The RADPED Telehealth network, June 2012

4. Patient safety, in particular radiation safety and protection

Adopting a dynamic, step-by-step approach, the WFPI aims to raise awareness on patient safety, in particular radiation safety and protection, and promote recommendations and guidelines. A patient safety committee will be set up to work in close coordination with the IAEA, Image Gently⁶, the ESPR's task forces and the global network described in section 2 above. For lower resource settings, the WHO has already outlined a basic operational framework offering general guidelines on radiology policy, quality and safety⁷. The WFPI aims to endorse and expand such frameworks for pediatric imaging use, incorporating its efforts into a wider public health drive.

5. Outreach and training in lower resource settings

The WFPI's approach to outreach and training differs according to the region, reflecting the diversity in imaging care. In some areas such care is simply unavailable; in others general physicians, nurses and technologists struggle to interpret x-rays. In rural settings where alternative diagnostic tools are non-existent or inadequate, assistance via radiograph-reporting can prove life-saving – notably for HIV/AIDS and tuberculosis. And where adequate equipment and/or medical teams do exist, they may need further training and engineering support to provide sustainable imaging care⁸.

⁶ <http://www.pedrad.org/associations/5364/ig/>

⁷ World Health Organization. Essential diagnostic imaging. Available at: www.who.int/eht/en/DiagnosticImaging.pdf Accessed January 1, 2011.

⁸ WHO cites the "lack of user-training and . . . effective technical support" as reasons why up to 70% of medical equipment in sub-Saharan Africa "lies idle" (International Atomic Energy Agency. Thematic plan on diagnostic radiology. Available at: http://www-tc.iaea.org/tcweb/abouttc/strategy/thematic/pdf/reports/Thematic_plan_diag_radiology.pdf. Accessed December 2, 2010.)

Organizations such as “Imaging the World”⁹ are demonstrating significant impact with the introduction of simple ultrasound equipment adapted for non-physician use with telereading in support. The WFPI can link into these endeavours, adding pediatric expertise to health care delivery.

PROJECTS¹⁰

i/ Visiting professor programs

The RSNA, ACR, ESR and Inter-American College of Radiology (CIR) all run international visiting professor programs. The WFPI hopes to secure a seat on the RSNA’s new International Committee and collaborate on its pediatric imaging approach – through visiting professors, online pre-visit training modules, etc. Similar ties will be explored with the ACR, ESR and CIR.

ii/ Department of Radiology, Faculty of Medicine, Addis Ababa University/ Radiological Society of Ethiopia (RSE)/The Children’s Hospital of Philadelphia (CHOP), University of Pennsylvania, USA/South African Society of Pediatric Imaging (SASPI, South Africa)

The Department of Radiology, Addis Ababa University and the RSE have been in partnership with CHOP for 4 years in an outreach programme aiming to

- Establish a pediatric radiology fellowship,
- Provide initial training to the country’s first pediatric radiologists,
- Enhance the pediatric radiology aspects of the residency training, and
- Provide CME for the general radiologists following the same.

About 60% of Ethiopia’s population is below the age of 20.

This programme is now looking to expand meaningful collaboration with the SASPI and establish an educational USA-Ethiopia-South Africa axis. Licensing issues permitting, the first training exchange is planned for December 2012; an initial training site has been identified for Ethiopian consultants in Baragwanath Hospital, Johannesburg. Ethiopian radiologists can transfer to this site for hands-on training cycles.

To date, most of the Ethiopia-based activities have been carried out by volunteers and some funding from CHOP Radiology. The WFPI’s support will be enlisted as the programme expands into cross-border collaboration, set up through the WFPI network.

The WFPI aims to learn from this cross-border experience, with the objective of duplicating it elsewhere.

iii/ Médecins sans Frontières/Doctors without Borders (MSF)

The WFPI is collaborating with MSF to provide pediatric imaging telereporters to support MSF’s global telemedicine network, using platforms and technology already set up in project sites. Initial WFPI volunteer work includes reporting pediatric chest radiographs for the TB diagnosis at MSF’s project in Tajikistan¹¹. Contacts have been initiated regarding MSF’s future 250 bed hospital, Port-au-Prince, Haiti, where MSF is actively looking to engage external partners, particularly academic bodies involving French speakers, who could provide the expertise it lacks. The WFPI could provide telereporting in the imaging field and training to Haitian on-site imaging providers. The facility aims to train Haitian medical students in collaboration with the Port-au-Prince faculty of medicine; the WFPI could offer tie-in with its own educational output.

iv/ Khyalitsha Hospital, Western Cape, South Africa

Whilst collaboration with MSF gains momentum, a WFPI/SASPI team of pediatric radiologist telereporters is running a telereading “trial” with a new hospital in Khyalitsha, Western Cape, South

⁹ <http://imagingtheworld.org/>

¹⁰ Donating equipment is not one of the WFPI’s projects per se. However, needs will inevitably come to light as organizational activity develops. Viable requests will be forwarded to with the WFPI’s external partners; the WFPI’s own funds are unlikely to cover donations of this kind. The International Outreach Committee of the American College of Radiology is particularly involved in equipment donation, for example.

