
Re-embodiment Data

— Encountering the "forgotten
pandemic" of 1918 —

@EMGrumbach

@ProfWernimont

Presentation slides at: bit.ly/ForgottenPandemicDF17

Liz Grumbach

Project Manager,
Nexus Digital Research
Co-op

Director of Digital Content
and Special Programs,
HASTAC@ASU

@EMGrumbach



Dr. Jacqueline Wernimont

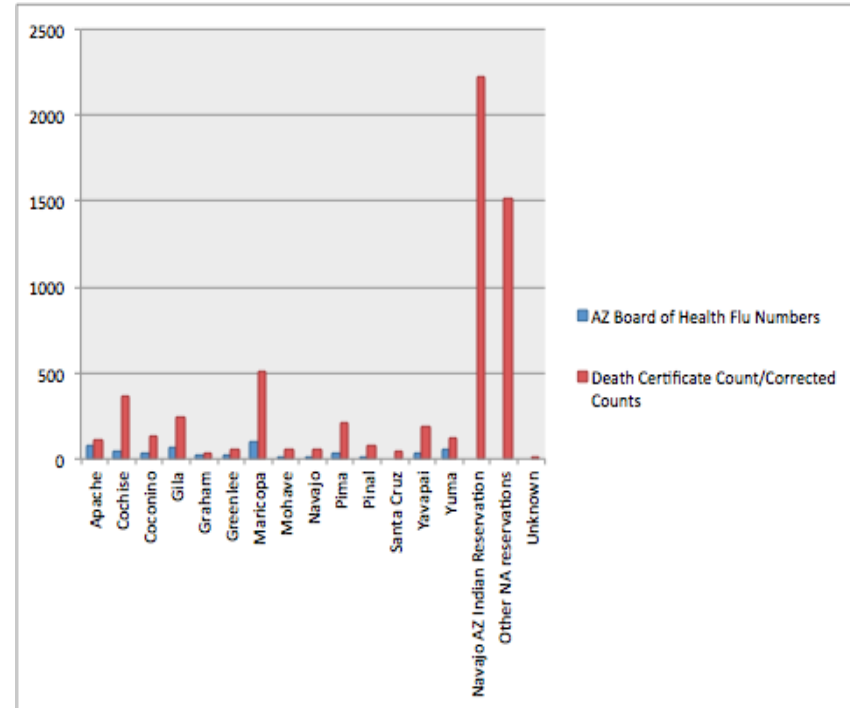
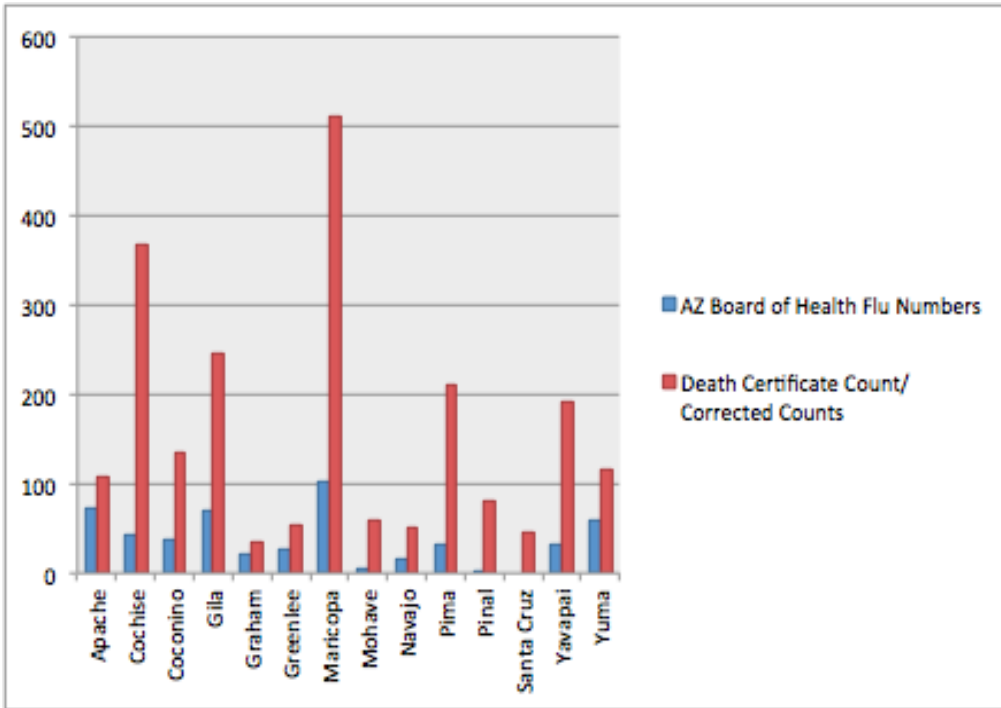
Director, Nexus Digital
Research Co-Op

