

Overview of Chinese Pharmacopoeia Commission (ChPC) & Update of Chinese Pharmacopoeia (ChP)

Chinese Pharmacopoeia Commission

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The Chinese and the European Pharmacopoeias Seminar

October 17, 2016 Strasbourg, France





Contest

- 1. Overview of Chinese Pharmacopoeia Commission
- 2. The Update of Compiling Chinese Pharmacopoeia
- 3. Main Publications and Websites of Chinese Pharmacopoeia
- 4. Review and Prospect of International Cooperation
 - & Sino-European Cooperation on Pharmacopoeias

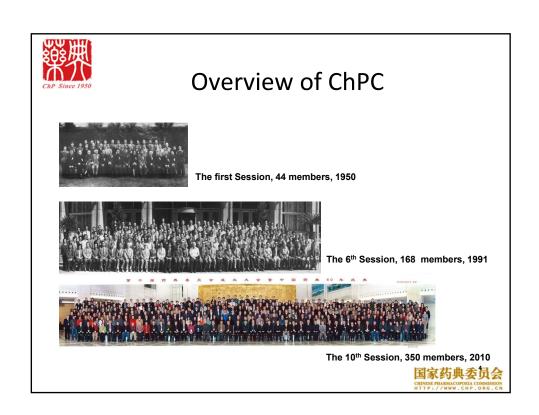




Overview of ChPC

- □ Founded by the Ministry of Health in 1950, ChPC is one of the earliest founded organizations for standardization.
- ChPC invited well-known medical and pharmaceutical experts
 to be committee members and general election holds every
 5 years, up to now, we have formed the pharmacopoeia
 committee of the tenth.
- □ The 11th Pharmacopoeia Commission will be organized by the end of 2016.







Since 1950 Overview of ChPC: Previous Chairmen

Chairmen is generally taken by the head of Ministry of Health or Food and Drug Administration as part-time duty.



