Table S1. Biosurveillance data stream examples reported in the literature and binned according to the Data Stream Framework.

Population	Type	Category	Descriptors	Reference
Human	Diagnostic	Laboratory Records	Monitored malaria case loads	[1]Mueller 2009
Animal, Plant, Human	Diagnostic	Laboratory Records Official Reports	Optimal sentinel data	[2]Polgreen 2009
Human	Environmental Syndromic	Social Media	Insights for Search - Google	[3]Scheitle 2011
Human	Syndromic	Ambulance / EMT Records	Dispatches	[4]Plagianos2011, [5]Buehler 2008, [6]Hope 2010
Human	Diagnostic/Syndromic	Clinic / Health Care Provider Records	Biosense-CDC	[7]Tokars 2010, [8]Bradley 2005
Human	Diagnostic/Syndromic	Clinic / Health Care Provider Records	Clinician based reporting	[9]Koski 2011
Human	Diagnostic/Syndromic	Clinic / Health Care Provider Records	Timeliness of records	[10]Huaman 2009
Human	Diagnostic/Syndromic	Clinic / Health Care Provider Records	Health Care professionals	[11]Ashford 2003
Animal	Diagnostic/Syndromic	Clinic / Health Care Provider Records	Veterinary	[12]Thomas-Bachil 2012, [13]Bartlett 2010
Human	Syndromic	ED/ Hospital Records	ED visits, chief complaints	[6]Hope 2010
Human	Syndromic	ED/ Hospital Records	Hospitals, inpatient: chief complaint	[7]Tokars 2010
Human	Syndromic Diagnostic	ED/ Hospital Records	Hospital, ED ICD-9 codes	[14]Shmueli 2010
Human	Diagnostic	ED/ Hospital Records	Emergencey department diagnosis	[4]Plagianos2011
Human	Diagnostic	ED/ Hospital Records	DoD Outpatient: final Diagnosis	[7]Tokars 2010
Human	Diagnostic	ED/ Hospital Records	VA Outpatient: final Diagnosis	[7]Tokars 2010
Human	Diagnostic	ED/ Hospital Records	Hospitals, inpatient: final diagnosis	[7]Tokars 2010
Human	Diagnostic/Syndromic	ED/ Hospital Records	Clinic or Emergency Department (ED) visits	[5]Buehler 2008
Human	Syndromic	ED/ Hospital Records	Syndromic hospital surveillance	[7]Tokars 2010, [6]Hope 2010, [4]Plagianos 2011 [15]Malik 2011
Animal, Plant, Human	Diagnostic/Syndromic	ED/ Hospital Records Clinic/Health Care Provider Records	Electronic health records Veterinary	[16]Rabadan 2009
Human	Syndromic	Employment/School Records	School absenteeism	[5]Buehler 2008 [17]Balabanova 2011
Human	Syndromic	Employment/School Records	Work absenteeism School nurse	[5]Buehler 2008 [17]Balablanova 2011, [8]Bradley 2005
Animal	Environmental/Social	Established database	Wildlife Tracking	[18]Freifeld 2010
Animal	Environmental/Social	Established Database	Remotes Sensing	[19]Clements 2009

1

Advancing a Framework to Enable Characterization and Evaluation of Data Streams Useful for Biosurveillance, Margevicius et. al.

