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## REGULATORY VARIATIONS IN GMP CERTIFICATION: AMONG USA, AUSTRALIA, CANADA AND INDIA

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### ABSTRACT

The pharmaceutical business and related sectors are subject to stringent regulatory standards across the globe, with Good Manufacturing Practices (GMP) acting as the cornerstone to ensure product efficacy, safety, and quality. This article compares the GMP regulations of four distinct countries: the United States (USA), Australia, Canada, and India. All of these nations work hard to safeguard public health, but they approach the task in different ways. The FDA in the USA enforces stringent and comprehensive GMP regulations, emphasizing meticulous documentation and routine facility inspections. While coordinating its GMP regulations with international standards, Australia's Therapeutic Goods Administration (TGA) places a strong emphasis on accountability and traceability. Like other nations, Canada bases its legislation on international standards and regularly adopts FDA regulations; Health Canada is in charge of overseeing compliance and inspections. India complies with (WHO) standards while maintaining varying levels of rigor in its GMP framework across different regions. The similarities and differences between these countries' GMP standards, regulatory agencies, paperwork requirements, and inspection practices are investigated in this analysis. It highlights how important it is to stay current with GMP regulations and how tailored compliance protocols are necessary to address the unique circumstances of every nation. Pharmaceutical firms and enterprises in related industries need to be proactive in upholding GMP standards, keeping in mind the particular regulatory framework

of the nation in which they operate. Comprehending the variations in GMP regulations can aid interested parties in making informed decisions, optimizing their manufacturing processes, and ultimately propelling the worldwide endeavor to guarantee the excellence and security of medications.

**Keywords: Health Canada, Good Manufacturing Practices, FDA, TGA, and WHO**

## **INTRODUCTION:**

The term "good manufacturing practices," or GMP, refers to a system of rules, guidelines, and paperwork that guarantees the production and control of manufactured items, including food, cosmetics, and pharmaceuticals, in accordance with predetermined quality standards. By putting GMP into practice, one can reduce waste and losses as well as prevent recalls, seizures, penalties, and jail time. In general, it shields the business and the customer against unfavourable food safety incidents. GMPs inspect and cover every facet of the production process to protect against dangers including adulteration, mislabelling, and cross-contamination that could have disastrous consequences for products. Several domains that may impact the security and caliber of goods that GMP guidelines and regulations tackle include the following.

- Building and facilities
- Sanitation and hygiene
- Quality management
- Equipment
- Raw materials
- Personnel; Qualification and Validation

- Complaints, Recordkeeping and Documentation

Numerous nations have enacted laws requiring manufacturers to adhere to GMP practices and develop their own GMP rules in line with those laws. We have conducted a comparative analysis of the GMP guidelines from the United States, Australia, Canada, and India in this review [1].

## **1. GOOD MANUFACTURING PRACTICE:**

### **1.1 WHAT IS GMP:**

A system called good manufacturing practice (GMP) makes sure that goods are regularly made and monitored in accordance with quality standards. It is intended to reduce any production-related risks associated with pharmaceuticals that cannot be eradicated by testing the finished product. The primary hazards include: unanticipated product contamination that might lead to harm to health or even death; inaccurate labelling on containers that could result in patients receiving the wrong medication; and an excessive or insufficient amount of active component that could cause side effects or ineffective therapy. GMP addresses every facet of manufacturing, including personnel training and personal

cleanliness, as well as the premises, equipment, and beginning materials. For any process that has the potential to impact the final product's quality, written, comprehensive procedures are necessary. Every time a product is manufactured, there needs to be mechanisms in place to offer recorded evidence that the right processes

are regularly followed at every stage of the production process. WHO has produced comprehensive recommendations for safe manufacturing practices. Numerous nations have developed their own GMP regulations based on WHO GMP [2].