sessions

Li Dequan The first and second











The fifth session

Chen Minzhang

The 6th and 7th session



session

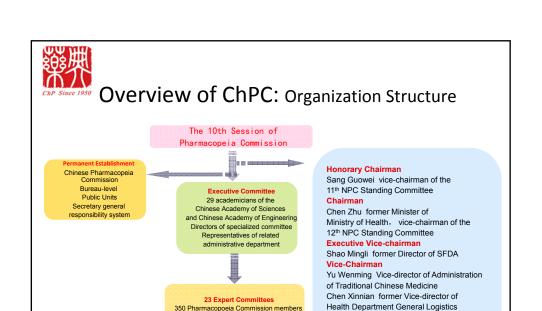
Department of PLA

Wu Zhen former Vice Minister of SFDA Deputy Director of CFDA

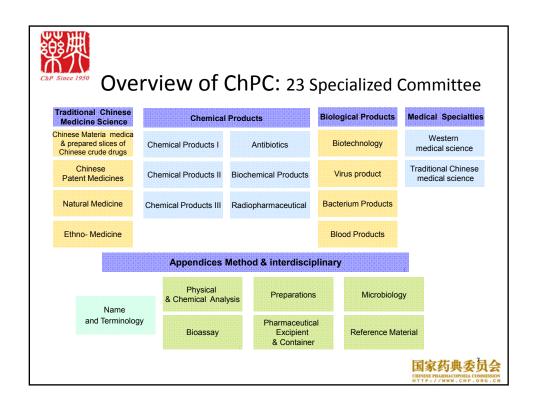
国家药典委员会

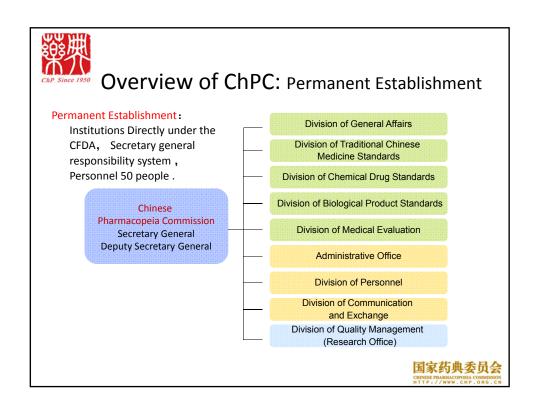


Chen Zhu The 10th session 国家药典委员会



26 Advisory Commission members







Main Responsibility of Permanent Establishment

- Organize the drafting and revision of ChP and its addendums.
- Organize the drafting and revision of national drug standards and quality standards for pharmaceutical excipients, packaging materials in direct contact with drug substances, as well as containers.
- Participate in the evaluation of the implementation performance of the ChP and national drug standards.
- Be responsible for the communication, training and technical consultation of the ChP and national drug standards.
- Participate in the drafting of management systems for the standards of medications, pharmaceutical excipients, packaging materials in direct contact with drug substances, as well as containers, and establish and improve drug standard management system and relevant working mechanisms.
- Organize the conduct of research and drug standardization strategies, drug standard management policies and technical regulations, and undertake the analysis and evaluation tasks of pharmaceutical and medical clinical information.



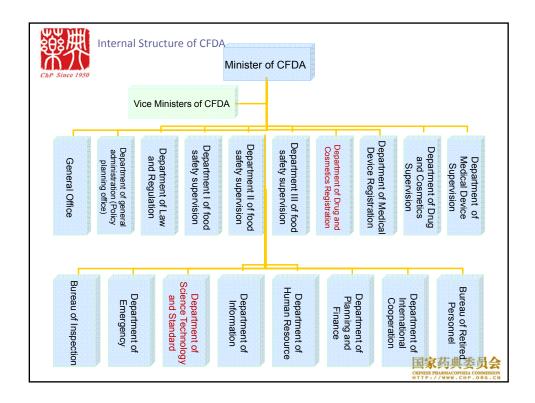


Overview of ChPC:

Main Responsibility of Permanent Establishment

- Carry out international communication and cooperation related to drug standards, and participate in the international drug standard Certificate of Suitability cooperation and the drafting and revision of international drug standards.
- □ Be responsible for the drug standard information construction.
- Be responsible for organizing the editing, publishing and distribution of publications and journals including the ChP series and Drug Standards of China.
- Be responsible for the organization, coordination and service assurance for relevent conference in accordance with the Charter of the Pharmacopoeia Commission.
- Undertake other tasks assigned by the CFDA.







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1. Historical Development of ChP

- By far, Editions of 1953, 1963, 1977, 1985, 1990, 1995, 2000, 2005, 2010 and 2015 were issued, totally ten editions.
- □ Since 1985, new edition of ChP was issued every 5 years. (Complementary version was published during the intervals.)
- □ The latest ChP 2015 was issued on June 5, 2015 and officially complemented on December 1st of 2016, including four Volumes, respectively Traditional Chinese Medicine, Chemical Medicine, Biological Products, General Requirement and Pharmaceutical Excipients.



















2. Goal and Principle of Compiling ChP

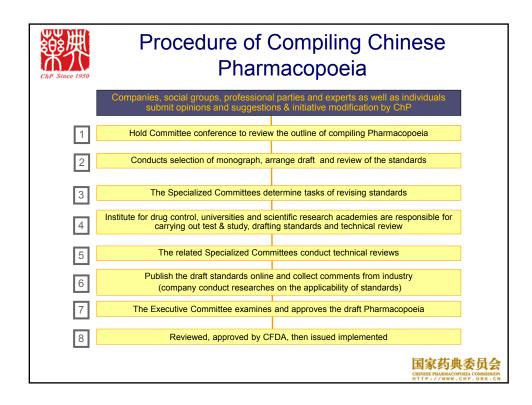
Goal:

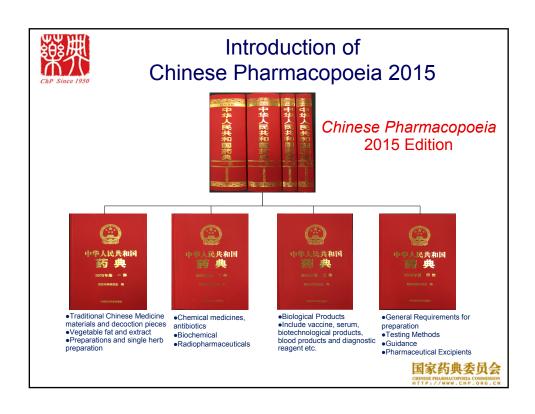
Ensure drug safety, effectiveness & quality control