			Geo location and remote sensing of viral zoonosis	
Pathogen				
Human	Environmental/Social -Built-Natural	Established Database	CIA Factbook	[20]Keller 2009
All	Environmental/Natural	Established Database	Solar radiation, dew point, temperature	[21]Charland 2009, [22]Degroote 2008
All	Environmental/Natural	Established Database	Climate monitoring (malaria)	[23]Cox 2007
All	Environmental/Natural	Established Database	Meteorological factors	[24]Kristan 2008
All	Environmental/Natural	Established Database	Seasonal climate forecasts	[1]Mueller 2009
All	Environmental/Natural	Established Database	Observed meteorlogical data	[1]Mueller 2009
All	Environmental/Social	Established Database	Demographics	[25]Chui 2011
All	Environmental/Natural	Established Database	Geospatial analysis	[26]Baker 2011
All	Environmental/Natural	Established Database	Geographical position	[21]Charland 2009
All	Environmental/Natural	Established Database	Google Maps/Google Earth	[27]Atkinson 2008
Human	Syndromic	Help Lines	Health/Medical hotline calls	[8]Bradley 2005 [5]Buehler 2008
Human	Syndromic	Help Lines	Poison Control Center calls	[5]Buehler 2008
Human	Syndromic	Help Lines	Emergency medical services (EMS)/911 calls	[5]Buehler 2008
Human	Environmental/Built	Help Lines	Water utility complaint lines, call center	[28]Berger 2006
Human	Syndromic	Internet Search Queries	Google flu trends -internet searches	[29]Ortiz 2011
Human	Syndromic	Internet Search Queries	Search engine queries (ILI)	[30]Ginsberg 2009
Human	Environmental Syndromic	Internet Search Queries	Web-based search queries	[31]Hulth 2011, [32]Brownstein 2008, [33]Brownstein 2009, [34]Chan 2011, [35]Hulth 2010, [36]Polgreen 2008, [37]Madoff 2011
Human	Syndromic	Internet Search Queries	Anonymous web query data - from country medical sites	[31]Hulth 2011
Animal	Diagnostic	Laboratory Reports	Zoo - necropsies	[38]McNamara2007
Animal	Syndromic Diagnostic	Laboratory Reports	Veterinary syndromic surveillance -clinical data from practitioners -diagnostic laboratory data	[39]Dorea 2011
Animal	Diagnostic	Laboratory Reports	Veterinary and Zoo reporting - Data elements required for lab submission for disease reporting that allow for voluntary collaboration and data sharing by avoiding issues associated with privacy legislation	[40]Kloeze 2011

Human, Animal	Diagnostic	Laboratory Reports	Food sample testing	[41]Dubrawski 2009
Human, Animal, Pathogen	Diagnostic	Laboratory Reports	Biotracing biological contamination in feed/food chain	[42]Hoorfar 2011, [43]Knutsson 2011
Pathogen	Diagnostic	Laboratory Reports	Molecular diagnostic reporting Molecular techniques for pathogen identification Genotyping	[44]Olano 2011 [16]Rabadan 2009 [45]Sintchenko 2009, [26]Baker 2011
Human	Diagnostic	Laboratory Reports	Breath Analyzer for real-time VOC (Volatile organic compounds) Mobile	[46]Churchill 2009
Human	Diagnostic	Laboratory Reports	GPS enabled inhaler + iphone Mobile	[18]Freifeld 2010
Human	Diagnostic	Laboratory Reports	Mobile phone - geocoded photographs of blood samples for rapid detection of malaria strains Mobile l	[47]Fuller 2010
Animal, Plant, Human	Diagnostic	Laboratory Reports	Sentinel health facilities -electronic transfer of data by mobile phones -manual transfer of data	[1]Mueller 2009
Human	Syndromic	News Aggregators	Online health news alerts	[48]Collier 2010
Human	Syndromic	News Aggregators	Internet news feeds unstructured and structured data sets	[49]Grady 2008
Human	Environmental Syndromic	News Aggregators	Online news monitoring	[27]Atkinson 2008, [33]Brownstein 2009
Human	Environmental Syndromic	News Aggregators	Google news	[50]Keller 2009, [32]Brownstein 2008
Human	Environmental Syndromic	News Aggregators	RSS feeds	[50]Keller 2009
Human	Environmental Syndromic	News Aggregators	Web news sites plus natural language processing to transform free text into structured info stored in a relational data base with GIS tags	EpiSpider [50]Keller 2009
Human	Environmental Syndromic	News Aggregators	Online news articles	[51]Torii 2011
All	Environmental/Social -Natural	News Aggregators	Violent and natural disaster event extraction from online news	[52]Piskorski 2011
Human	Environmental/Social -Natural	News Aggregators	Real time news event extraction with limited linguistic sophistication for violent and disaster events	[53]Tanev 2008
Human	Environmental/Social	News Aggregators Social Media	Internet indicators and warnings of social disruption	[54]Wilson 2009
Human	Environmental Syndromic	News Aggregators Social Media	Unverified news information	[55]Mykhalovskiy 2007

