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Developing Countries Vaccine Manufacturers Network

DCVMN Vaccine Supply Chain Working Group Meeting
16 February 2022
Zoom

Participants:
Lingjiang Yang (LY) - Chair, Berniece Warley (BW), Huilin (Linda) Yu (HY), Taufik Wilmansyah (TW), Vishnucharan Datta (VD), KR Krishnamurthy (KR), Parag Deshmukh (PD), Ganapathi Indukuri (GI), Rajinder Suri (RS), Sonia Pagliusi (SP), Stephen Jarrett (SJ), Sonia Villaseñor (SV).
Meeting started at 12h00 and finished at 13h15 (CET).

LY opened the meeting welcoming the supply chain working group members, noting the recent addition of new members to the group. She said the meeting would be a chance to look at achievements so far and priorities for the future.

SJ indicated that the meeting would cover four topics: 1) a retrospective on working group actions to date; 2) an introduction of a new innovation related to integrated warehouse management; 3) an update on new packaging technologies; 4) the proposed elements for the 2022 work-plan. On actions to date, he described the DCVMN intent to focus on the supply chain from discussions at the 2108 AGM, leading to assessments with member inputs in early 2019 and determining traceability, stockpiling and new packaging technologies as the 3 priority areas for DCVMN. The working group was then formed with terms of reference and the first meeting held in Hanoi in November 2019. Traceability was the main focus in 2020 as members had been presented with the experience of Bio Farma in setting up a national track and trace system including the barcoding of all levels of vaccine packaging, leading to a peer-reviewed open access article of this experience. With the onset of the COVID pandemic, considerable attention was given to the actions of DCVMN members in the research, production and planned supply of COVID-19 vaccines, resulting in another peer-reviewed open access article.

Towards the end of 2020, a call for expression to members to set up traceability pilots, firstly on primary packaging then extended to secondary packaging was circulated, then a traceability consortium was set up with those interested. The consortium over 2021 reached 6 members implementing traceability pilots, 2 self-funded (Biofarma & Sinergium) and 4 approved for support from DCVMN for consultancy and training costs (Bharat, BioE, CNGB, Innovax), 3 pilots focused on barcoding primary packaging and 3 on secondary packaging. The pilots are due to be completed in Q2 2022, with assessment of the experiences leading to a potential peer-reviewed article. Also in March 2021, a 2-day workshop on vaccine stockpiling was held with members sharing their experience on holding static and rotating stockpiles, as well as receiving the position of UNICEF, as it is the holder of internationally-governed vaccine stockpiles. The meeting presentations and recommendations were summarized in a peer-reviewed open access article published in 2021. Both RS and LY felt this was an accurate summary of the good work already accomplished to date, thanking the working group members for their efforts.

As an innovation for the working group to consider, SJ characterized integrated warehouse management as a track-and-trace application through the whole vaccine production process, from the entry of raw materials to the dispatch of finished product, with the goal of increased efficiency and inventory management. It entails intelligent data collection and analysis through the seamless integration of software throughout the warehouse utilizing barcoding. Benefits can include easy-to-read data management for each stage of the process flow, facilitating certification requirements, streamlining regulatory reports, enhancing picking functions, determining production capacity and performance, while enhancing sales and marketing operations.

There was considerable discussion around this innovation. LY indicated that CNBG/CDIPB was implementing a system's integration of its warehouse functions, currently under testing, focusing on tracking raw materials through to finished products for greater control of its operations. She further noted that this was a new topic for the working group. SP questioned whether there was a potential link between integrated warehouse management and stockpiling of bulk, filled or finished product. LY confirmed that the integrated system can provide data for stockpiling, but stockpiling in fundamentally a business decision based on projected demand against risk. RS considered warehouse management and stockpiling to be distinct operations, noting that only

specific vaccines normally needed to be kept ready. He did encourage the need for learning and modernization for greater efficiency provided by the integrated warehouse management. VD felt the initiative was a good option to control operations and potentially save resources through a collaborative structure, SAP for example being one relevant platform, while noting that sales and planning operations have to provide accurate forecasts in order to determine the optimum flow of materials. He considered stockpiling to be an extension of the integrated system principally linked to finished product. KR, indicating that Bharat Biotech had successfully implemented barcoding on secondary packaging of its tetanus typhoid vaccine and was now moving with DCVMN support to the barcoding of primary packaging, indicated that the company had initiated an integration of its warehouse systems two years ago to be fully automatic, with a complete inventory management system due to be completed within 6-8 months. He will be pleased to share details at the appropriate time. GI also indicated that Biological E has an integrated warehouse system. HY and BW informed that both their companies had initiated integrating their warehouse systems but were in the early stages. BW suggested a follow-up session of the working group to go into more detail on this specific innovation. TW indicated Bio Farma was developing a system using radio frequency to identify material location and this work will be on-going during 2022. SP wondered whether calls for proposals would be possible, by detailing the specific support DCVMN could sponsor. SJ suggested that at this time an inventory of company initiatives in integrating warehouse management systems would be an initial way of establishing experiences to date and whether support to companies from DCVMN would be helpful. LY said a simple survey may be a first step to be conducted by SJ with the group members or a workshop to share experiences.

SJ gave a brief update on new packaging technologies confirming that microarray patches, heat stable-controlled temperature chain (CTC) and barcoding of primary packaging constituted the final recommendation of the Vaccine Innovation Prioritization Strategy (VIPS), recognizing though that end-to-end strategies on these innovations were delayed due to the COVID pandemic. He did indicate that Dalberg Advisers were currently assessing the experience and future potential of CTC, noting also that DCVMN was already well engaged in the barcoding of primary packaging. He further felt that blow-fill-seal technology and a new packaging of vaccine in 200-dose sterile plastic pouches supported by CEPI needed to be given equal attention to those recommended by VIPS. LY informed that Gavi in its market shaping strategy has included the three VIPS innovations while also being open to accept additional innovations. SJ indicated that PATH had accepted the idea of holding a workshop on new packaging technologies with DCVMN.

SJ then presented the four proposed elements of the working group work-plan for the year:

1. Completion of the traceability pilots with assessment of lessons learnt leading to reporting and a peer-reviewed article;
2. Additional pilots for the barcoding of **follow-on primary packaging** with potential DCVMN support;
3. Assess and document experience with integrated warehouse management systems with an option to provide DCVMN support to selected pilots to be discussed at the DAC of June 2022;
4. Update members on new packaging technologies, holding a workshop in Q2 with PATH to introduce technologies to members, with the potential for a peer-reviewed article as an outcome.

There was general agreement to these four elements, LY, VD and HY specifically indicating their agreement. Upon this, LY thanked the working group members' participation and closed the meeting.

Lingjiang Yang
Chair of the Supply Chain Working Group

Notes by Steve Jarrett
18 January 2022