Analysis of Team Science: Workshop Report on Airborne Transmission of Coronavirus

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Introduction
• Complex research questions need interdisciplinary cooperation to achieve the best scientific outcomes.
• Team Science: “collaborative effort to address a scientific challenge that leverages the strengths and expertise of professionals trained in different fields” (Southern CA CTSI).
• Goal: understand and analyze how information moves between different expert communities and facilitate better communication.

Methods
• Case study approach
• Created a timeline of events related to airborne transmission
  • Mapped connections between co-authors of each cited reference

Findings
• Coauthors were frequently based in the same institution/lab or same country.
• A stronger, cohesive argument for airborne transmission came from combining results from multiple fields.
• However, confusion arose between fields because key terms (“aerosol” vs. “droplet”) were understood differently.

Timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>January 9</td>
<td>Chinese authorities determined the outbreak is caused by a novel coronavirus.</td>
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<td>March 27: CDC</td>
<td>Transmission routes: respiratory droplets and contact</td>
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<td>April 2: WHO</td>
<td>Transmission from symptomatic and asymptomatic cases</td>
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<td>April 6: WHO</td>
<td>Even healthy people should wear masks</td>
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<tr>
<td>July 9: CDC</td>
<td>Modes of transmission: contact, droplet, airborne, fomite, fecal-oral, bloodborne, mother-to-child, and animal-to-human</td>
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<td>August 26-27: NA</td>
<td>Workshop on airborne transmission</td>
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</tbody>
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Co-authorship Network.
Large circles represent first authors, who are connected to coauthors. Circle size is proportional to the number of coauthors.

Relationships between Groups Co-authorship Network
Filtered out less-connected authors. Same color means co-authored a paper.

Future Work
• Why did it take so long for public health guidelines to reflect airborne transmission?
• What information did different scientific communities have related to airborne transmission at a given point in time?
• How can the scientific community facilitate better communication with the public?
• It would be helpful to suggest guidelines for improving team science.