## 1.2 FIVE COMPONENTS OF GMP:

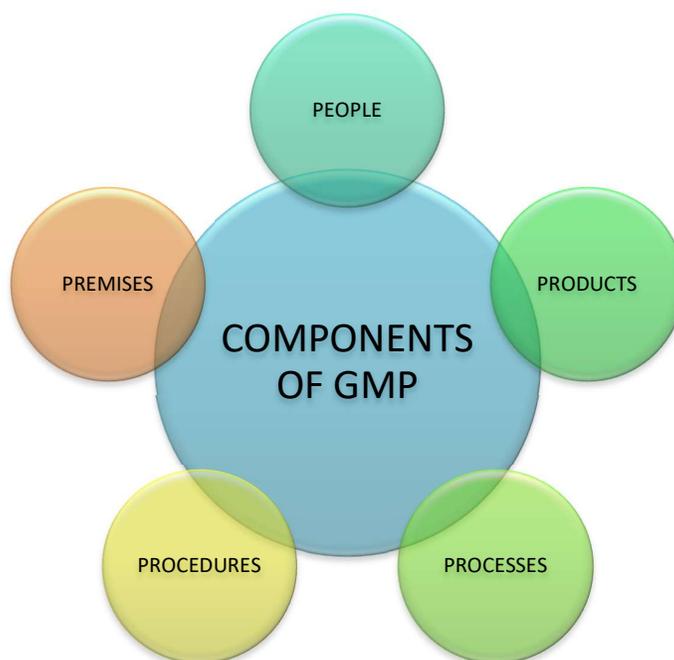


Figure 1: 5 P's of Good Manufacturing Practices

### A. People:

Every employee is obliged to follow manufacturing procedures and guidelines to the letter. All personnel must complete a current GMP training in order to fully comprehend their duties and obligations. Evaluating their work enables them to become more competent, efficient, and productive.

### B. Products:

Before being distributed to customers, every product must go through continuous testing, comparison, and quality assurance. At every stage of manufacturing, manufacturers should make sure that primary resources, such as raw materials and other components, have precise requirements. When it comes to packaging, testing, and assigning sample products, the standard procedure must be followed.

**C. Processes:**

All staff members should receive copies of clearly defined, consistent, and adequately documented processes. To make sure all workers are adhering to the organization's standards and current procedures, regular evaluations should be carried out.

**D. Procedures:**

A procedure is a set of instructions used to carry out a crucial process or a portion of a process in order to get a consistent outcome. It needs to be explained to every employee and adhered to constantly. Any departure from the established protocol must to be reported right once and looked into.

**E. Premises:**

Maintaining cleanliness on the premises is essential to prevent cross-contamination, accidents, and even fatalities. To reduce the chance of

equipment failure, all equipment needs to be put, maintained, and calibrated on a regular basis to make sure it is fit for the goal of delivering reliable results.

**1.3 PRINCIPLES OF GMP:****There are 10 principles of GMP:**

1. Produce SOPs, or standard operating procedures.
2. Adhere to and Put SOPs and job instructions into Practice
3. Record methods and procedures.
4. Check if SOPs are effective.
5. Create and employ functional systems.
6. Keep up with facilities, equipment, and systems.
7. Help employees become competent in their jobs;
8. Keep things clean to avoid contamination
9. Give quality first priority and incorporate it into workflow
10. Regularly carry out GMP audits [2]

**Table 1: Comparison Between GMP Regulation In USA, Australia, Canada And India**

Differentiations criteria	USA	Australia	Canada	India
Document Requirement	The USA GMP places more value on thorough documentation, which includes Standard Operating Procedures (SOPs), information about intermediates or APIs, batch records, protocols, reports on scale-ups, technological transfers, development histories, and training records, for production review, master production, validation reports, labeling, and change control [3]	Records pertaining to initial and packaging materials; bulk and intermediate goods; and final good manufacturing formula and processing document; batch packaging and processing record; sampling, testing, and validation [5]	Canada places a strong emphasis on documentation, particularly good documentation practices (GDocP), similar to what the USA does. The materials include the master production document, batch record, raw material test results document, packaging material, final product, stability, master formula record, and pertinent standard operating procedures for all tasks and goods.	Although necessary, documentation requirements can differ between Indian states and regulatory bodies. Records pertaining to the master formula, packaging, batch processing, SOP, distribution, and self-inspection are among the documentation.
Quality Criteria	All matters pertaining to quality should involve the quality unit or units.	1)Therapeutic Goods Act and Regulations:	1)Food and Drug Regulations: The Food and Drug Regulations,	The system of quality assurance appropriate to the manufacture of

