**OGC Health Domain Working Group - Charter**

# Purpose of an OGC Health Domain Working Group

An **OGC Health Domain Working Group** would enable OGC to identify and work with a representative group of market participants in the identification and prioritization of use cases, business and technical requirements that will provide the most significant value, or mitigate the most significant risks in this arena. Through efforts to identify requirements, gaps in standards and opportunities for demonstration, a Health Domain Working Group will contribute to development of open mapping standards in support of health marketplace requirements. Through bringing together geospatial vendors and end-users, an OGC Health Domain Working Group will cultivate technical solutions which support interoperable concepts, data definitions, formats and services for publishing, search, and exchange of geospatial information.

# Proposed Activities / Roles

This Discussion Paper aims to outline potential roles for an OGC Health Domain Working Group. This may include but is not limited to, activities to:

1. **Convene** OGC members and non-members across the health domain
2. **Build Capacity** for technical solutions, knowledge exchange, requirements gathering and prioritization
3. **Assimilate Inputs** toward geospatial standards development, including data definitions, formats, and services for publishing, discovery, exchange, and queryability of geospatial information
4. **Help to focus on sub-sets of health** where geospatial data and interoperability are required
5. **Spawn** **Demonstration Projects**, Interoperability Experiments, and Interoperability Pilots
6. **Educate** **and Inform** Health communities-of-practice

# Proposed Format / Membership

The suggested format for an OGC Health Domain Working Group is **Public** – i.e. open to OGC members and non-members. This will enhance the opportunity for health sector, government agencies, and geospatial community to collaborate in user/technical requirements gathering, development of standards, knowledge exchange, demonstration through interoperability projects of open mapping standards in support of various health marketplace requirements.

# Statement of Needs / Strategic Objectives

Based on previous research, health stakeholder consultation, and implementations of OGC web map standards in support of health, the following list summarizes potential focus areas / marketplace needs to be addressed by an OGC Health Domain Working Group. Areas of interest that are lower priority (but align well) are included as the Appendix.

1. **Address interoperability requirements** – e.g. support more effective health surveillance using open mapping standards to access distributed geospatial data pertaining to disease, disease vectors and vulnerable communities / populations. The WHO has called for systematic approaches to monitoring environmental determinants of health, reducing population vulnerability and mitigating risks or impacts from infectious and vector borne diseases.
2. **Develop and support communication** **strategies and market research**, including for take-to-market of OGC standards / OGC-compliant technologies which serve the health marketplace and as part of National Health Information Systems
3. **Support cross-border surveillance initiatives** - e.g. modeling, exercising, responding to cross-border health risks
4. **Advance best practices for visualization of Chronic and Infectious Diseases, and related environmental and socioeconomic data, using open mapping standards** – e.g. to support epidemiology, surveillance, control, treatment, prevention, and education activities
5. **Exchange best practices for** **health information Privacy**, Exchange and Visualization / OR / Develop best practices for implementation of OGC web service standards (together) in order to protect privacy, personally identifiable information and re-identification, while providing permission-based access (for example: best practices for exchange / visualization of Health Level 7 (HL7) geospatial data; for Telemedicine; or for Medical and Micro-Biological applications; non exhaustive)
6. **Facilitate cross-SDO** **collaboration,** for example: Pursue working relationship with members of other standards groups such as OASIS (e.g. XSPA-TC), HL7, SDMX-HD (ISO 17369:2013), as well as with the World Health Organization (possibly also the UN SDI), and national health and geospatial data providers, toward harmonization of HL7, OASIS, SMDX-HD (e.g. establish a mapping between O&M and SDMX-HD); and possibly others.
7. **Advance best practices for various use cases using open geospatial standards – e.g.** to support modeling of climate impacts on public health, risk assessment and reduction (e.g. to heat events, reduced air quality, vector borne disease, floods, drought, fire, extreme weather, changes in food production and water quality, social impacts of displacement and exposure of vulnerable populations). This includes supporting efforts to standardize interoperable interfaces for health and climate models at a scale appropriate to decision making (regional and temporal) while protecting privacy of personal health information. Some climate sensitive diseases include: chronic respiratory illness, such as asthma, chronic bronchitis, and communicable influenza; as well as other infectious diseases like West Nile Virus, cholera, malaria; meningococcal meningitis, dengue hemorrhagic fever, encephalitis, rift valley fever, Yellow fever.