Principle:

Scientific, advanced, normative & practical





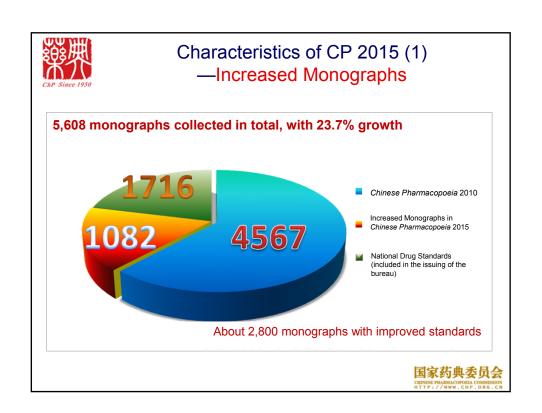




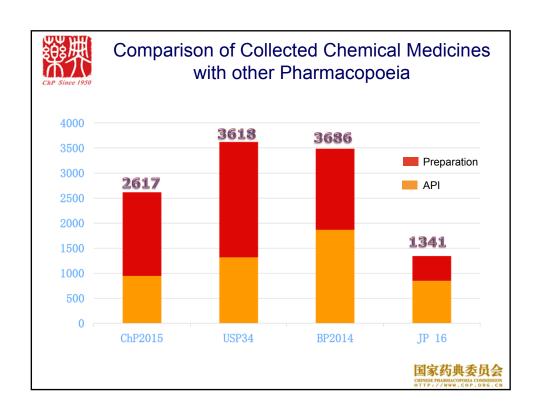
Newly Add, Revision of Chinese Pharmacopoeia 2015

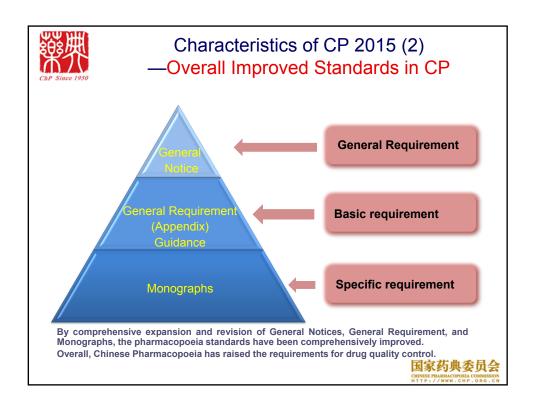
| Category | | Monographs in <i>CP</i> 2010 | CP 2015 | | | |
|---------------------------------|------------------------|------------------------------|----------------------------|---------------------------|-----------------------|-----------------------------|
| | | | Monographs to be Collected | Newly Added Monographs | Revised Monographs | Non-collected Monographs |
| Traditional Chinese Medicine | | 2165 | 2598 | 440 | 517 | 7 |
| Chemical Medicines | | 2139 | 2603 | 492 | 415 | 28 |
| Pharmaceutical Excipients | | 132 | 270 | 137 | 97 | 2 |
| Biological Products | Monographs | 131 | 137 | 13 | 105 | 6 |
| | General Requirement | 10 | 108 | 10 | 21 | 1 |
| Total | | 4567 | 5608 | 1082 | 1134 | 43 |
| General Requirement (appendix) | | / | 316 | 43 | 67 | 1 |