	<p>All relevant quality-related papers should be reviewed and approved by the quality unit(s). It is not appropriate to assign the independent quality unit(s)' primary duties. These duties ought to be outlined in writing and ought to consist of, but not be restricted to:</p> <ol style="list-style-type: none"> <li>1) Giving up or refusing intermediates for use outside the control of the manufacturing company</li> <li>2) putting in place a mechanism for accepting or rejecting packaging, labeling, intermediates, and raw materials.</li> <li>3) Before releasing the API for distribution, it is necessary to review completed batch production and laboratory control records of crucial process steps.</li> <li>4) Ensuring that significant discrepancies are looked into and fixed</li> <li>5) Accepting the master manufacturing instructions and all specifications</li> </ol> <ol style="list-style-type: none"> <li>6) Endorsing any processes that have an impact on the intermediates' quality.</li> <li>7) Ensuring the completion of internal audits, or self-inspections</li> <li>8) Accepting contract manufacturers in the middle</li> <li>9) Accepting modifications that might have an impact on intermediate</li> <li>10) Examining and accepting reports and methods for validation</li> <li>11) ensuring that quality-related complaints are investigated and addressed</li> <li>12) Ensuring that vital equipment is maintained and calibrated using efficient systems</li> <li>13) Ensuring that materials undergo suitable testing and that the findings are communicated</li> <li>14) Verifying, if necessary, ensuring stability data is available to support retest or expiry dates and storage conditions on intermediated</li> <li>15) Conducting evaluations of product quality [11]</li> </ol>	<p>The Therapeutic Goods Act 1989 and the Therapeutic Goods Regulations 1990 contain Australia's GMP requirements</p> <ol style="list-style-type: none"> <li>2) PIC/S Membership: The Therapeutic Goods Regulations of 1990 and the Therapeutic Goods Act of 1989 specify GMP requirements in Australia.</li> <li>3) Risk Management: Like the US and Canada, the TGA places a strong emphasis on a risk-based approach to GMP, highlighting important facets of the manufacturing process.</li> <li>4) Validation: Analytical method validation, cleaning validation, and process validation all have certain requirements, much like in Canada. A crucial component of guaranteeing product quality is validation.</li> </ol> <p>Mutual</p> <ol style="list-style-type: none"> <li>5) Recognition Agreements (MRA): There are particular standards for process validation, cleaning validation, and analytical technique validation, much like in Canada. In order to guarantee product quality, validation is essential [7]</li> </ol>	<p>Division 2, Part C, provides GMP requirements for pharmaceuticals in Canada.</p> <ol style="list-style-type: none"> <li>2) Risk-Based Approach: A risk-based approach to GMP is emphasized by Health Canada, which concentrates on important areas that affect the efficacy, safety, and quality of products.</li> <li>3) ICH Guidelines: Health Canada follows the International Council for Harmonization of Technical Requirements for Pharmaceuticals for Human Use (ICH) recommendations in the same way as the U.S. FDA does with its rules.</li> <li>4) Validation: There are specific requirements for process validation, cleaning validation, and analytical method validation. Validation is considered a crucial aspect of ensuring product quality</li> </ol> <p>Quality 5) Management System (QMS): A strong QMS that addresses areas like documentation, deviations, change control, and corrective and preventative measures (CAPA) must be implemented<sup>6</sup>.</p>	<p>pharmaceutical products should ensure that:</p> <ol style="list-style-type: none"> <li>1) Pharmaceutical products are produced and constructed with the requirements of good manufacturing practice (GMP) and related codes, such as good laboratory practice (GLP) and good clinical practice (GCP), in mind.</li> <li>2) GMP regulations are implemented and production and control processes are well-defined in writing;</li> <li>3) Job descriptions make explicit what the duties of managers are.