

Quantitative Content Analysis Protocol & Data Coding Instrument

A Standardized Empirical Methodology for Evaluating Specialized Medical Communication on LinkedIn

Domain: Media Studies & Professional Health Communication
Platform: LinkedIn Publishing Network

Sample Size (N): 40
Post Units

Target Outlet: Peer-Reviewed Scientific Journal

1. METHODOLOGICAL & THEORETICAL FRAMEWORK

In digital media research, evaluating organic professional reach and audience engagement requires a formal **Quantitative Content Analysis Protocol**. This coding instrument is designed to evaluate professional knowledge translation in critical care (specifically respiratory therapy and ventilator waveform analysis) on LinkedIn.

Research Objectives:

- 1. Quantify key behavioral engagement metrics (Reactions, Reposts, Saves, Comments, Profile Views, Follower Growth).
- 2. Operationalize platform algorithms using standard formulas for Engagement Rate (ER_{Imp}), Virality Index (VI), and Conversion Rate (CR).
- 3. Provide a standardized coding scheme for each dataset entry suitable for peer-reviewed academic publication.

1.1 Mathematical Operationalization of Operational Variables

Variable Construct	Mathematical Formula	Scientific & Analytical Significance
Engagement Rate (ER_{Imp})	$ER_{Imp} = (Total\ Engagements / Impressions) \times 100$	Measures immediate audience interaction intensity relative to total feed impressions.
Virality Index (VI)	$VI = ((Reposts + Sends) / Total\ Engagements) \times 100$	Quantifies content diffusion capacity and peer-to-peer recommendation propensity.
Information Value / Utility Ratio (VR)	$VR = (Saves / Total\ Engagements) \times 100$	Indicates post bookmarking rate, serving as a proxy for instructional and reference value.
Follower Conversion Rate (FCR)	$FCR = (Followers\ Gained / Impressions) \times 1000$	Normalizes follower acquisition per 1,000 algorithmic feed impressions.
Reach Efficiency Ratio (RER)	$RER = (Impressions / Members\ Reached)$	Measures exposure frequency per unique member (where reach data is logged).

2. SUMMARY AGGREGATE DATASET OVERVIEW (N = 40)

181,531	2,640	581	304	1.45%
TOTAL IMPRESSIONS	TOTAL ENGAGEMENTS	FOLLOWERS GAINED	TOTAL SAVES	MEAN ER_{IMP}

3. CONTENT ANALYSIS CODEBOOK & OBSERVATION FORM (POSTS 1 – 40)

The table below provides a systematic recording and quantitative breakdown for every post item in the dataset, categorizing raw metrics into standardized indices for empirical analysis.

#	Publication Date & Time	Content Description / Category Tag	Impressions (Reach)	Social Engagements	Reactions / Comments	Reposts / Saves	Followers Gained	ER % / Virality Index
01	1/13/2025 08:31 AM	Rapid Interpretation of Ventilator Waveform (Pt. 1) Waveform Analysis	7,021	110	89 / 5	15 / 1	+21	1.57% VI: 13.6%
02	1/15/2025 08:31 AM	The most common abnormal ventilator wave-forms High Organic Reach	14,399	155	130 / 3	22 / 0	+94	1.08% VI: 14.2%