¹¹ Past telereading experiences with MSF have proved positive : ¹¹ [Paediatric radiology seen from Africa. Part I: providing diagnostic imaging to a young population.](#) Andronikou S, McHugh K, Abdurahman N, Khoury B, Mngomezulu V, Brant WE, Cowan I, McCulloch M, Ford N. *Pediatr Radiol.* 2011 Jul; 41(7):811-25. Epub 2011 Jun 9. Review. PMID: 21656276 [PubMed - indexed for MEDLINE].

Africa – a Ministry of Health facility offering 32 pediatric beds, 12 neonatal nursery beds, 10 KMC beds for growing premature babies and a 6-bed short stay pediatric ward in its emergency centre. Hosting new digital equipment but no PACs system as yet, the team needs short-term tele-reading support¹². It provides an excellent opportunity for determining problems with distance reporting and working on solutions, given the WFPI outreach team on the ground. Providing such telereading support to new facilities could become a recurrent role for the WFPI¹³.

v/ The UERJ Telehealth Center, State University, Rio de Janeiro, Brazil

Similar to other health initiatives in Brazil, the Brazilian government, via the State University of Rio de Janeiro, has responded to the vastness of the country and health care disparities by developing a telemedicine approach. The UERJ Telehealth Centre, Rio de Janeiro¹⁴, has adopted the free, open sourced Moodle platform¹⁵ for its distance education program and added on a teleconsulting system offering synchronous (live chat) or asynchronous access. The pediatric radiology component is under preparation; the WFPI's participation is planned, both to boost volunteer numbers and build up experience with extensive telehealth platforms.

vi/ Asia

A project is yet to be identified in Asia; a call for proposals has been issued.

vii/ Eastern Europe

The ESPR is expanding its support to Eastern Europe with the WFPI's backing.

viii/ UNICEF, other organizations

Partnering with the United Nations Children's Fund would be a logical step for the WFPI and contacts are being explored through UNICEF France. A partnership could include the introduction of imaging components in current mother and child health projects, particularly ultrasound. Connections have also been initiated with other organizations providing imaging aid (Rotary, Imaging the World) to explore telereading support, pediatric imaging protocols and training.

6. Research

Pediatric radiology research poses far more challenges than adult or even pediatric medical research in general: low patient numbers, high ethical demands, little industry and pharmaceutical support due to low equipment sales and low drug use, lack of research personnel (radiologists, physicists, statistical experts etc.) and increasing demands in justification, optimisation and, in particular, radiation protection and safety. Yet there is an urgent need for multidisciplinary, multi-institutional, multinational and prospective research on highly relevant topics impacting cost effectiveness, life quality and society. Existing pediatric radiology "guidelines" are more opinions or results drawn from consensus meetings rather than evidence-based. Projects include:

i/ Optimising WFPI network use for research

Members will be encouraged to use the WFPI network to identify research opportunities and multi-center collaboration; the WFPI will act as a mediator between institutions.

ii/ Proposing research

The WFPI aspires to propose research on agreed upon general and specific topics (TB, AIDS, etc.) steered by experts within the WFPI to the benefit of children worldwide.

¹² This service will be taken over by the Ministry of Health

¹³ If telereporting demands become too disparate and funds allow, the WFPI may consider centralising all telereporting services through one system alone, e.g. the Swinfen Charitable Trust UK or other. Alternatively, it could create its own system; a proposal for a global cloud has been put forward by a WFPI member in Japan, with possible collaboration on software provided by the Massachusetts General Hospital, US, and other options are being explored in Romania.

¹⁴ www.telessaude.uerj.br

¹⁵ <http://moodle.org/>

7. Information

The WFPI website aims to compile information banks on other imaging initiatives, equipment donation sites, grants, scholarships, meetings and useful links.

8. Institutional high performance

This will be secured through the WFPI Council and WFPI staff.

The WFPI Council is led by the President, Secretary and Treasurer. Due to geographical dispersion, Council meetings (and WFPI annual members' meetings) will involve physical presence and remote participation.

The WFPI staff includes a General Manager, input from the SPR's Executive Director and one-off input from other society staff as and when feasible, e.g. newsletters (Image Gently). Staff assists the Council with:

- a/ operational planning, implementation, monitoring and reporting;
- b/ internal & external communications;
- c/ fund raising & identifying/securing donors;
- d/ procuring financial & legal support via the ACR;
- e/ the WFPI membership base, including administration and annual general meetings;
- f/ Council business.

All members of staff are subject to WFPI Board overview and report to the President and/or the Secretary.

The WFPI has submitted a paper outlining its initial experience in "The management of institutional and cultural diversity within a global organization" to the Columbia University Mailman School of Public Health. The paper was selected for MPH students to study in the Fall 2012; the group will propose adapted management tools and strategies for the WFPI's future use.