***See Appendix for Further Statements of Need***

## Pertinent OGC Standards

Many existing OGC standards may support health end use applications. In addition, the Health Domain Working Group will assimilate inputs for new encodings, interfaces, applications and extensions to geospatial standards serving the marketplace. Some existing OGC standards identified as particularly valuable to the health marketplace include:

* WMS Web Map Service (ISO19128)
* WFS Web Feature Service (ISO19142)
* WPS Web Process Service
* WCS, SLD, WXXM, SWE, AR, and others
* GML Geographical Markup Language (ISO19136)
* CityGML
* IndoorGML
* CSW Catalogue Service
* O&M Observations and Measurement (ISO19156)
* Sensor Web Enablement (SWE) for Sensor Observation Services (SOS)
* SLE Styled Layer Descriptor
* KML Keyhole Markup Language
* OGC Reference Architecture
* Note: this is non-exhaustive, and best practice implementations of OGC standards may necessarily include their optional specifications (e.g. time tag), particular combinations/workflow sequences, new extensions and implementation profiles
* Note: new OGC standards may be introduced via the Working Group

## Pertinent OGC Partners, Members, Alliances, and SWGs

Any OGC member may participate, chair, co-chair, and make motions, in the Health DWG. It should be noted that health applications may crosscut with possible work activities in the Geosciences and Environment, Emergency and Disaster Management, and Law Enforcement and Public Safety Domain Working Groups, other OGC DWGs/SWGs.

## Pertinent Non-Member Agencies

Non-member participants may include:

* World Health Organization
* National and International Disease Surveillance Agencies
* Health Research Institutes
* Provincial/State Health Authorities
* Health Informatics solution providers
* Professional Health / Medical Associations
* Academic Institutions, Nursing Faculty, Geomatics Faculty Computer Sciences Faculty

Non-member participants may consider membership with OGC - see <http://www.opengeospatial.org/ogc/join/levels>

## Additional Resources

Resources pertinent to the OGC Health Domain Working Group will be added to a common Wiki repository. An OGC Health DWG List-serve will enable the exchange of resources among subscribers to the List-serve.

1. **Article: “*From Reactive to Preventative Health Care – a Role for Open Map Standards*”, on OGC Blog:** <http://www.opengeospatial.org/blog/1824>
or in **Open Health News**: <http://www.openhealthnews.com/hotnews/reactive-preventative-health-care-%E2%80%93-role-open-map-standards>
2. **Serving Public Health through Open Health Mapping Services**, GovFuture webinar: <https://www2.gotomeeting.com/register/803074466> (recording) This included a presentation on the implementation of OGC WMS, WFS, WPS, and Health XML Schema, for use/applications for cross-border influenza pandemic, chronic respiratory illness, environmental and community programs.
3. **Mapping for our health,** by Eddie Oldfield - article in Colleen Young Health Communications Blog <http://cyhealthcommunications.wordpress.com/2012/09/23/mapping-for-our-health/>
Colleen Young, host of this blog supports a Canadian Health Care Social Media network and regular ‘tweet-ups’ or moderated chats online using hashtag #hcsmca.
4. **Towards Web-based representation and processing of health information
Sheng Gao**[**1**](http://www.ij-healthgeographics.com/content/8/1/3/#ins1)**\*, Darka Mioc**[**1**](http://www.ij-healthgeographics.com/content/8/1/3/#ins1)**, Xiaolun Yi**[**2**](http://www.ij-healthgeographics.com/content/8/1/3/#ins2)**, Francois Anton**[**3**](http://www.ij-healthgeographics.com/content/8/1/3/#ins3)**, Eddie Oldfield**[**4**](http://www.ij-healthgeographics.com/content/8/1/3/#ins4) **and David J Coleman**[**1**](http://www.ij-healthgeographics.com/content/8/1/3/#ins1)<http://www.ij-healthgeographics.com/content/8/1/3> International Journal of Health Geographics
5. **The Canadian Geospatial Data Infrastructure and Public Health:** <http://ow.ly/d/goa> A report commissioned by GeoConnections, Natural Resources Canada.