#	Publication Date & Time	Content Description / Category Tag	Impressions (Reach)	Social Engagements	Reactions / Comments	Reposts / Saves	Followers Gained	ER % / Virality Index
03	1/18/2025 08:23 AM	Rapid Interpretation of Ventilator Waveform (Pt. 2) Peak Impressions	17,697	189	150 / 4	34 / 1	+63	1.07% VI: 18.0%
04	1/21/2025 09:46 AM	Rapid Interpretation of Ventilator Waveform (Pt. 3) Waveform Analysis	9,026	114	93 / 2	17 / 1	+38	1.26% VI: 15.8%
05	1/27/2025 06:48 PM	Rapid Interpretation of Ventilator Waveform (Pt. 4) High Conversation	11,983	187	143 / 11	31 / 2	+69	1.56% VI: 16.6%
06	2/1/2025 10:43 AM	Respiration & Lung Fundamentals Education	6,769	74	62 / 1	11 / 0	+17	1.09% VI: 14.9%
07	2/4/2025 01:17 PM	Respiratory Therapy Clinical Focus Clinical Practice	4,387	46	37 / 0	8 / 1	+13	1.05% VI: 17.4%
08	2/11/2025 06:54 AM	Respiratory Development in Intensive Care (ICU) ICU Focus	8,603	110	93 / 2	14 / 1	+37	1.28% VI: 12.7%
09	2/19/2025 07:45 PM	Education & Respiratory Therapist Training Education	3,729	55	44 / 7	4 / 0	+8	1.47% VI: 7.3%
10	3/9/2025 04:14 PM	RT Professional Development Development	2,499	44	34 / 6	4 / 0	+3	1.76% VI: 9.1%
11	3/25/2025 04:10 PM	Critical Care Specializations (ICU / PICU / NICU) Pediatric / Adult ICU	5,664	103	84 / 0	16 / 3	+31	1.82% VI: 15.5%
12	4/7/2025 05:13 AM	Respiratory Critical Care Knowledge Sharing Knowledge Sharing	2,143	18	16 / 0	2 / 0	+4	0.84% VI: 11.1%
13	4/26/2025 08:29 PM	Educational Waveform Breakdown & Insights Educational	1,626	15	13 / 1	1 / 0	+1	0.92% VI: 6.7%
14	5/1/2025 03:34 PM	RT Development & Educational Series Development	2,087	27	22 / 0	5 / 0	+1	1.29% VI: 18.5%
15	6/24/2025 11:54 PM	Analysis ventilator wave-forms during VC mode High Bookmark Ratio	2,862	62	40 / 2	6 / 10	+4	2.17% VR: 16.1%
16	7/2/2025 02:28 PM	RT ICU & PICU Clinical Insights Clinical Practice	3,201	70	43 / 4	3 / 18	+9	2.19% VR: 25.7%
17	7/11/2025 03:03 PM	Rapid Interpretation of Ventilator Waveform (Pt. 5) Waveform Analysis	1,425	22	17 / 0	0 / 5	+0	1.54% VR: 22.7%
18	8/28/2025 08:53 AM	RT ICU / PICU Advanced Waveform Review Waveform Analysis	2,458	44	27 / 0	5 / 11	+2	1.79% VR: 25.0%
19	9/2/2025 04:20 PM	Respiratory Education & Professional Growth Education	2,101	45	24 / 6	2 / 13	+6	2.14% VR: 28.9%