Co-Director HASTAC
Co-Director, Human
Security Collaboratory

Assistant Professor,
Department of English

@ProfWernimont

Presentation slides at: bit.ly/ForgottenPandemicDF17



AZ Board of Health vs. observed in death certificates

519 reported

2228

Δ1709

329.29%

and with Native American corrections

5973

Δ5454

1150.87%

AREA.	ESTIMATED ¹ NORMAL NUMBER OF DEATHS FROM INFLUENZA AND PNEUMONIA (ALL FORMS).		ACTUAL DEATHS FROM INFLUENZA AND PNEUMONIA (ALL FORMS).		EXCESS DEATHS FROM INFLUENZA AND PNEUMONIA (ALL FORMS).			EXCESS DEATH RATE FROM INFLUENZA AND PNEUMONIA (ALL FORMS) PER 100,000 POPULATION.		Sum of figures in the two preceding columns.	ESTIMATED ¹ NORMAL NUMBER OF DEATHS FROM INFLUENZA AND PNEUMONIA (ALL FORMS).		ACTUAL DEATHS FROM INFLUENZA AND PNEUMONIA (ALL FORMS).	
	Last 4 months of 1918.	First 6 months of 1919.	Last 4 months of 1918.	First 6 months of 1919.	Last 4 months of 1918.	First 6 months of 1919.	Total for 10 months, September, 1918, to June, 1919.	Last 4 months of 1918.	First 6 months of 1919.		Last 4 months of 1918.	First 6 months of 1919.	Last 4 months of 1918.	First 6 months of 1919.
CITIES OF 100,000 POPULATION OR MORE IN 1910.														
Birmingham, Ala.	83	187	987	427	904	240	1,144	525.5	135.7	661.2	83	187	987	427
Los Angeles, Calif.	195	238	2,299	908	2,104	670	2,774	389.6	118.9	508.5	195	238	2,299	908
Oakland, Calif.	80	114	845	426	765	312	1,077	371.1	146.5	517.6	80	114	845	426
San Francisco, Calif.	227	331	2,675	1,218	2,438	887	3,325	493.3	176.1	669.4	227	331	2,675	1,218
Denver, Colo.	198	244	1,460	449	1,282	205	1,487	535.4	80.7	616.1	198	244	1,460	449
Bridgeport, Conn.	88	185	868	336	780	157	937	570.2	107.1	677.3	88	185	868	336
New Haven, Conn.	97	216	948	265	851	49	900	538.8	30.5	569.3	97	216	948	265
Washington, D. C.	209	451	2,469	768	2,280	207	2,487	556.7	47.9	604.6	209	451	2,469	768
Atlanta, Ga.	80	224	2,465	479	498	255	750	255.5	128.6	384.1	80	224	2,465	479
Chicago, Ill.	1,566	2,751	10,755	4,021	9,289	1,270	10,459	350.4	47.5	397.9	1,566	2,751	10,755	4,021
Indianapolis, Ind.	145	290	990	642	845	346	1,191	278.7	111.4	390.1	145	290	990	642
Louisville, Ky.	89	248	1,894	731	1,805	488	2,293	772.4	208.0	978.4	89	248	1,894	731
New Orleans, La.	308	508	2,363	1,089	2,055	523	2,578	540.9	135.9	676.8	308	508	2,363	1,089
Baltimore, Md.	368	949	4,088	1,284	3,720	335	4,055	570.7	46.0	616.7	368	949	4,088	1,284
Boston, Mass.	499	962	4,969	1,649	4,460	597	5,057	604.0	68.2	672.2	499	962	4,969	1,649
Cambridge, Mass.	59	98	576	154	572	56	628	474.5	51.3	525.8	59	98	576	154
Fall River, Mass.	49	190	831	222	782	32	814	26.6	26.6	676.6	49	190	831	222
Lowell, Mass.	50	155	575	181	525	26	551	470.8	23.2	494.0	50	155	575	181
Worcester, Mass.	83	222	994	355	906	133	1,039	519.1	74.7	593.8	83	222	994	355
Detroit, Mich.	538	789	2,588	1,899	2,048	1,110	3,158	223.7	114.7	338.4	538	789	2,588	1,899
