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APEC Training Centers of Excellence
for Regulatory Science (CoEs)

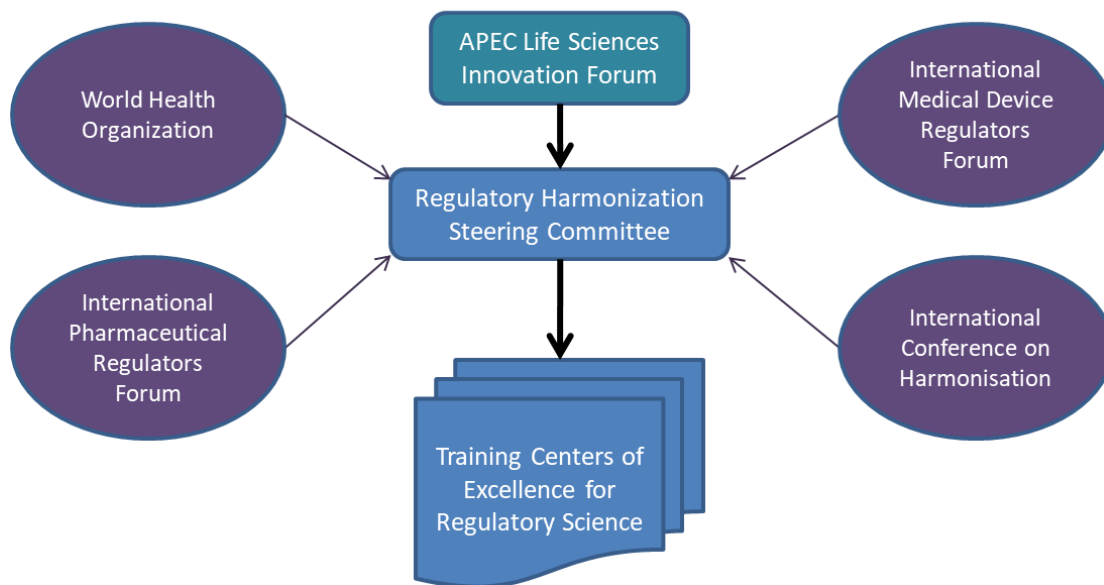
Operating Model & Guidelines

I. Background

A. Regulatory Convergence in APEC

The Regulatory Harmonization Steering Committee (RHSC) was formed in June 2009 under the auspices of the Asia-Pacific Economic Cooperation (APEC) Life Sciences Innovation Forum (LSIF) to promote a more strategic approach to regulatory harmonization by undertaking activities of greatest value to regulatory authorities and regulated industries. APEC and the RHSC are well-suited to undertake this work given the high-level political and economic policy framework that exists within APEC, as well as the strong support of regulatory authorities and industry. RHSC efforts have been guided by a Strategic Framework and vision to promote greater regulatory convergence¹ by 2020. Roadmaps to analyze and address gaps have been developed for seven (7) priority work areas (PWAs). Working in partnership with the APEC Harmonization Center (AHC), the RHSC has established linkages with other harmonization/convergence initiatives, training institutions, and key players in order to avoid duplication of efforts, promote complementary action, and make maximum use of resources (Figure 1).

Figure 1.



B. Priority Work Area (PWA) Roadmaps

All roadmaps follow the same process to promote regulatory convergence in the APEC region:

- Assess needs and level of current implementation
- Develop Core Curriculum and define library of internationally recognized standards, guidances, and best practices to serve as a basis for training and consistency

¹ According to the RHSC's Operating Procedures (revised June 26, 2013), "regulatory convergence" represents a *voluntary process* whereby the regulatory requirements across economies become more similar or aligned over time as a result of the gradual adoption of internationally recognized technical guidance documents, standards and scientific principles (harmonization) and common or similar practices and procedures. It *does not* represent the harmonization of laws and regulations, which is not necessary to allow for the alignment of technical requirements and for greater regulatory cooperation.