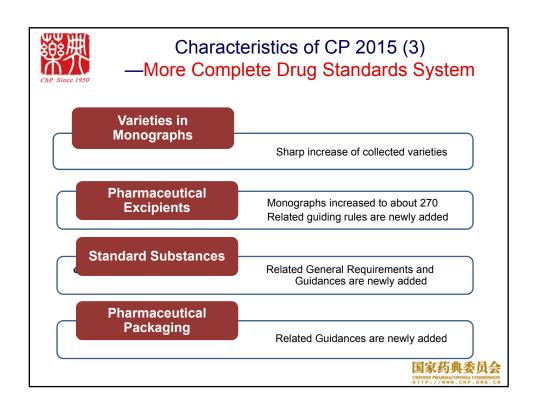


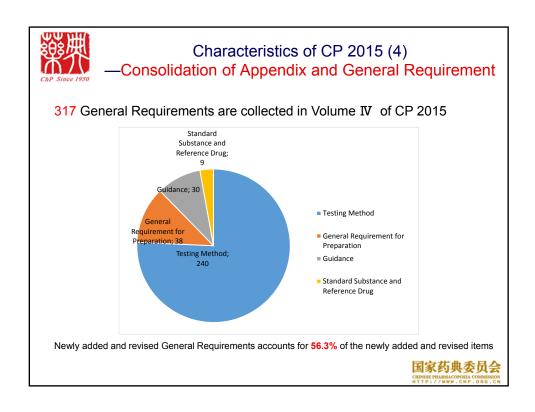


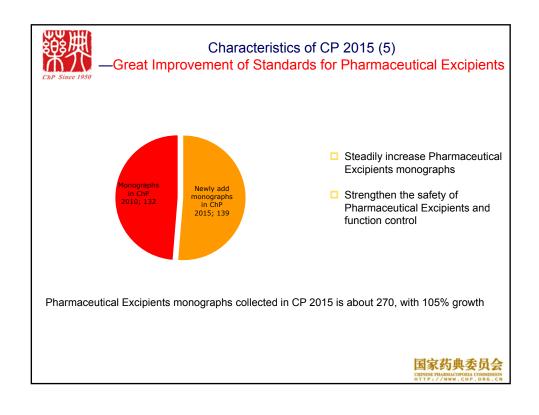


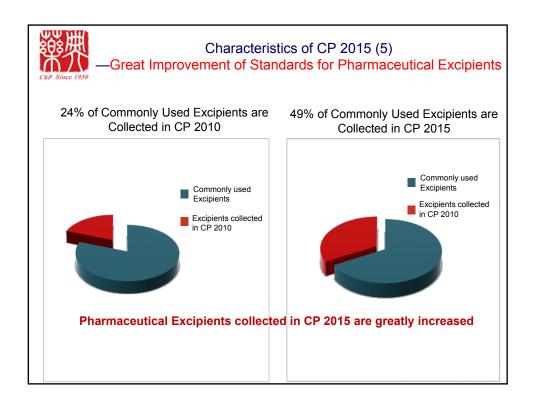


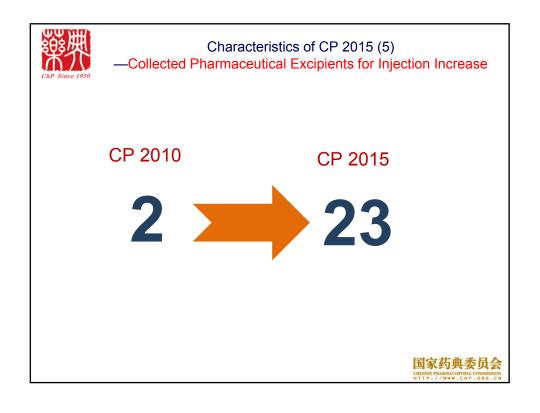














Characteristics of CP 2015 (6)

—More Advanced Testing Technologies are Applied

A, Apply modern analysis technologies, enhance specificity of testing

- e.g.: Supercritical fluid chromatography,
 - Critical point chromatography,
 - x-ray diffraction method,
 - HPLC-ICP-MS, gas-phase tandem mass spectrometry

B. More testing technologies for drug quality control

- e.g.: Application of gene chip technology in drug evaluation
 - Application of nucleic acid's molecular biological detection technology
 - Determination of sulfur dioxide residue (gas chromatography, ion chromatography)
 - Pesticide residue determination (gas-phase tandem mass spectrometry)
 - Molecular identification and microorganism identification of Traditional Chinese medicine's DNA bar code