Grand Rapids, Mich.	30	98	280	99	250	1	251	188.5	0.7	187.2	30	98	280	99
Minneapolis, Minn.	199	228	1,063	500	859	272	1,131	233.2	72.3	305.5	199	228	1,063	500
St. Paul, Minn.	112	170	908	272	898	102	999	343.8	43.7	387.5	112	170	908	272
Kansas City, Mo.	217	317	1,734	772	1,507	455	1,962	482.0	142.0	624.0	217	317	1,734	772
St. Louis, Mo.	416	720	2,883	1,199	2,467	470	2,937	324.8	61.2	386.0	416	720	2,883	1,199
Omaha, Neb.	117	148	1,030	278	913	130	1,043	490.5	68.5	559.0	117	148	1,030	278
Jersey City, N. J.	197	374	1,604	769	1,488	196	1,684	510.9	133.3	644.2	197	374	1,604	769
Newark, N. J.	171	387	2,105	735	1,354	348	1,702	34.7	84.7	563.5	171	387	2,105	735
Paterson, N. J.	77	121	751	269	674	148	822	501.9	100.4	611.3	77	121	751	269
Albany, N. Y.	49	153	623	225	574	72	646	514.3	63.8	578.1	49	153	623	225
Buffalo, N. Y.	250	533	2,474	887	2,224	324	2,548	451.0	64.6	515.6	250	533	2,474	887
New York, N. Y.	3,371	7,388	23,285	12,437	19,894	5,049	24,943	382.4	90.5	472.9	3,371	7,388	23,285	12,437
Bronx borough	377	824	2,399	1,483	2,522	659	3,181	367.9	92.0	459.9	377	824	2,399	1,483
Brooklyn borough	1,197	2,670	8,497	4,535	7,300	1,865	9,165	372.0	93.1	465.1	1,197	2,670	8,497	4,535
Manhattan borough	1,523	3,298	9,418	5,260	7,895	1,962	9,857	344.5	83.8	428.3	1,523	3,298	9,418	5,260
Queens borough	218	461	1,778	877	1,560	416	1,976	355.7	91.0	446.7	218	461	1,778	877
Richmond borough	66	135	582	282	617	147	764	554.2	128.5	682.7	66	135	582	282
Rochester, N. Y.	85	248	1,125	481	1,035	211	1,246	427.1	100.9	528.0	85	248	1,125	481
Syracuse, N. Y.	61	94	643	241	512	112	624	427.1	100.9	528.0	61	94	643	241
Cincinnati, Ohio	192	421	1,897	781	1,897	781	1,897	467.1	68.1	535.2	192	421	1,897	781
Cleveland, Ohio	420	700	3,576	1,387	3,576	1,387	3,576	467.1	68.1	535.2	420	700	3,576	1,387
Columbus, Ohio	96	207	781	317	781	317	781	467.1	68.1	535.2	96	207	781	317
Dayton, Ohio	60	146	631	241	631	241	631	467.1	68.1	535.2	60	146	631	241
Toledo, Ohio	107	175	716	281	716	281	716	467.1	68.1	535.2	107	175	716	281
Portland, Ore.	53	111	420	151	420	151	420	467.1	68.1	535.2	53	111	420	151
Philadelphia, Pa.	1,697	1,852	13,426	5,426	13,426	5,426	13,426	467.1	68.1	535.2	1,697	1,852	13,426	5,426
Pittsburgh, Pa.	323	830	3,349	1,281	3,349	1,281	3,349	467.1	68.1	535.2	323	830	3,349	1,281
Scranton, Pa.	71	207	1,050	407	1,050	407	1,050	467.1	68.1	535.2	71	207	1,050	407
Providence, R. I.	101	330	1,343	507	1,343	507	1,343	467.1	68.1	535.2	101	330	1,343	507
Memphis, Tenn.	68	158	724	281	724	281	724	467.1	68.1	535.2	68	158	724	281
Nashville, Tenn.	68	134	742	294	742	294	742	467.1	68.1	535.2	68	134	742	294
Richmond, Va.	103	238	836	354	836	354	836	467.1	68.1	535.2	103	238	836	354

Mortality Statistics 1919. Twentieth Annual Report. 1921. 611 pp.
https://www.cdc.gov/nchs/data/vsushistorical/mortstatsh_1919.pdf
 Accessed May 2017.