- Conduct training programs (Pilot Programs and CoE programs), symposia and workshops based upon the Core Curriculum
- Convene at least biannual PWA Steering Committee meetings to encourage information sharing across CoEs, updating of PWA-related materials, and to serve as a resource for those wishing to become a CoE
- Develop measurable KPIs (Key Performance Indicators) that can demonstrate progress over time
- Conduct periodic surveys of implementation efforts to assess progress
- Continual training and updating of Core Curriculum and Library

C. APEC Training Centers of Excellence for Regulatory Science (CoEs)

Beginning in 2012, the RHSC started to focus on designing and implementing a sustainable model for the continued training efforts needed to facilitate regulatory convergence by 2020 and beyond. The RHSC agreed in February 2013 to explore the establishment of an APEC Training Center of Excellence for Regulatory Science (CoE), starting with a three-day pilot workshop on Multi-Regional Clinical Trials (MRCT) at the Duke-National University of Singapore (Duke-NUS) in March 2014. The objectives of the pilot were to (1) build skilled human capacity in clinical trial regulatory science, (2) enhance regulatory cooperation in the conduct and regulation of MRCT, and (3) determine the best method and configuration to deliver training. The pilot affirmed the value of an ongoing curriculum offered through a CoE. Furthermore, the pilot allowed organizers to assess the advantages of a team-based learning approach that involved remote preparatory work followed by in-person lectures and group work, including case studies and role-playing activities. The RHSC agreed in January 2015 to expand the CoE concept to other PWAs.

II. Objectives & Benefits

The primary objectives of CoEs are to:

- Build skilled human capacity in regulatory sciences to bring safe, effective, and quality medical products to patients and people as quickly as possible;
- Promote dialogue with a view towards sharing understanding in science and best practices;
- Achieve a model of sustainable operation that includes periodic updates to maintain regulatory relevancy of materials and ensures continued value to all participating entities; and,
- Avoid duplication of efforts and leverage work that already exists and has a level of convergence.

The key benefits expected from the implementation of CoEs include the following. CoEs will:

- Deliver and/or support training by training experts and regulatory Subject Matter Experts (SME) as appropriate;
- Provide financial independence for sustainable training efforts, reducing reliance on APEC funding; and,
- Enable long-term, continuous training in the science and best practice(s) of a PWA.

III. Vision, Key Terms, and Structure

The RHSC's vision for the CoE model is to implement a sustainable platform for promoting regulatory convergence, capacity building, and cooperation in PWAs relevant to medical product regulation. The focus of convergence is on regulatory science and best practices. Some key terms are defined here:

- **PWA Champion** – An RHSC member² that leads the organization of activities to promote convergence within a PWA and serves as (1) the primary author of a PWA roadmap, (2) lead advisor to all CoEs within a PWA, and (3) chair of the PWA CoE Steering Committee.
- **CoE Host Institution** – An entity including but not limited to an academic institution, regulatory authority, corporation, or science organization which physically hosts, manages, and sustains a CoE with faculty, staff, and material support, and serves as chair of a CoE Program Committee.
- **PWA CoE Steering Committee** – A group of RHSC members, and non-members³ where additional expertise is needed, convened by the PWA Champion(s) to (1) define the core curriculum and training objectives of a PWA, (2) ensure they are updated regularly based on current regulatory and scientific practices, (3) work with the CoE Host Institution and its partners to ensure that training programs include this core curriculum and are consistent with the PWA roadmap, and (4) support and monitor the CoE to ensure successful continued performance.
- **CoE Program Committee** – A group of RHSC members, non-members, and other CoE Host Institutions under a PWA convened by the CoE Host Institution to help develop and execute trainings offered by the CoE. All members of a PWA CoE Steering Committee have equal opportunity to serve on any CoE Program Committee within the respective PWA.
- **CoE Coalition** – The entire network of CoEs represented by their CoE Host Institutions.
- **Training Objectives** – The desired behavior changes for the intended audience.
- **Core Curriculum** – The required elements based on relevant international standards and guidelines from the roadmap that are needed in order to meet the training objectives; for instance, prerequisites to understanding certain concepts. The PWA CoE Steering Committee, led by the PWA Champion(s), develops, updates, and provides it, along with the training objectives, to the CoE Host Institution. A CoE Host Institution may collaborate in this effort at the discretion of the PWA Champion(s).
- **Training Program** – The elements of the core curriculum, training materials, and training plan that the CoE Host Institution develops with the CoE Program Committee to meet the training objectives.