			Mainstream news	
Human	Environmental Syndromic	News Aggregators Social Media	Text mining (ontology based) Mainstream news	[56]Drague 2010
Animal	Environmental/Social	Official Reports	Zoo- report pest control measures on grounds Zoo- survey of local wildlife on grounds	[38]McNamara2007
Animal	Syndromic	Official Reports	Monitoring of sentinel bird flocks - detect and report dead bird clusters in real time	[19]Clements 2009
Animal	Syndromic Diagnostic	Official Reports	Zoos - sentinel animal data	[57]Pultorak 2011, [58]Adler 2011
Human	Environmental/Social	Official Reports	UN Human Development Report	[50]Keller 2009
Human	Environmental/Built	Official Reports	Drinking water turbidity levels Environmental case report	[28]Berger 2006
Human	Environmental/Built	Official Reports	Public utilities data	[59]Baer 2011
Pathogen	Environmental/Natural	Official Reports	Geographic distribution of viruses Remote sensing	[60]Trifonov 2009
All	Environmental/Natural -Built	Official Reports	Air quality Established monitoring system	[61]Babin 2008
All	Environmental/Natural -Built	Official Reports	Water quality Established monitoring system	[28]Berger 2006, Burkom 2011
Pathogen	Environmental/Social	Official Reports Academic	Disease vector populations	[58]Adler 2010
Pathogen Animal	Environmental/Social	Official Reports Academic	Vector densities	[24]Kristan 2008
Pathogen	Environmental/Natural	Official Reports Academic	Pyhlogeography(spatial analysis of genetic variation of pathogens)	[19]Clements 2009
Human	All	Official Reports Laboratory Records	Multinational surveillance reports (surveillance systems) Established surveillance system	[50]Keller 2009
Animal	Environmental/Social	Official Reports Academic	Geographic patterns of livestock/animal population distributions Animal/herd movement	[62]Ortiz-Pelaez 2010 [63]Vernon 2009
Human	Diagnostic	Official Reports	Validated official alerts (WHO, CDC)	[20][50]Keller 2009, [64]Briand 2011
	Diagnostic	Official Reports	Mortality reports	
Animal	Syndromic Diagnostic	Personal Communication Official Reports	Livestock monitoring - web-based data set to share results with privacy controls	[40]Kloeze 2011
Human	Syndromic Environmental/Social	Prediction Markets	Prediction markets	[65]Polgreen
Human	Syndromic	Prediction Markets	Prediction markets (experts, health care	[66]Pfeiffer 2010, [65]Polgreen 2007

Advancing a Framework to Enable Characterization and Evaluation of Data Streams Useful for Biosurveillance, Margevicius et. al.

			providers)	
Human	Syndromic	Sales	Over-the-Counter (OTC) medicine purchases	[28]Berger 2006 [5]Buehler 2008, [6]Hope 2010
Human	Syndromic	Sales	Prescription Medical Sales	[5]Buehler 2008
Human	Syndromic	Sales	Grocery purchase trends	
Human	Syndromic	Sales	Retail data	[67]Bracken 2006
Human	Environmental Syndromic	Social Media News Aggregators	Expert curated accounts Mainstream news	[50]Keller 2009
Human	Environmental Syndromic	Social Media	SMS (Short Message Service)	[18]Freifeld 2010, [68]Gomez 2008, [69]Gow 2010
Human	Environmental Syndromic	Social Media	SMS texting	[70][71]Lewis 2011, [68]Gomez 2009,2010
Human	Environmental Syndromic	Social Media	SMS messaging, microblogging, emailing, social networking, internet chatting, blogging, online news reporting, video/radio reporting, health expert reporting	[50]Keller 2009, [72]Khan 2010 [54]Wilson 2009 [73]Boulos 2011 [74]Lyon 2011
Human	Environmental Syndromic	Social Media	Twitter	[75]Sigorini 2011

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