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## Appendix:

**Further Statements of Need that may be addressed by the proposed OGC Health DWG:**

**Of Technical Nature:**

1. Create a queryable catalogue or dictionary of data types, definitions, and sources, useful in the health marketplace (for various types of applications)
2. Create a relational index or registry(?) of features, classes, attributes, value ranges, coordinate methodologies, physical data model mappings, semantic ontologies / models, and logical linkages of into and out of several large complex data models.
3. Formalize schemas (GML, WFS, WPS, etc) and machine-to-machine interoperable interfaces
4. Formalize transfer of coordinate systems / POIs, which are specific in the health domain
5. Examine potential health applications using building information (BIM), Industry Foundation Classes (IFC), US and Canada National Information Exchange Models (NIEM), and others.
6. Facilitate development and exchange of relational, hierarchical, and semantic models useful in the health marketplace (for various types of applications)
7. More and more IoT devices, such as wearable sensors, network-enabled weight scale, network-enabled blood pressure monitors, will be used in order to enable the telemedicine vision. As the number of such devices grows, these devices require standards to exchange data and tasking capabilities.  The OGC IoT SWG is developing the IoT RESTful API, specifically for the power-constrained IoT devices….
8. Facilitate interoperability experiments (driven by community-of-practice needs, e.g. use cases described above/below)
9. Collect/Develop Business Cases (case studies) demonstrating value (scientifically, economically, ROI) of technical solutions using OGC standards

**Other Community of Practice Needs that may be addressed:**

1. **Create a common repository and list-serve**
2. **Identify geospatial data and web service encodings** which support or align well with requirements of the Geo Health and Environment Community-of-Practice (GEOSS), and the larger health community.
3. **Facilitate adoption** **of OGC standards based technical solutions** within national health information systems (i.e. through pilot demonstrations, research, and education)
4. **Advance best practices** using open mapping standards **– e.g.** toward Public Health management and cost reduction; resource allocation for health emergencies, to protect vulnerable populations, and in response to changing geo-demographics (e.g. older populations with higher prevalence of chronic respiratory illness, diabetes, and cancer, among others) and a changing environment.
5. **Support Policy, Research, Education** – e.g. support development of policy, research, best practices, and education in the use of open mapping standards to monitor trends and changes in public health, for risk identification, communication, and disease prevention in vulnerable populations.
6. **Support collaborative research** into cumulative, synergistic, non-linear impacts (e.g. ecosystem fragmentation) to health, for risk assessment and reduction, in developed and developing world (using available technologies)
7. Facilitate members to **build capacity** to implement technical solutions, promote affordable solutions
8. Facilitate members to implement technical solutions which enable geospatial data entry/collection, integration, exchange, visualization, etc. for desktop, web, and mobile applications
9. Raise awareness, or create a calendar, of training opportunities
10. Other use cases (involving the use of OGC standards based technical solutions) may include:
	1. capacity building (of local health authorities, national health authorities);
	2. real-time surveillance and rapid detection of cases;
	3. multi-tier reporting, data collection, processing, access control;
	4. program design, planning, delivery, evaluation;
	5. improving productivity in the primary care sector;
	6. improving access to health care/services;
	7. supporting health sciences;
	8. maternal and child health;
	9. redesign of mobile cancer screening routes;
	10. all hazards vulnerability/risk assessment to public health;
	11. multi-dimensional variable analysis;
	12. facilities and asset management;
	13. urban health / adaptation; and
	14. targeting interventions.