Traditional Chinese Medicine's mycotoxin and pigment detection

C、Provide approaches for drug R&D and safety evaluation

- e.g.: Drug crystalline research and guiding principles of crystalline quality control
 - Guidance for harmful residue limits of Traditional Chinese Medicine





Characteristics of CP 2015 (7)

—Safety Control Projects Increase Greatly



- Developed limit standards of sulfur dioxide's residual amount for Traditional Chinese Medicinal Materials and Decoction Pieces (10 varieties, General Requirements)
- > Promote and develop limit standards for testing hazardous substances as heavy metals, harmful elements, aflatoxin and pesticide residue
- Researched and added tests for 16 pesticide residues in the standards for ginseng and American ginseng
- Add testing of aflatoxin to the standards for 14 collected Traditional Chinese Medicinal Materials and Decoction Pieces, such as Seman Platycladi, which are susceptible to aflatoxin, also developed the related limit standards
- Establish testing method of single-crystal X-ray diffraction to detect harmful ingredients(asbestos), which may occurs in talcum mine
- Replaced benzene with methylbenzene in thin-layer chromatography testing, in which benzene was used as toxic solvents, 67 Traditional Chinese Medicines were involved
- > Cancel the collection of Decoction Pieces of Dried Human Placenta and varieties containing Dried Human Placenta
- > Revise method of determining Ginkgolic Acid extracted from Ginkgo Leaves





Characteristics of CP 2015 (7) —Safety Control Projects Increase Greatly

Chemical Medicine

- Related Substances: Add information as structural formula, chemical name, molecular formula and molecular weight of 448 impurity substances involved in the Monographs. Strengthen qualitative and quantitative research of impurity about determining methods; Differentiate the control to known and unknown impurities, optimize the determining method for antibiotic polymer; set reasonable limit, further raise the scientific and reasonable property of related substances projects.
- Strengthen research and revision of inorganic impurity testing method, including catalyst, so as to improve veracity of methods. For example, atomic absorption spectrometry in Ramipril raw material is adopted to examine catalyst used in synthetic process.
- Set up security projects according to features of dosage form: i.e., control item of osmotic pressure is added into intravenous infusion and eye drops; bacterial endotoxin testing method is added for large volume infusion solutions and strict limits are determined; milky injected solutions revise and enlarge determination of milky particles and so on.





Characteristics of CP 2015 (7) —Safety Control Projects Increase Greatly



- Add related General Requirements, make strict quality control requirement during the whole process of biological products so as to ensure products' safety and efficacy, meanwhile, add" universality technical requirements of quality control on raw materials and excipients used for biological products' manufacturing
- > Promote standards and clean out backward-crafted and poor-stability products (i.e., liquid rabies vaccines, monoclonal antibodies of hybridoma techniques, indirect enzyme immune and so on).
- Study and establish key testing projects' limitation for biological products, i.e., stability of toxin seed's gene sequence and molar concentration of osmotic pressure. Further strengthen consistency of biological products batches
- Reinforce controlling microorganism and exogenous factor's pollution, inspect bacterial endotoxin for vaccines and inspect mycobacteria for animal origin's ground substance.
- Reinforce controlling organic solvents' residues and impurities of biological products so as to ensure drug safety. For example, adopt testing methods of host cell DNA and protein residual quantity used for all kinds of production.





Characteristics of CP 2015 (8) —Efficacy Detection Improved

Traditional Chinese Medicine

- Strengthen specific identification and content determination for Traditional Chinese Medicinal materials (glue medicinal materials): e.g., adopt LC-MS specific chromatogram for identification
- Add microscopic identification for 50 medicinal materials: Adopt PCR detection method to identify and check Bulbus fritillariae cirrhosae so as to improve its specificity
- Add content determination of specific amino acid for certain Traditional Chinese Medicinal materials; create a detection method targeted at dogwood's major component-morroniside in such series as liu wei di huang bolus
- > Add the QAMS method for parts of Traditional Chinese Medicinal materials (salviae miltiorrhizae, lucid ganoderma and Chinese mahonia stem)