Colleagues & Archives



U.S. National Library of Medicine

ASU[®] Library

Arizona State University



**NATIONAL
ARCHIVES**

NATIONAL HISTORICAL
PUBLICATIONS
& RECORDS COMMISSION

LABRIOLA NATIONAL AMERICAN
INDIAN DATA CENTER

PROVIDING ACCESS
*Preserving
Arizona*

Arizona State Library,
Archives and Public Records



**ARIZONA DEPARTMENT
OF HEALTH SERVICES**

ARIZONA MEMORY PROJECT

HEB 1.3: P81919/pul
copy

PUBLIC HEALTH IS THE FOUNDATION STONE OF CIVILIZATION

BULLETIN

OF THE ARIZONA STATE BOARD OF HEALTH

Published Quarterly by the Arizona State Board of Health, Phoenix, Arizona
Entered at the Phoenix, Arizona, post office as second class mail matter

VOL. VII. APRIL, 1919. NO. 9

STATE BOARD OF HEALTH
GOVERNOR THOS. E. CAMPBELL, President
ATTORNEY-GENERAL WILEY E. JONES, Vice-President
DR. GEORGE E. GOODRICH, Secretary

CONTENTS

EDITORIAL COMMENT	3
INFLUENZA EPIDEMIC	5
Review of Conditions as they Presented Themselves at the Beginning of 1919.	

DEATHS FROM INFLUENZA AND PNEUMONIA DURING OCTOBER, NOVEMBER AND DECEMBER 1918

County	Influenza			Pneumonia			Total Deaths		
	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.
Apache .....	...	...	38	...	...	23	...	...	61
Cochise	4	12	14	7	109	156	11	121	170
Coconino	35	4	4	59	10	16	94	14	20
Gila	43	21	7	105	52	11	148	73	18
Graham	8	...	12	10	...	2	18	...	14
Greenlee	7	11	7	19	26	13	26	37	20
Maricopa	8	102	...	49	206	133	57	308	133
Mohave .....	...	12	...	6	27	8	6	39	8
Navajo .....	...	...	19	...	7	20	...	7	39
Pima	8	19	27	29	80	46	37	99	73
Pinal	2	...	1	47	7	15	49	7	16
Santa Cruz .....	...	...	14	4	...	8	4	...	22
Yavapai	24	...	6	43	...	66	67	...	72
Yuma	25	34	9	18	20	11	43	54	20
State	164	215	158	396	544	528	560	759	686
	Total—537			Total—1468			Total—2005		

Chart on deaths from Influenza and Pneumonia during Oct, Nov, Dec 1918. Total deaths in Arizona: 2005

Bulletin of the Arizona State Board of Health. Vol. VII. April, 1919.

<http://azmemory.azlibrary.gov/cdm/ref/collection/statepubs/id/10851>. Accessed May 2017.

PLACE OF DEATH *Reg. Form No 68 Hopi Indian*
ARIZONA STATE BOARD OF HEALTH
 COUNTY *Navajo* BUREAU OF VITAL STATISTICS State Index No. *798*
 DISTRICT _____ County Registered No. _____
 TOWN *Winslow* ORIGINAL CERTIFICATE OF DEATH Local Registrar's No. *68*
 OR CITY _____

No. _____ St. _____
 (If deceased)

FULL NAME _____

PERSONAL AND STATISTICAL PARTICULARS

SEX *Male* Color or Race *Indian* SINGLE MARRIED WIDOWED OR DIVORCED
 White Black Chinese Mexican

DATE OF BIRTH *unknown* 191____
 (Month) (Day) (Year)

AGE _____ If less than 1 day _____
 yrs. mos. days hrs. or min.