CoEs and their workshops will be implemented through partnerships among academia, regulators, industry, and science organizations to deliver training workshops (Figure 2). CoEs must yield sufficient benefit to all partners to ensure long-term support. RHSC, the PWA Champion(s), and the CoE Coalition will coordinate oversight activities and periodic assessments to ensure that performance continues to meet APEC objectives.

² According to the RHSC's Operating Procedures, RHSC members are representatives from the 21 APEC regulatory authorities, including the Chair, the Director of the AHC, and up to seven (7) members from industry coalitions representing the scope of products covered by the RHSC.

³ Examples of non-members include international standard-setting organizations and representatives from pilot and formal CoEs.

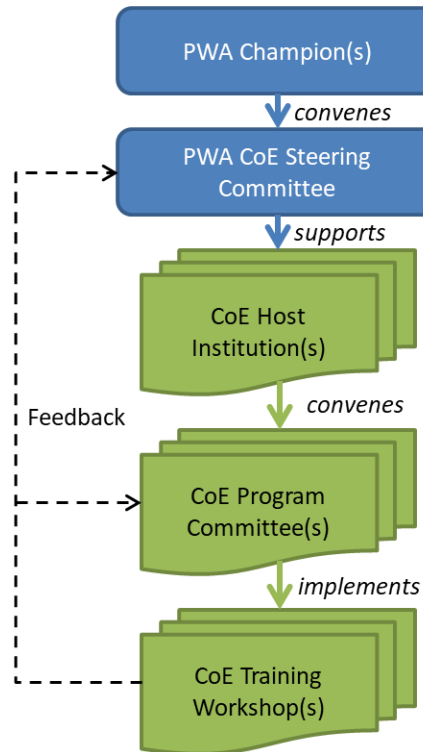


Figure 2.

IV. Operating Model

A. Topics for a CoE

As of August 2019, RHSC approved PWAs include:

- Multi-regional Clinical Trials (MRCT) and Good Clinical Practices (GCP) Inspection
- Global Supply Chain Integrity
- Biotherapeutics (Biotechnological Products)
- Good Registration Management (Good Review Practices and Good Submission Practices)
- Pharmacovigilance
- Advanced Therapies
- Medical Devices

Part of the work of the PWA CoE Steering Committees and the CoE Coalition is to identify where relevant training already exists, to avoid duplication of efforts, and make sure that activity is complementary with existing training where practical.

It is understood that more than one CoE may be best suited to satisfy the needs of a PWA.

B. Selecting a CoE Host Institution for a CoE

CoEs are physically hosted, managed, and sustained by a CoE Host Institution that supplies faculty, staff, and material support. Additional experts are identified and recruited to augment staff where the program warrants it.

A prospective CoE Host Institution should meet the following criteria and should demonstrate this in its application:

- Trusted global educational/regulatory/science-setting organization and brand
- Ability to develop and deliver a training program with priorities set by the APEC RHSC
- Willingness to provide a full or part-time Director and appropriate staff to manage the CoE
- Ability & commitment to achieve objectives as agreed herein
- Ability to fund the administrative overhead over the life of the agreement (minimum 5 years)
- Demonstrated credibility in the topic area
- Location that provides, or the ability to travel to, a site easily accessed by participants
- Ability to provide qualified faculty; this could be visiting regulatory staff or other experts as required by the training program
- Ability to receive funding to support specific aspects of CoE training (e.g., to fund student travel)

A single CoE Host Institution may be a CoE for more than one PWA topic.

Institutions interested in hosting a CoE Pilot Program should submit a CoE Pilot application form to the RHSC Secretariat. The PWA Champion(s) and the PWA CoE Steering Committee will examine the application by the CoE Host Institution against the agreed criteria above, recommend the application to the RHSC for endorsement, and inform the applicant of the results.