Critical Assumptions

(If not met, implementation fails)

- Projects and project partners are properly identified, in accordance with "radiology readiness¹⁶" criteria or other,
- Volunteer time is available for telereading, conducting one-off supervisory visits to training sites, building up an online educational content, etc.
- Cross border training licensing/immigration is possible,
- CME accreditation for educational content is accorded,
- The WFPI becomes the pediatric imaging branch of international meetings,
- Multi-centre research projects can include centres from low-resource settings,
- Funding is secured,
- The necessary WFPI staff are in place.

Operational Guiding Principles

Getting started

At the time of writing, the WFPI's working avenues as listed above are largely in the planning stages. Some of the contacts being pursued may not lead to projects, other projects and initiatives could take time to mature. While the WFPI's core steering group is aware of widespread imaging

¹⁶ <http://www.rad-aid.org/resource.aspx?pageName=resource-radiology-readiness>

needs, the WFPI is a new initiative, untried and untested. Partners need time to absorb our aims and ambitions while “bolt on” opportunities need careful consideration.

Measuring feasibility and sustainability in lower resource settings

The WFPI is deeply committed to adopting a structured approach to its work in lower-resource settings. It aims to avoid the drain on resources and energies spent on one-off gestures through the introduction of robust systems offering repeated imaging care. Quality and patient safety will be constant concerns and entail careful pre-project assessments, planning and evaluation.

Above all, imaging is a sophisticated add-on to many low resource healthcare systems and aid initiatives. The barriers to its sustainability are immense, amply set out in the White Paper Report of the 2010 RAD AID conference on international radiology for developing countries: “Identifying Sustainable Strategies for Imaging Services in the Developing World¹⁷”. It advocates that radiology sustainability for the developing world requires integrated strategies along 4 key multidisciplinary planes:

- (1) sustainable financing models for radiology development,
- (2) integration of radiology and public health,
- (3) sustainable clinical models and technology solutions for resource-limited regions, and
- (4) education and training of both developing and developed world healthcare personnel.

The challenge of sustainability must be addressed – the WFPI will draw guidance from partners’ experiences in this regard.

War-torn areas

During its formative years the WFPI is unlikely to provide direct field involvement in war-torn areas or contexts in which state or *de facto* state policy overtly denies access to healthcare on religious, political or ethnic grounds; this type of intervention requires an institutional robustness that the WFPI currently does not have. Distance support (e.g. telereading through other organizations’ networks) will be an option, and the WFPI will voice steadfast support for healthcare availability for all sick and wounded and the inviolability of health facilities and their staff¹⁸.

Institutional Guiding Principles

- ⇒ Accountability to members and donors, including financial transparency,
- ⇒ A healthy target ratio of operational costs to overheads (e.g. 80:20), bearing in mind that almost all WFPI’s work is performed on a voluntary basis and is therefore a “donation in kind” from the individual physicians involved,
- ⇒ Guidance from the not-for-profit sector benchmark of 4 US\$ raised for every 1\$ invested.

The WFPI’s Financial Status

Fundraising

Dr Stuart Royal, who has built up fundraising expertise through his work with the SPR’s Campaign for Children, has agreed to become the WFPI’s fund raising advisor. He will be working with this framework, the WFPI President and staff to develop a “visibility and fundraising plan” targeting:

¹⁷ (<http://www.jacr.org/article/S1546-1440%2811%2900029-9/abstract>)

¹⁸ The WFPI went through a baptism of fire in this regard following the Bahrain demonstrations in February 2011, when a society member was involved in political reprisals exacted against medical staff. Regretably there is a rising trend of targeting the wounded attending health facilities and their staff during crackdowns and outbreaks of civil strife. As its status grows and membership expands, the WFPI may be called upon to adopt such a position again. It will react on a case by case basis, in collaboration with other major players in the non-profit health/human rights sector (Amnesty, Human Rights Watch, MSF), as was the case for Bahrain.

- Public generosity (focus point : the medical community) through radiology society networks, events, website donations and appeals,
- Applications to institutional donors and grants (avenues to explore: education, patient safety, WFPI-facilitated cross-border training platforms, the development of innovative training tools, equipment and clinical approaches adapted to low-resource settings, women in medicine and teacher awards), and
- Industry (whenever industry and WFPI interests coincide). This commercial “sponsoring” option may be the most lucrative avenue to explore, especially if associated with member organizations’ annual meetings.

As a satellite organization, the WFPI is hoping for capital injections during these initial years from those “parent” founding societies whose resources allow. An initial steady stream of revenue is a *sine qua non* for the WFPI’s future success. Without funds, it cannot start projects. Without projects, it cannot raise funds. The SPR’s R&E foundation has already generously responded to this call, awarding the WFPI its first “pilot” grant of 50,000 US\$ in May 2012.

Budgets and Reporting

The WFPI aims to provide forecasted budgets with its annual plans. However, until initial funding is secured and projects are fixed, such precision cannot be secured. Initial expenditures will be authorised by the Council according to the framework set out above and available funds. The WFPI President and Treasurer will provide member organizations with an annual activity and financial report during the WFPI’s General Assembly, to be made available on the website. Additional reporting will be provided on donor/grant request.