OCCUPATION
 (a) Trade, profession or particular kind of work *Laborer*
 (b) General nature of industry, business, or establishment in which employed or (employer) _____

BIRTHPLACE (State or country) *Navajo*

NAME OF FATHER _____

BIRTHPLACE OF FATHER (State or Country) _____

MAIDEN NAME OF MOTHER _____

BIRTHPLACE OF MOTHER (State or Country) _____

The Above Is True to the Best of My Knowledge (Informant) _____ (Address) _____

PLACE OF BURIAL OR REMOVAL _____ DATE OF BURIAL OR REMOVAL _____

UNDERTAKER *B. Rolie* ADDRESS *Gallup, N.M.*

MEDICAL CERTIFICATE OF DEATH

DATE OF DEATH *Dec 31*
 (Month) (Day) (Year)

I hereby certify, that I attended deceased from _____ 191____ to _____ 191____; that I last saw _____ alive on _____ 191____, and that death occurred on the date stated above at _____ M. The DISEASE or INJURY causing

Death was as follows: *Pneumonia contributory to influenza*

(Duration) _____ yrs. _____ mos. _____ days

Was disease contracted in Arizona? *yes*

If not, where? _____

CONTRIBUTORY (Duration) _____ yrs. _____ mos. _____ days

(Signed) _____
 10/31/1918 (Address) _____

*In death from Violent Causes state (1) Means of Injury, and (2) whether Accidental, Suicidal, or Homicidal.

LENGTH OF RESIDENCE At place of death _____ yrs. _____ mos. _____ ds. In Arizona _____ yrs. _____ mos. _____ ds.

Former or Usual Residence _____
 Filed *Dec 15 1918* *Frona A Parr*
 Local Registrar

Filed *1/1 1919* *Frank Thompson*
 County Registrar

stated above at _____ M. The DISEASE or INJURY causing Death was as follows: *Pneumonia contributory to influenza*

Death was as follows: *Pneumonia contributory to influenza*

Death Certificate from Navajo County, October 31st, 1918.

Cause of death: "Pneumonia contributory to Influenza"

Accessed via Arizona Genealogy Birth and Death Certificates database.

<http://genealogy.az.gov/>. June 2017.

PERMITS TO SECURE THIS INFORMATION

By 7183

insights

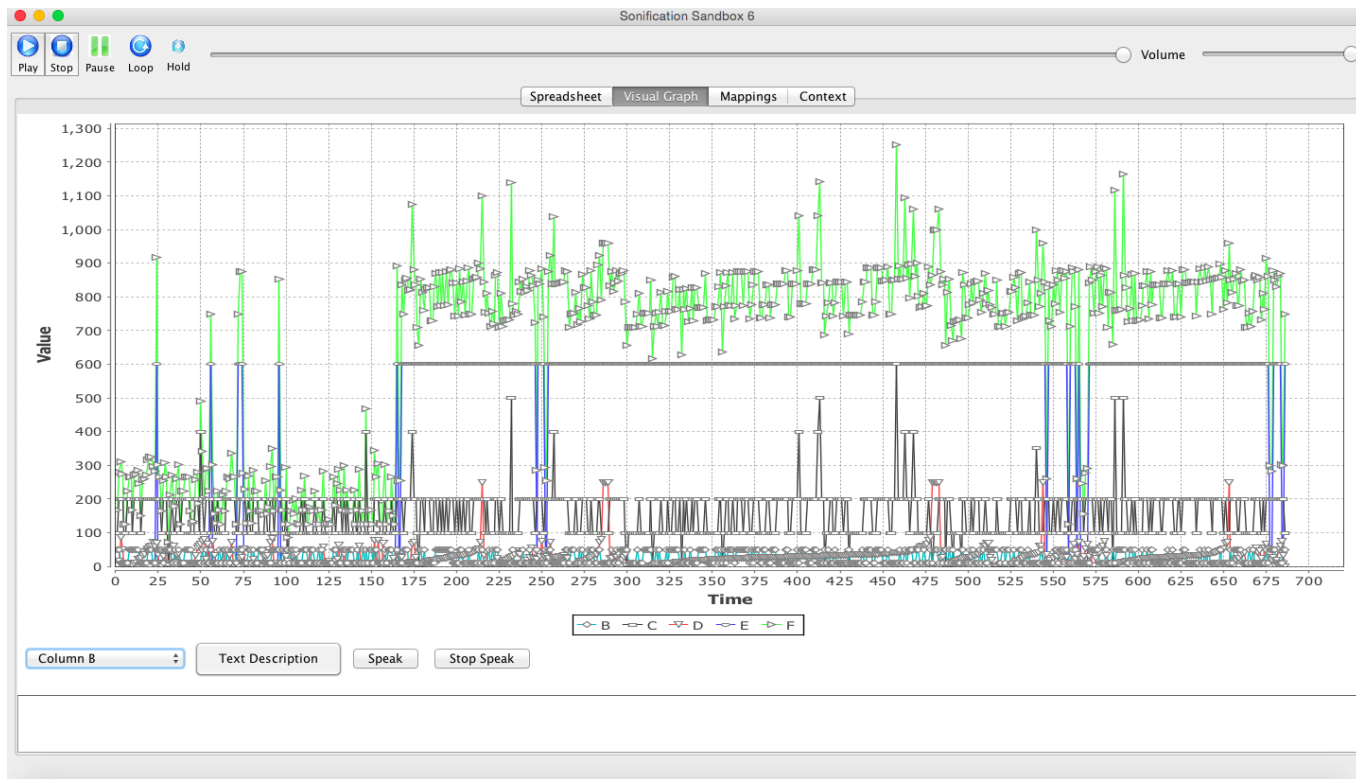
Data supports previous historical narratives about the 1918 flu, but also:

