The U.S. Food and Drug Administration
CDER Office of Medical Policy COVID-19 Knowledge Bank (KBANK)

Suleyman, Seid M. (Postdoctoral Fellow)[1]; Omokaro, Stephanie O.[1]; Schley, Mignon[1]; Oxman, Rachel[1]; Fienkeng, Mathilda[1]
Budashewitz, Philip M.[2]; ElZarrad, M. Khair[3]; Corrigan-Curay, Jacqueline[3]

1. Division of Medical Policy Development 2. Office of Medical Policy Initiatives 3. Office of Medical Policy

Abstract

The COVID-19 pandemic continues to generates large volumes of scientific data and affects critical care drug supply chains. The Office of Medical Policy COVID-19 Knowledge Bank (KBANK) collates and synthesizes emerging information into streamlined, organized, and accurate content to bridge knowledge gaps, support operational efficiency, and promote public health preparedness.

Introduction

The global impact of the pandemic highlights the need for rapid access to key insights about existing knowledge gaps in important areas of public health and safety. As part of the public health response, FDA developed an internal KBANK to provide staff access to current information on evolving topics.

Materials and Methods

A centralized, evidence-based knowledge repository was developed based on a framework of facile access, enhanced and interactive user functionalities, and scalability consistent with the information age. A 4-step development plan was employed (see Figure 1).

Evaluation & Distillation
Multiple internal/external resources, such as NIH and CDC guidelines, on healthcare, research, and regulatory information were evaluated and filtered for relevance to COVID-19 and its public health impact.

Compilation & Organization, Cloud Migration
FDA internal and external-facing activities and publicly trending COVID-19 topics were assembled to summarize relevant information into rapidly comprehensible slide presentations. Top-line outputs from U.S. hospitals submitted through the FDA Critical Drugs Monitoring Portal were assessed, analyzed, and disseminated to support various drug supply chain management activities. A cloud platform allowing for continued scalability and rapid end-user accessibility was leveraged to optimize use of FDA's existing informatics infrastructure.

Integration
Compiled information was integrated into a cohesive knowledge repository through relevance to FDA staff and related processes and enhancements to the user experience, including keyword search functionalities, interactive menus for enhanced maneuverability, and embedded videos.

Figure 1: KBANK Development Process: Evaluation & Distillation, Compilation & Organization, Cloud Migration and Integration

Results and Discussion

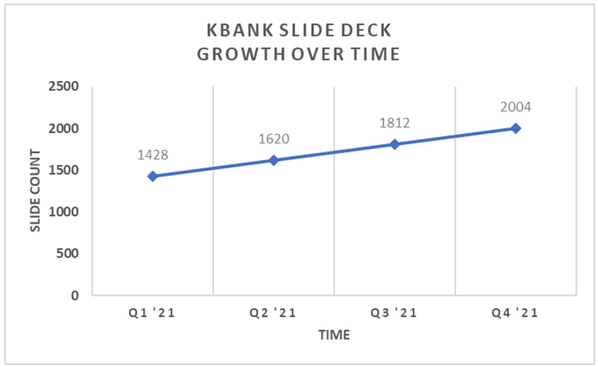

Figure 2: KBANK Slide Count as of 4/9/21: 1,642

The KBANK addresses present and future needs for COVID-19 information by archiving knowledge of historical significance during the pandemic.

The KBANK has seen continuous growth in the quantity of information provided (see Figure 2). It provides FDA staff with a library of summarized COVID-19 topics including acute and chronic disease management, special populations such as children and pregnant women, and drug-specific topics.

The KBANK provides horizon scans of press and published literature, analytic reports, and digital media content. It serves as a knowledge center for various FDA workstreams to support the Agency in COVID-19 pandemic-related therapeutics development and drug supply management (see Figure 3).

As a data storehouse, the KBANK facilitates cross-functional knowledge management, information transparency in preparedness and response activities, and timely and effective use of information. The KBANK enables users to discover answers to their problems and results in exploratory analyses and hypothesis generation of new questions.

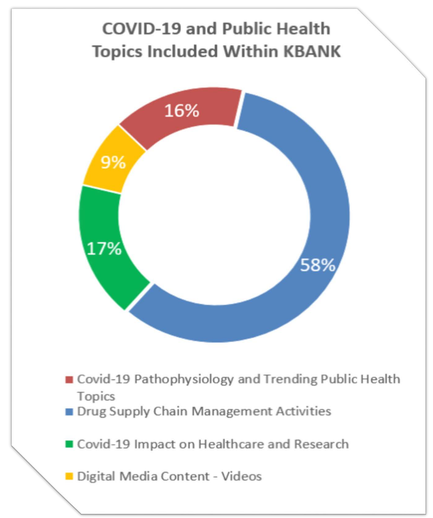

Figure 3: KBANK Content by Topic

Conclusion

The OMP COVID-19 Knowledge Bank provides emerging, streamlined, and organized content to FDA staff to bridge knowledge gaps and promote public health preparedness.

The system serves as a model to support operational efficiency and excellence, and as a framework for public facing communication channels to provide clear and actionable information for broad dissemination and use by diverse consumer and patient populations. Future improvements include incorporating continuous data feeds, real-time visual analytics, assessing performance metrics and prioritizing updates based on feedback from stakeholders.

Acknowledgements: Adaobi Anyiwo, Victor Crentsil, and all content and development contributors. Thank you to all Frontline healthcare and essential workers.