To become a formal CoE, the applying CoE Host Institution submits a Formal CoE application form to the RHSC Secretariat, indicating its successful completion of at least three pilot programs. If the applying CoE Host Institution is already a formal CoE in a different PWA, it needs to indicate its successful completion of at least one pilot program.

C. CoE Collaboration

The RHSC encourages the concept of collaboration among CoEs within, and across, PWAs and topic areas. The CoE Coalition will maintain an awareness of CoEs and facilitate collaboration if needed. All CoEs should model the basic CoE framework described in the guidelines in this document.

The core curriculum and training objectives (not necessarily the training program itself) should be the same across all CoEs for a given topic area, but training materials and delivery may be different from organization to organization. There may also be local or regional differences such as language, constraining regulations, etc. It is the responsibility of the PWA CoE Steering Committee to ensure that the core curriculum and training objectives are provided to each CoE providing training for the topic area. It is the responsibility of the CoE Host Institution for the CoE, through their CoE Program Committee, to ensure that this core curriculum and training objectives are incorporated into the training program.

The Center of Excellence (CoE) Coalition was created to represent the Centers of Excellence within the RHSC and at its bi-annual meetings. At the RHSC, the CoE Coalition represents a collective voice for CoEs to channel helpful feedback, advice, and input into relevant RHSC discussions and decisions. Membership in the CoE Coalition includes directors, or their designates, from formally recognized or pilot CoE institutions, and is chaired by two co-chairs and an alternate chair. The two co-chairs and the alternate chair shall be chosen by mutual vote of the CoE Coalition members and shall be endorsed by RHSC. The term of the co-chairs and the alternate chair shall be two years, which may be extended by the consents of both CoE Coalition members and RHSC. The main objective of the CoE Coalition is to promote collaboration among the RHSC CoE network through formal meetings at both SOM1 and SOM3 and informal interactions throughout the year. The CoE Coalition provides the opportunity for each CoE to share experiences, expertise and provide input on the CoE within the CoE Coalition.

D. Training Expectations

The RHSC agrees that training should focus on higher level principles of how science is applied to regulatory actions and not the specifics of any one agency's approach. Training programs should involve interactive elements such as hands-on case studies. While the RHSC may expect diversity in the training approach as noted above, RHSC will not specify to the CoE Host Institution how they deliver training programs, except to the extent that the training program meets the training objectives and incorporates the core curriculum.

The core curriculum and training objectives shall be presented to and endorsed by the RHSC. RHSC, the PWA CoE Steering Committee, and other stakeholders including already approved pilot and formal CoEs will periodically review the core curriculum to ensure that it is still relevant and current. Any changes will be presented to and endorsed by the RHSC.

The CoE Program Committee shall review and approve each training program. Upon approval by the CoE Program Committee, the CoE Host Institution will notify the RHSC of their training plans. (Approved CoE Host Institutions do

not need to obtain endorsement from the RHSC before executing training programs in their respective PWA.) The CoE Host Institution will endeavor to review the speakers' materials, whenever possible, prior to their delivery in partnership with CoE Program Committee.

When there are multiple CoEs under one PWA, RHSC and the PWA CoE Steering Committee should make such efforts as to facilitate the exchange of experiences and training materials among the CoEs in order to minimize divergence. RHSC and the PWA CoE Steering Committee shall encourage and help facilitate coordination and collaboration between CoEs in the same PWA. To this end, CoE Program Committees should seek to include the CoE Host Institutions of other CoEs in the same PWA.

For pilot CoE programs, CoE Host Institutions can apply for funding support from the APEC Harmonization Center (AHC) via their website. Funding is not guaranteed and is at the discretion of AHC. Approved CoE Host Institutions are responsible for all operational costs associated with running the CoE, and may raise funds through grants, private and public donors, running "open" training programs for a fee, and other means.