- affected newborns and expectant mothers
- revealed undercount in Bulletin released by AZ Board of Health
- revealed nearly complete undercount of Native American deaths outside of Indian Health Services reports and more than 2,000 even in IHS report
- 50% of all flu deaths were Mexican and Mexican-American Arizonans
- flu hit Arizona's mining towns, reservations, and military camps hard
- flu hit Arizona during the November 1918 election cycle

Re-Embodying Flu Data: Building a Walk-Through Exhibit



Re-Embodying the Data: Sonification



insights

- it takes \$\$\$, time, and labor to **innovate**
- it takes \$\$\$, time, and labor to **iterate**
- **site-specific work** has certain considerations
- embodied labor is a kind of **witnessing**
- embodied labor is a commitment to **commemorate** the dead

Thank You

Alison Ross, Nexus Intern,
Summer 2017

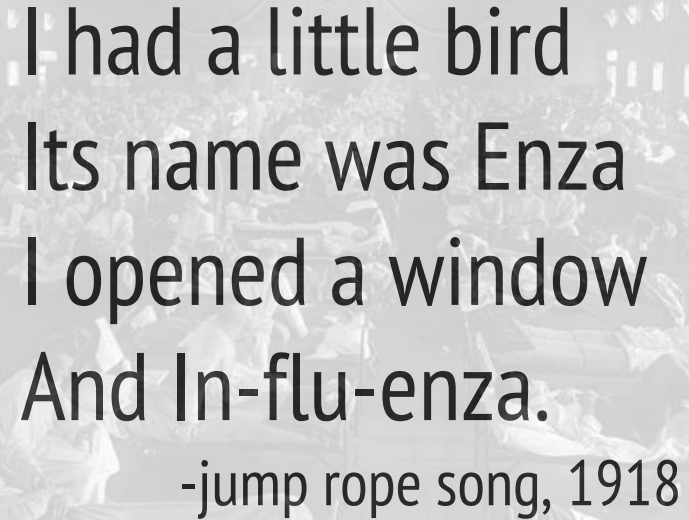
State Library of Arizona

Hayden Library, ASU

Institute for Humanities
Research, Medical Humanities
Working Group

@EMGrumbach

@IHRNexusLab
@ProfWernimont

A black and white photograph of soldiers in a hospital ward, with text overlaid on the image. The text is a parody of a jump rope song from 1918.

I had a little bird
Its name was Enza
I opened a window
And In-flu-enza.
-jump rope song, 1918

Photo Credit: U.S. Army Photographer. Soldiers from Ft. Riley, Kansas.
[<https://www.army.mil/e2/-images/2008/09/24/22729/army.mil-2008-09-25-103608.jpg>]