</li> <li>4) plans are established for the production, availability, and use of the appropriate raw materials and packaging;</li> </ol> <ol style="list-style-type: none"> <li>5) all required in-process controls, calibrations, and validations are completed, as well as any necessary controls on raw materials, intermediate products, and bulk products</li> <li>6) is the final product processed and checked correctly, in accordance with the established procedures; pharmaceutical products are not supplied or sold until the authorized individuals (refer to sections 9.11 and 9.12) have attested to the fact that each production batch has been produced and controlled in compliance with the marketing authorization's requirements and any additional regulations related-</li> </ol> <p>Events pertaining to the manufacture, regulation, and distribution of medicinal goods</p> <ol style="list-style-type: none"> <li>7) appropriate measures are in place to guarantee, to the greatest extent feasible, that pharmaceutical</li> </ol>
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Fees Structure	\$175,389 [8]	\$1,000 application fee for a GMP license [9]	The cost of a GMP certificate varies according to the product being produced, the size and complexity of the manufacturing facility, the certification body or agency, and the scope of the certification. Elements that influence: A. Certification Body. B. Product Type C. Certification Scope d. Size of the facility E. Consultation and Planning F. Costs of Renewal and Ongoing G. Transportation and Other Expenses	Inspection Fee (OWN) of Rs. 5,000 for each category and dosage type of a fresh WHO-GMP certificate <sup>[10]</sup> .
Registration Pathway for Approval or Certification	The certification process involves few steps: 1. Gain solid understanding of GMP guidelines. 2. Adhere to and put into practice the GMP guidelines in the workplace. 3. Complete the form. 4. Get set for the GMP audit. The following are included in the audit process: a. Quality system analysis b. Computer system analysis. c. Analysis of Manufacturing Facilities d. Examining the equipment log e. Reviewing the personnel  f. Last Word Regarding the USFDA, authorized third parties, not the FDA, issue GMP certificates. The audit is carried out by this outside party prior to issuing the GMP certificates. [4]	The following actions are part of the approval or certification pathway: 1. Recognize the GMP requirements 2. Install a GMP Quality Control System 3. Get all paperwork ready. 4. Site audits and inspections 5. Send in your application 6. Cover the application costs. 7. Evaluation of TGA 8. Verification of Compliance 9. Issue of Certification 10. Constant Adherence to Uphold GMP Guidelines	The following actions are part of the approval or certification pathway: 1. Recognize the Canadian GMP Guidelines 2. Get your QMS (Quality Management System) ready. 3. Evaluation of Facilities and Equipment 4. Employee Education 5. Document Management 6. Testing and Quality Assurance 7. Recall protocols and complaint handling 8. Decide on a certifying authority 9. Audit for Pre-certification 10. Authorized Exam 11. Approval of Certification 12. Continuous Adherence [11]	The following actions are part of the approval or certification pathway: 1. Recognize the GMP Requirements 2. Requirements Establishment of a Quality System 3. Get the paperwork ready. 4. Site audits and inspections 5. Submission of an Application 6. Cover application costs 7. CDSCO Evaluation 8. Verification of Compliance 9. Issue of Certification 10. Persistent Issue 11. Updates and Renewal 12. Talk about Regulatory Shifts
Guidelines/Regulation/Law Differentiation	Enforcing GMP requirements in the US is the responsibility of the Food and Drug Administration (FDA) [3]	In Australia, GMP compliance is mostly managed by the Therapeutic Goods Administration for	Health Canada is in charge of ensuring that pharmaceuticals, medical devices, and natural health products all comply with GMPs in Canada.	GMP compliance for medicines and medical devices in India is supervised by the Directorate General of Health Services