E. CoE Operating Guidelines

A CoE is formally established by the creation of a memorandum of understanding (MOU) between APEC LSIF and the CoE Host Institution. The terms "party" and "parties" in this document refer to the parties included in the MOU for any particular CoE.

The Operating Guidelines outline expectations of the parties in the MOU for the operation and performance of the CoE. These Operating Guidelines acknowledge the intent of each party to make best efforts to meet the objectives as outlined below in the CoE collaboration.

Key Operating Guidelines are listed below:

1. Training Program Development

- The CoE Host Institution should obtain the training objectives and core curriculum from the PWA CoE Steering Committee and develop a suitable timeline to achieve the milestones in agreement with the PWA CoE Steering Committee and CoE Program Committee.
- The CoE Host Institution will develop the training program with the CoE Program Committee (including identifying appropriate speakers and reviewing speaker materials), while working with the PWA CoE Steering Committee to address any issues as needed and ensuring that the proposed training program meets the training objectives.
- The CoE Host Institution should ensure RHSC members (typically from the PWA CoE Steering Committee) are present on its CoE Program Committee for the development and oversight of its CoE training programs.
- The CoE Host Institution should notify the RHSC of the training program before conducting it.

2. Participant Selection and Registration

- The participant registration and selection process, and any travel subsidy for participants, is within the purview of the CoE Host Institution and will be implemented as the CoE Host Institution determines best.
- CoE Host Institutions will limit registration to those who meet the prerequisites for a training session.

- CoE Host Institutions are responsible for ensuring an easy and seamless registration process.
- CoE Host Institutions will ensure that participant selection is fair and impartial.
- CoE Host Institutions may open registration beyond participants from APEC member economies; however, participants from APEC member economies will be given priority.
- CoE Host Institutions will send registration announcements to the RHSC Secretariat for circulation to all RHSC members and for posting to the RHSC website. Announcements sent to the RHSC Secretariat less than 60 days prior to the training program are not guaranteed to be distributed.
- CoE Host Institutions will clearly communicate the application process and deadlines to apply for travel subsidies⁴, if available.
 - CoE Host Institutions will make every effort to distribute travel subsidies, if available, to the broadest possible number of travel eligible economies, recognizing that funding sources or governmental constraints may prohibit a CoE Host Institution from funding travel from participants from certain economies.

3. Delivery and Certification of Training

- The CoE Host Institution agrees to use qualified staff to deliver training (this may be faculty, regulatory staff, industry, or other experts in the field as necessary based on the content).
- The CoE Host Institution may establish a “Certificate of Participation” for the training which might later be used in a certification process by regulators. This document may be co-signed by a representative of the CoE Host Institution and RHSC leadership.
- The CoE Host Institution ensures that the training program includes a significant interactive element (e.g., dialogue among students and instructors as a whole; case studies and problem solving; role playing, opportunities for small-group learning, hands-on laboratory-based experiences).
- Where feasible, the CoE Host Institution may provide remote training. Some training delivery does not lend itself to remote learning, for instance hands-on labs and case studies. If hands-on labs and case studies are not part of the training program and depending on the PWA topic scope to be covered by a CoE, it may not be possible to make the full training available via remote learning.
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- The CoE Host Institution will make a significant amount of training material available to participants of the training program online as feasible.

4. Periodic Assessments

- A CoE is assessed on its own merits, based on the performance of the programs and the outcomes meeting the applicable objectives, and independent of other CoEs.
- RHSC and PWA CoE Steering Committees maintain an overarching view of the core curriculum and training objectives to avoid incompatibilities and provide updates or information to CoE Host Institutions as needed.

⁴ According to paragraph 9-19 of the APEC Guidebook, the following eleven (11) APEC member economies are considered “travel-eligible” economies and may receive travel subsidies: Chile; China; Indonesia; Malaysia; Mexico; Papua New Guinea; The Philippines; Peru; Russia; Thailand and Viet Nam.

