## S4 Table. Summary of sub-themes with frequency and intensity effect sizes

| Main Themes                    | Sub-themes  | FES (%)  | 2013 [27]                | al. 2013 [32]             | 1. 2014 [34]             | 2014 [26]               | 2015 (a) [21]                | 2015 (b) [35]                | al. 2015 [36]    | 15 [29]                | 5 [24]               | 16 [37]               | 2016 [20]               | al. 2016 [38]             | 2016 [22]                | , 2016[39]   | Adokiya and Awoonor-Wiliams, 2016 [40] | 2016 [41]                | 6 [25]               | Begashaw and Tesfaye, 2016 [28] | al. 2017 [42]             | 2017 [33]     | 017 [43]               | al. 2018 [23]             | 18 [19]                | Randriamiarana et al. 2018 [45] | 2019 [46]                | 2016 [31]      | 17 [47]           | 2018 [48]               | 2017 [30]               | [44]                |
|--------------------------------|---|----------|--------------------------|---------------------------|--------------------------|-------------------------|------------------------------|------------------------------|------------------|------------------------|----------------------|-----------------------|-------------------------|---------------------------|--------------------------|--------------|--|--------------------------|----------------------|---------------------------------|---------------------------|---------------|------------------------|---------------------------|------------------------|---------------------------------|--------------------------|----------------|-------------------|-------------------------|-------------------------|---------------------|
|                                |   | •        | Nnebue et al . 2013 [27] | Abubakar et al. 2013 [32] | Maponga et al. 2014 [34] | Nnebue et al. 2014 [26] | Adokiya et al. 2015 (a) [21] | Adokiya et al. 2015 (b) [35] | Tsitsi et al. 20 | Issah et al. 2015 [29] | Lar et al. 2015 [24] | Ngwa et al. 2016 [37] | Benson et al. 2016 [20] | Mwatondo et al. 2016 [38] | Adokiya et al. 2016 [22] | Baghdadi, 20 | Adokiya and                            | Mairosi et al. 2016 [41] | Iwu et al. 2016 [25] | Begashaw and                    | Mandyata et al. 2017 [42] | Mboera et al. | Lakew et al. 2017 [43] | Haakonde et al. 2018 [23] | Dairo et al. 2018 [19] | Randriamiara                    | Masiira et al. 2019 [46] | Ameh et al. 20 | Adjei et al. 2017 | Junadu et al. 2018 [48] | Benson et al. 2017 [30] | Wu et al. 2018 [44] |
| IES (%)                        | •   | <b>→</b> | 27.8                     | 5.6                       | 5.6                      | 11.1                    | 11.1                         | 5.6                          | 22.2             | 5.6                    | 11.1                 | 27.8                  | 5.6                     | 16.7                      | 5.6                      | 22.2         | 5.6                                    | 5.6                      | 11.1                 | 11.1                            | 11.1                      | 16.7          | 22.2                   | 16.7                      | 5.6                    | 5.6                             | 16.7                     | 16.7           | 5.6               | 11.1                    | 0.0                     | 0.0                 |
| Surveillance Core<br>Functions | Case Confirmation                                   |          |                          |                           |                          |                         |                              |                              |                  |                        |                      |                       |                         |                           |                          |              |  |                          |                      |                                 |                           |               |                        |                           |                        |                                 |                          |                |                   |                         |                         |                     |
|                                | Provision of laboratory facilities                  | 6.7      |                          |                           |                          |                         |                              |                              |                  |                        |                      | X                     |                         |                           |                          |              | X                                      |                          |                      |                                 |                           |               |                        |                           |                        |                                 |                          |                |                   |                         |                         |                     |
|                                | Improved specimen handling                          | 3.3      |                          |                           |                          |                         |                              |                              |                  |                        |                      |                       |                         |                           |                          | X            |  |                          |                      |                                 |                           |               |                        |                           |                        |                                 |                          |                |                   |                         |                         |                     |
|                                | Reporting   |          |                          |                           |                          |                         |                              |                              |                  |                        |                      |                       |                         |                           |                          |              |  |                          |                      |                                 |                           |               |                        |                           |                        |                                 |                          |                |                   |                         |                         |                     |
|                                | Provision of reporting forms                        | 13.3     | X                        |                           |                          |                         |                              |                              |                  |                        | X                    |                       |                         |                           |                          | X            |  |                          |                      |                                 |                           |               | X                      |                           |                        |                                 |                          |                |                   |                         |                         |                     |
|                                | Reporting quality                                   | 13.3     |                          |                           |                          |                         |                              | X                            |                  |                        |                      |                       |                         |                           |                          | X            |  |                          |                      |                                 |                           |               |                        |                           |                        |                                 |                          | X              |                   | X                       |                         |                     |
|                                | Feedback  |          |                          |                           |                          |                         |                              |                              |                  |                        |                      |                       |                         |                           |                          |              |  |                          |                      |                                 |                           |               |                        |                           |                        |                                 |                          |                |                   |                         |                         | —                   |
|                                | Improved feedback<br>from higher to<br>lower levels | 10.0     |                          | X                         |                          |                         |                              |                              |                  |                        |                      |                       |                         |                           |                          |              |  |                          |                      | X                               |                           | X             |                        |                           |                        |                                 |                          |                |                   |                         |                         |                     |