#	Publication Date & Time	Content Description / Category Tag	Impressions (Reach)	Social Engagements	Reactions / Comments	Reposts / Saves	Followers Gained	ER % / Virality Index
20	9/11/2025 06:21 AM	Respiratory Care & Critical Care Clinical Practice Critical Care	3,806	75	44 / 2	8 / 21	+6	1.97% VR: 28.0%
21	9/21/2025 11:42 AM	RT Critical Care & Biomedical Technology Biomedical Tech	2,685	37	25 / 0	4 / 8	+1	1.38% VR: 21.6%
22	10/16/2025 07:37 AM	Rapid Interpretation of Ventilator Waveform (Pt. 6) Waveform Analysis	2,653	59	37 / 0	5 / 15	+5	2.22% VR: 25.4%
23	10/23/2025 01:28 PM	Critical Care, ICU & Anesthesia Principles Anesthesia/ICU	1,964	39	21 / 0	3 / 14	+1	1.99% VR: 35.9%
24	11/10/2025 08:40 AM	Mechanical Ventilation & RT Skillsets Mechanical Vent	2,831	54	37 / 2	3 / 12	+7	1.91% VR: 22.2%
25	12/17/2025 01:56 PM	Analysis ventilator wave-forms during PC mode High Conversion & Link	3,774	98	52 / 13	5 / 23	+2	2.60% VR: 23.5%
26	12/28/2025 07:18 AM	RT & ICU Nursing Collaboration Interprofessional	2,188	34	26 / 0	2 / 6	+2	1.55% VR: 17.6%
27	1/4/2026 09:21 AM	Interprofessional ICU Care Protocols Interprofessional	2,575	53	26 / 1	1 / 12	+3	2.06% Sends: 13
28	1/19/2026 07:28 AM	Respiratory Care in ICU Management ICU Care	1,587	29	16 / 0	2 / 11	+1	1.83% VR: 37.9%
29	1/27/2026 10:41 AM	Education & Respiratory Care Innovation High Impression	5,084	121	76 / 0	12 / 29	+16	2.38% VR: 24.0%
30	2/3/2026 08:40 AM	Education & Skill Acquisition for RTs Education	1,535	25	17 / 0	3 / 4	+0	1.63% VR: 16.0%
31	2/10/2026 08:57 AM	Professional Development in Respiratory Therapy Development	1,339	19	13 / 0	1 / 5	+0	1.42% VR: 26.3%
32	2/18/2026 04:34 PM	Analysis expiratory phase on ventilator wave-forms High Engagement	3,475	92	59 / 0	10 / 19	+7	2.65% VR: 20.7%
33	3/8/2026 09:07 AM	Educational Frameworks for Clinical Skills Education	1,499	22	15 / 0	2 / 5	+1	1.47% VR: 22.7%
34	3/28/2026 10:45 AM	Advanced Clinical Training for RTs Training	1,516	19	14 / 0	1 / 3	+0	1.25% VR: 15.8%
35	4/12/2026 11:04 AM	Respiratory Development & Evidence-Based Practice Development	1,089	12	6 / 0	1 / 4	+0	1.10% VR: 33.3%
36	4/25/2026 02:17 PM	Educational Methods in Critical Care Education	1,872	33	17 / 4	2 / 8	+4	1.76% VR: 24.2%

#	Publication Date & Time	Content Description / Category Tag	Impressions (Reach)	Social Engagements	Reactions / Comments	Reposts / Saves	Followers Gained	ER % / Virality Index
37	5/11/2026 01:23 PM	Active expiration and inspiratory effort Mechanics	1,444	25	14 / 1	1 / 9	+5	1.73% VR: 36.0%
38	5/18/2025 03:45 PM	The most common abnormal ventilator wave-forms slide Outlier / Peak Viral	20,188	215	151 / 16	40 / 7	+88	1.07% FCR: 4.36%
39	11/17/2025 08:48 AM	Analysis ventilator waveforms during VC mode slide Visual Carousel	6,343	70	34 / 5	7 / 17	+10	1.10% VR: 24.3%
40	6/11/2026 01:53 PM	Analysis ventilator waveforms during expiratory phase slide Visual Carousel	2,404	19	11 / 0	1 / 5	+1	0.79% VR: 26.3%

4. EMPIRICAL DISCUSSION & PUBLISHING INSIGHTS

Analysis of the 40 LinkedIn post datasets reveals distinct algorithmic patterns governing medical content distribution:

- **Reach vs. Engagement Rate Paradox:** High-impression visual guide carousels (e.g., Post #38 with 20,188 impressions and Post #3 with 17,697 impressions) achieve massive follower acquisition (+88 and +63 followers) but yield lower relative engagement percentages (~1.07%), as LinkedIn distributes them broadly beyond the immediate expert network.
- **High-Value Bookmarking (Saves & Utility):** Specialized analytical topics like Pressure Control (PC) mode (Post #25) and expiratory phase mechanics (Post #32) achieve superior Engagement Rates (2.60% – 2.65%) and high Save Ratios (>20-35%), demonstrating high long-term professional utility.
- **Conversion Dynamics:** Post #2 (Abnormal Waveforms) generated 94 new followers from 14,399 impressions (Conversion Rate = 6.53 followers per 1,000 impressions), confirming that topic specificity in mechanical ventilation directly correlates with professional audience acquisition.

Methodological Note for Journal Submission: When presenting this dataset in a peer-reviewed communication or media analytics journal, cite the operationalized variables as standardized logarithmic or percentage transformations to control for broad differences in feed distribution.