- The CoE Host Institution will share with the RHSC its CoE program activities using the approved CoE reporting template. CoE Host Institutions are not required to report on activities at every RHSC meeting.
- The CoE Host Institution shall agree to a formal assessment conducted by the RHSC every 5 years, as described in the *CoE Assessment Plan* and its *CoE Self-Assessment Rubric*, and may undergo an informal interim assessment every 2.5 – 3 years, especially for newly endorsed CoEs.
 - If the formal assessment indicates that the program is not effective or not meeting the training objectives, the parties will collaborate to resolve the issues. If issues cannot be successfully resolved within a reasonable time (to be agreed upon by the parties), either party may choose to exit the MOU.
- The CoE Host Institution shall update materials as required by the PWA CoE Steering Committee and RHSC based on changes to the core curriculum and training objectives.

5. Operations

- The parties will make good faith efforts to meet the commitment of the signed MOU and its requirements.
- The CoE Host Institution funds and provides the training venue, program administration, and administrative costs. The CoE Host Institution may receive grants, donations, tuition, and other funding sources for supporting a CoE. The CoE Host Institution may use any received funding related to the CoE as they determine most suitable to support the CoE including travel subsidies for participants and to recover operating costs.
- The CoE Host Institution may provide regulator-only training sessions as needed and agreed between the collaborating parties. Faculty for these closed sessions may include private sector experts taking into consideration any conflicts of interest.
- The CoE Host Institution will identify a Program Director to oversee all CoE program operations, serve as primary point of contact with RHSC and the CoE Coalition, coordinate regular reviews of the CoE's performance in meeting its objectives, and present the results of those reviews to the RHSC.

RHSC Secretariat will maintain an overall awareness of agreements or MOUs for all CoEs, for instance, the signed MOUs between CoE Host Institutions and LSIF. An original signed MOU is maintained by each signing party.

F. Outreach, Training, and Collaboration Outside of the APEC region

A formal CoE may decide to conduct its training activity outside of the APEC region, either alone or with a partner organization based outside of the APEC region. Such a partner organization should abide by the operating model and guidelines described herein, while the CoE should advise the development and execution of the training activity. The plans and results of such training activity should be reported to RHSC in a timely manner.

G. Intellectual Property and Sharing Training Materials

Each CoE institution may wish to hold intellectual property rights to its training materials and approaches. Parties may wish to explore establishing agreements between organizations to share material.

It is expected that the CoE make some set of training material available to participants on their CoE sites if possible. The RHSC also has the capability to post publicly available training materials on their website, and/or will have an

awareness of locations of available material. It is not common for all classes to be video-taped, but it should be noted that making these tapes public will require that all participants agree to them being publicly available. RHSC and the CoE Host Institution will determine whether this is necessary, and the means to accomplish it.

H. Key Roles

1. All Stakeholders and Parties

- Periodically evaluate progress on convergence
- Periodically evaluate the need for changes to core curricula due to changes in science, best practices, and relevant international standards and guidelines

2. LSIF

- Maintain high-level political support

3. RHSC

- Maintain high-level political support
- Endorse new and revised core curricula and training objectives
- Endorse new pilot CoE programs
- Endorse new formal CoE programs

4. RHSC Secretariat

- Maintain a public website to provide information on APEC RHSC including meeting agendas, presentations, outcome documents, PWA Roadmaps, Training Objectives, Core Curricula, Training Programs, and PWA CoE Steering Committee members
- Manage written communications regarding APEC CoE operations, including approval letters, MoUs, assessment documents, etc., and maintain a repository of CoE operating documents and templates

5. PWA Champion(s)

- Convene and chair the PWA CoE Steering Committee
- Support and approve pilot and formal CoEs

6. PWA CoE Steering Committee

- Define core curriculum and training objectives, and update regularly
- Identify and recruit a pool of qualified and available CoE faculty
- Establish CoE assessment requirements

7. CoE Program Committee

- Identify and recruit a pool of qualified and available CoE faculty

8. CoE Host Institution

- Host, manage, and sustain a CoE with faculty, staff, and material support

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- Serve as chair of a CoE Program Committee

9. CoE Coalition

- Convene CoE Program Directors to discuss operations, challenges, issues of concern, and report progress and recommendations at both RHSC meetings per year