|                                   | Improved health workers' attitudes              | 3.3  |   |   |   |   |   |   |   |   | X |   |   |   |   |   |   |   |   |   |   |  |
|-----------------------------------|---|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
|                                   | Data Analysis                                   |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                   | Improved data accuracy and quality              | 6.7  |   |   |   |   |   |   |   |   |   | Σ | ζ |   |   | X |   |   |   |   |   |  |
|                                   | Surveillance<br>performance<br>monitoring       | 3.3  |   |   |   |   |   |   |   |   |   |   |   |   |   | X |   |   |   |   |   |  |
| Surveillance<br>Support Functions | Training  |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                   | Knowledge on<br>surveillance<br>systems         | 33.3 | X |   | X |   | X | X |   |   | Σ | K |   | X |   |   |   | X | X | X | X |  |
|                                   | Improved<br>surveillance data<br>quality        | 16.7 |   |   |   | X |   |   | X |   |   |   | X | X | X |   |   |   |   |   |   |  |
|                                   | Improved performance of the surveillance system | 10.0 |   | X |   |   |   |   |   | X |   |   |   |   |   |   | X |   |   |   |   |  |
|                                   | Supervision                                     |      |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                   | Identification of correct reporting channels    | 6.7  | X |   |   |   | X |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|                                   | Utilisation of up-to-<br>date information       | 3.3  |   |   |   |   |   |   |   | X |   |   |   |   |   |   |   |   |   |   |   |  |
|                                   | Strengthening the surveillance system           | 13.3 | X |   |   |   |   |   |   |   |   |   |   |   |   | X | X |   | X |   |   |  |

| Resources                                    |      |   |   |   |   |   |   |   |   |   |   |   |   |
|--|------|---|---|---|---|---|---|---|---|---|---|---|---|
|  |      |   |   |   |   |   |   |   |   |   |   |   |   |
| Equipment and Infrastructure                 | 10.0 |   | Σ | ζ | X | X |   |   | X |   |   |   |   |
| Technical, material and logistical resources | 20.0 |   | X |   | X |   | X | X | X |   | X |   | X |
| Human resources                              | 6.7  |   |   |   |   | X | X |   |   |   |   |   |   |
| Financial resources                          | 20.0 | X |   |   |   |   |   | X |   | X | X | X | X |

X - denotes presence of a given finding; FES (Frequent Effect Size) – how often a particular sub-theme appeared in the reviewed literature; IES (Intensity Effect Size) - how much each included study contributes to the reviewed literature based on number of emerging sub-themes.