Characteristics of CP 2015 (8) —Efficacy Detection Improved

Chemical Medicine

- Further strengthen the research on features of different dosage-form, properly increase indexes of controlling preparations' efficacy, study and create a scientific and reasonable detection method
- Improve detection methods of dissolution rate and releasing rate, reinforce controlling efficacy of currently released oral solid preparations(such as hypoglycemic drugs and so on) and sustained-controlled preparations; reinforce controlling efficacy of enteric preparations' releasing rate and acid absorption for curing gastric acid drugs
- Strengthen particle size's control of slight-solubility crystalline crude drug as well as research and establishment of such indicators as re-dissolve time of injection
- Strengthen relevance research of physicochemical determination method and biological determination method on the basis of making full use of modern analysis technology
- Continue to use more additionally specific methods to identify drugs and enlarge infrared spectroscopy's application in preparation identification; strengthen research on polymorphism varieties and create a proper detection method
- Content identification: Continue to research alternative method by mercuric acetate's test solution in crude drug's non-water titration method so as to solve environmental pollution problems; further strengthen powerful-specificity and wide-application method study used for determining preparation's content
- > Strengthen research and additional revision of detection method related to radiopharmaceutical activity





Characteristics of CP 2015 (8) —Level of Efficacy Detection Improved

Biological Products

- > Raise titer limit standards for blood clotting factors, antitoxin and antiserum products
- > Raise purity requirements for antitoxin and antiserum
- Further strengthen research the method in vitro replaces method in vivo, promote normativity, accuracy and operability of validity determination's method
- Adopt recombination technology method to replace traditional virus cytopathic alteration method, so as to reduce biosafety risks





Framework of Compiling CP 2020 - Goal

- □ Further complete standard system, improve the overall level of the standards
- Develop standards more rigorously; Choose varieties more properly; More coordination with international standards; More scientific mechanism of establishing standards
- Chinese traditional medicine standard continues to lead the formation of international standard, the standards of Chemical medicine and Pharmaceutical Excipients basically reach or approach the international standard level, while the standards of Biological medicine keeps pace with international standard level





Framework of Compiling CP 2020 – Specific Task

- □ Properly increase the varieties, meeting the demand of clinical treatment
 - Insist the principles of choosing varieties: Clinical commonly used, with exact effect, safe to use, mature production technology, and quality control
 - Fully cover the National Essential Medicine List and National Basic Medical Insurance Drug Catalogue, meeting demand of the adjusing guidance for clinical treatment
 - Increase the standards for API, traditional Chinese medicinal materials and Pharmaceutical Excipients; The Chemical Medicines with innovative technologies will be high encouraged.
 - The number of the varieties in Chinese Pharmacopoeia 2020 Edition will reach about 6500, compared with the Edition 2015, the number of Traditional Chinese Medicines will increase by 220, Chemical Medicines by 420, Biological Products by 30, Pharmaceutical Excipients by 100, Pharmaceutical Packaging by 30. About 1300 revisions will be conducted to the varieties already included, 500 revisions to Traditional Chinese Medicines, 600 to Chemical Medicine, 150 to Biological Products, and 150 to Pharmaceutical Excipients.





Framework of Compiling CP 2020 – Specific Task

- According to the requirement of cleaning up the national drug standards,complete the mechanism of elimination of drug standards
- Raise the common technical requirement, comprehensivly promot the drug quality control standards
 - Newly add about 30 related detection methods, 20 general requirements, 15 guidances; newly complete about 60 detection methods; newly revise 12 general requirements and 10 guidances
- Enhance the coordination and consolidation with international standards
 - Enlarge the international influence of Chinese Pharmacopoeia, improve the quality of Chinese drugs, promote the development of drug import and export trade





Framework of Compiling CP 2020 – Specific Task

- Regularize the structure of standards in Chinese Pharmacopoeia
 - ✓ Further complete the coordination and regularization of content between the volumes
 - Establish unified specification for Approved Drug Names (including chemical medicine, traditional Chinese medicine, biological product, pharmaceutical excipients and packaging)
 - Research and establish coding system for drug standards, establish Glossary of terms in Chinese Pharmacopoeia
- Complete the standard system of Chinese Pharmacopoeia
 - Establish and complete the drug standard system including traditional Chinese medicine, chemical medicine, biological product, API, pharmaceutical excipients, pharmaceutical packing, and standard substances
 - Construct technical specification structure, including general notices, general requirement(testing method, general requirement for preparation), as well as related guidances for drug research, manufacturing, storage and transportation, and etc.