		medicines and therapeutic goods.		(DGHS) and the CDSCO. [10]
Validity of GMP certificate	After the date of issuance, it is valid for three years [3]	After the date of the site inspection, it is valid for three years.	It is good for one year starting on the date of issuance. [6]	Three years after the date of issuance, it is still valid.

### CONCLUSION:

The regulatory GMP requirements of the US, Australia, Canada, and India were compared in this evaluation. We came to the conclusion that the Good Manufacturing Practices (GMP) rules in the USA, Australia, Canada, and India share common goals about the quality, safety, and consistency of medicines and related commodities. It is true that different countries have rather different levels of strictness, regulatory organizations, documentation requirements, and inspection methods. Businesses operating in these countries must be aware of the particular GMP guidelines and requirements that apply to their industry and kind of operation. Furthermore, as regulations are subject to change, it is imperative that businesses in the pharmaceutical sector and other associated fields maintain compliance and stay up to date on any changes. Furthermore, obtaining legal and regulatory knowledge and interacting with relevant regulatory organizations can help ensure strict compliance with GMP regulations in every country.

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### REFERENCES:

- [1] What is GMP: Good manufacturing practices [Internet]. 2023 [cited 2023 Sept 22]. Available from: <https://safetyculture.com/topics/gmp/>
- [2] Medicines: Good manufacturing practices [Internet]. World Health Organization; [cited 2023 Sept 22]. Available from: [https://www.who.int/news-room/questions-and-answers/item/medicines-good-manufacturing-processes#:~:text=What%20is%20GMP%3F-.Good%20manufacturing%20practice%20\(GMP\)%20is%20a%20system%20for%20ensuring%20that,controlled%20according%20to%20quality%20standards](https://www.who.int/news-room/questions-and-answers/item/medicines-good-manufacturing-processes#:~:text=What%20is%20GMP%3F-.Good%20manufacturing%20practice%20(GMP)%20is%20a%20system%20for%20ensuring%20that,controlled%20according%20to%20quality%20standards)
- [3] Center for Drug Evaluation and Research. Current good manufacturing practice (CGMP) regulations [Internet]. FDA; [cited 2023 Sept 22]. Available from: <https://www.fda.gov/drugs/pharmac>

- [eutral-quality-resources/current-good-manufacturing-practice-cgmp-regulations](#)
- [4] <https://www.cfpie.com/gmp-certification-in-usa-a-complete-guide>
- [5] Therapeutic Goods Administration (TGA). Good manufacturing practice (GMP) [Internet]. Therapeutic Goods Administration (TGA); 2023 [cited 2023 Sept 22]. Available from: <https://www.tga.gov.au/how-we-regulate/manufacturing/manufacture-medicine/good-manufacturing-practice-gmp>
- [6] Canada H. Government of Canada [Internet]. / Government du Canada; 2022 [cited 2023 Sept 22]. Available from: <https://www.canada.ca/en/health-canada/services/drugs-health-products/natural-non-prescription/legislation-guidelines/guidance-documents/good-manufacturing-practices.html>
- [7] [Internet]. [cited 2023 Sept 22]. Available from: <https://rajswashya.nic.in/Drug%20Website%2021.01.11/Revised%20Schedule%20M%204.pdf>
- [8] Up to \$190.389 for FDA's New Inspections Fees – ECA Academy [Internet]. [www.gmp-compliance.org](http://www.gmp-compliance.org). [cited 2023 Nov 5]. Available from: <https://www.gmp-compliance.org/gmp-news/up-to-190-389-for-fdas-new-inspections-fees>
- [9] GMP Fees and Charges – Therapeutic Goods Administration (TGA) <https://www.tga.gov.au/sites/default/files/presentation-gmp-fees-charges>
- [10] WHO-GMP Fees Structure [Internet]. [Fdawhogmp.maharashtra.gov.in](http://fdawhogmp.maharashtra.gov.in). [cited 2023 Nov 5]. Available from: <https://fdawhogmp.maharashtra.gov.in/general/FeesStructure.aspx?AspxAutoDetectCookieSupport=1>
- [11] Quality assurance of pharmaceuticals: a compendium of guidelines and related materials. *Revista Panamericana de Salud Publicans*. 1999 Feb;5(2):132-2