24.0



Framework of Compiling CP 2020 - Traditional Chinese Medicine (Volume I)

- Conduct safety evaluation on traditional Chinese medicines, develop limit standards of pesticide residue, heavy metal, and microbial contamination regarding specific varieties
- Keep completing quality control model on traditional Chinese medicines, enhance research on component identification technology, and method for active agredient identification; conduct efficacy evaluation applying biological activity analysis method





Framework of Compiling CP 2020

- Chemical Medicine (Volume **I**)

- Complete analytical approach on Impurities and related substances
- Strengthen the control to Toxic and harmful impurities
- Conduct research on control approach related with drug safety, and develop limit standards
- Raise related quality standards for preparation according to the results of drug consistency evaluation
- Complete methods for detecting dissolution and release of common solid preparations
- Research and establish effective methods for quality evaluation and control index for new pharmaceutical preparations, such as sustained andcontrolled release preparation





Framework of Compiling CP 2020

Biological Products(Volume Ⅲ)

- Complete common technical requirements for the whole process control
- Strenghen technical requirements for virus contamination and safety
- Develop technical requirement for new therapeutic biological products
- Fasten collecting the standards of newly approved vaccine, antibody
 medicine, and PEG recombinant protein drug into Chinese Pharmacopoeia





Framework of Compiling CP 2020

- General Requirement (Volume IV)

- Testing Methods
 - ✓ Enhance the generality, applicability and stability of the common testing methods
 - Following the trend of international Pharmacopoeia standards, further apply the mature testing technologies
- general requirements for preparations
 - ✓ Increase the collection of mature new dosage form
 - Stability of preparation and consistency of batchs
- Guidances
 - Closely keep up with the trend of related technical guidances in international
 Pharmacopoeia, compelte related technical guidance in Chinese Pharmacopoeia





Framework of Compiling CP 2020 - General Requirement (Volume IV)

- Pharmaceutical Excipients and Packaging
 - Establish and complete the standard system for pharamceutical excipients and packaging
 - Increase the standards collection of common used pharmaceutical excipients and key pharmaceutical packaging, promote the update of pharmaceutical excipients and packaging varieties
 - Strengthen the safety control of pharmaceutical excipients and packaging, keep in line with international requirements





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Series Publications Related with ChP

- National Standard Handbook for Drugs
- Drugs FT-IR Collection
- Chinese Approved Drug Names
- English Edition of the Pharmacopoeia
- Annotation of the Pharmacopoeia
- Clinical Medication Guide
- An Illustrated Microscopic Identification of Chinese Materia Medica Powder
- □ TLC Color Atlas of Chinese Medicinal Materials
- Compilation of National Standards of Drugs
-



















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International Exchange and Cooperation on Chinese Pharmacopoeia

- Good cooperative relationship with WHO, EDQM, USP, BP, FP, JP, and etc.
 - MOUs are achieved with USP, BP, enhancing coordination on drug standards
 - ✓ Sino-French cooperation: on Traditional Chinese Medicinal material Standard
 - Exchanges with Russia, Japan, India, Brazil, Cuba, Indonesia, and etc.
- Recommend international experts
- Introduce Traditional Chinese Medicinal materials standard into international pharmacopoeia
- Send experts to other Pharmacopoeia for exchange and study





国家药典委员会 CHINESE PHARMACO COLIA COMBISSION



International Exchange and Cooperation on Chinese Pharmacopoeia

- Global Pharmacopoeia Leadership Conference
 - ✓ The 1st session: November, 2011, Beijing
 - ✓ The 2nd session: September, 2012, Xi'an
 - ✓ The 3rd session: September, 2013, Baltimore, US



Sino-US Pharmacopoeia Forum

 Held for 7 sessions in Shanghai, Beijing, Tianjin, Haikou, Xi'an, Baltimore and Chengdu, aiming to establish international platform for exchange and cooperation on drug standards







Actively Participate and Support International Pharmacopoeia Exchange Activities

- Advocated by WHO, GPhP (Good Pharmacopoeia Practice) was started in 2012, aim to standardize drafting pharmacopoeia standards, promote consolidation and coordination between international pharmacopoeia standards, facilitate exchange and cooperation between international and regional pharmacopoeia organizations, scientifically establish pharmacopoeia standards, ensure quality of drugs
- It is trustworthy to compile pharmacopoeia standards following the guidance of GPhP, which promote exchange, sharing, and recognition of monographs in different pharmacopoeias.
- Three advantages of GPhP:
 - ✓ Enhance international Pharmacopoeia cooperation
 - Help the industry understand the processes of establishing and maintaining pharmacopoeia standards
 - Promote cooperation between administrative organizations and companies, enhance global coordination and consolidation, reduce repetitive work





International Meeting of World Pharmacopoeia (WHO)

- □ Feb. 29th March 2nd, 2012, the 1st International Meeting, Head office of WHO in Geneva, Switzerland,. GPhP was established, which contributes to coordination and consolidation of pharmacopoeia. Drafting group was founded.
- April 18th to 19th, 2013, the 2nd International Meeting, New Delhi in India
- May of 2014, the 3rd International Meeting, London in UK
- October of 2014, the 4th International Meeting, Strasbourg in France





International Meeting of World Pharmacopoeia (WHO)

April of 2015, the 5th International Meeting, Washington DC in US.









International Meeting of World Pharmacopoeia (WHO)

Sept. 21-22, 2015, the 6th International Meeting, hosted by Chinese Pharmacopoeia Commission in Suzhou, China. 29 representatives from 13 pharmacopoeia organizations participated, including WHO, China, EU, US, UK, India, KZ, Japan, Korea, Iran, Indonesia, Ukraine, and Vietnam.









International Meeting of World Pharmacopoeia & Chinese Pharmacopoeia Annual Scientific Symposium

- Sept. 23-24 of 2015, the 6th International Meeting & Chinese Pharmacopoeia Annual Scientific Symposium was held. Around 500 Sino-foreign representatives attended the meeting., including 29 representatives from 13 pharmacopoeia organizations
- Theme of the symposium is "Display of 2015, and Expectation for 2020". ChPC introduced the compilation of CP 2015, and efforts to promot coordination on international pharmacopoeia standards: Comparison between international pharmacopoeia standards, standards for China and international pharmaceutical excipients and information platform, digital standards for traditional Chinese medicines. Representatives from international pharmacopoeia organizations introduced compilation and development plan for the pharmacopoeia standards. This meeting further made closer the links between pharmacopoeia organizations all over the world, and established the platform for exchange and cooperation.





International Meeting of World Pharmacopoeia & Chinese Pharmacopoeia Annual Scientific Symposium

- ChPC's World Pharmacopoeia was activated together by Mr. Wei ZHANG and Dr. Sabine from WHO
- 10 well known guests were invited to discuss on development of Chinese pharmaceutical industry, drug quality control, development and international coordination of drug standards, which offered an opportunity for the authorities and companies in China to understand the current situation of the world drug standards, study advanced concept on production and quality control, also facilitate international peers to know more about manufacturing, inspection, quality control of Chinese drugs, promote Chinese drugs to be international.





International Meeting of World Pharmacopoeia & Chinese Pharmacopoeia Annual Scientific Symposium















Sino-EU Pharmacopoeia Cooperation

August 21st, 2014, Dr. Susanne Keitel from EDQM and Ms. Madam Cathie Viellen from EPC visited ChP. Parties exchanged information about their organizational structure, main responsibilities, procedure and compilation of pharmacopoeia. MOU was achieved, joint working group would be organized to carry on cooperation on information exchange, personnel training, expert support, development and coordination of standards, etc.









Thank you for Attention, Welcome to China!

