



Using Health Information Exchange to Improve Public Health

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Public health relies on data reported by health care partners, and information technology makes such reporting easier than ever. However, data are often structured according to a variety of different terminologies and formats, making data interfaces complex and costly.

As one strategy to address these challenges, health information organizations (HIOs) have been established to allow secure, integrated sharing of clinical information among numerous stakeholders, including clinical partners and public health, through health information exchange (HIE). We give detailed descriptions of 11 typical cases in which HIOs can be used for public health purposes.

We believe that HIOs, and HIE in general, can improve the efficiency and quality of public health reporting, facilitate public health investigation, improve emergency response, and enable public health to communicate information to the clinical community. (*Am J Public Health.* 2011;101:616–623. doi:10.2105/AJPH.2008.158980)

PUBLIC HEALTH RELIES ON

data reported by health care partners to conduct nearly every aspect of its core functions. Information technology offers the opportunity to replace manual reporting processes with automated ones, and innovators are

increasingly developing such approaches. The electronic transfer of data for public health reporting requires each health care partner to translate data from its proprietary structures—its vocabulary or format for storing data, and its protocols for sending the data as messages—into standards defined specifically by and for various public health authorities so the data are represented consistently and can be analyzed in a uniform fashion.^{1,2} However, the cost of developing these interfaces and associated translation services is high, partly because each specific use of clinical data to support public health (e.g., notifiable disease surveillance, birth and death registration, hospital adverse event reporting, occupational health, injury prevention, and chronic disease improvement) currently requires a separate, dedicated technical solution and the requisite management and organizational activities on each side to support the initiative. Consequently, electronic data gathering has not been widely adopted for public health purposes, even where the benefits of electronic public health reporting have been well described.^{3–5}

Recently, health information organizations (HIOs) across the country have been developing networks to enable health information exchange (HIE) among diverse stakeholders within a given region. These stakeholders may include clinicians, provider

organizations, pharmacies, laboratories, radiology facilities, payers, emergency management and first responder groups, and health departments.⁶ Although there is some public health agency involvement in many HIOs, the primary use case of most HIOs—that is, the way that a system would be used by end users—is centered around direct patient care with the primary goals of improving providers' access to information, thereby improving the safety and quality of care, and reducing costs.^{7–12} As part of this work, HIOs provide the organizational infrastructure, legal underpinnings, and technical expertise to enable HIE. This includes building physical data interfaces between the stakeholders and the HIO, and mapping proprietary database codes from each stakeholder to widely accepted standard vocabularies.

Although HIOs usually do this work for clinical use cases, public health agencies can also leverage it to help promote a variety of public health use cases. As demonstrated in several jurisdictions, public health involvement in the identification and development of use cases, data standards, and protocols in the early stages of HIOs can help drive this synergy.¹³ There are, however, certain preconditions: the requisite data must exist in electronic form, analytics that are appropriate for public health purposes must be created, and the HIOs involved must understand the value of the public health use cases.

The federal government, state governments, and foundations have supported the development of important infrastructure for HIOs. In 2004, the Office of the National Coordinator of Health Information Technology (IT) laid out a number of health IT goals, 2 of which were to “interconnect clinicians” and “improve population health”; these can be loosely translated into supporting the development of HIE for clinical and public health use cases.¹⁴ Since then, the Office of the Coordinator has launched 2 rounds of programs to fund testing of nationwide health information network prototypes.^{15–17} In 2005, the Robert Wood Johnson Foundation provided a series of small grants to help link public health officials to emerging HIOs through the InformationLinks program.¹⁸

More recently, the Centers for Disease Control and Prevention (CDC) implemented a large program to examine the extent to which HIOs can be used to support biosurveillance activities.¹⁹ In an example of local government support, the New York City Department of Health and Mental Hygiene led a CDC-funded Center of Excellence in Public Health Informatics. The department was also one of 3 participants (along with New York State) in the previously mentioned CDC biosurveillance program. New York State has also funded contracts totaling more than \$840 million



to support the development of HIOs for both clinical and public health use cases.²⁰

POTENTIAL USES OF HEALTH INFORMATION EXCHANGE

Public health in the abstract has frequently been promoted as a potential benefit of HIE.^{7,21–23} If HIOs become part of the health care landscape, they could significantly accelerate efforts to automate public health activities. However, except for the research initiatives discussed in this article, there have been very few implementations of these ideas. Also, specific use cases through which public health can be improved with HIE have not yet been described comprehensively in the literature. We formally describe 11 potential use cases in which HIE can improve public health-related activities. The box on page 618 provides hypothetical scenarios illustrating the potential utility of these public health-specific use cases.

Mandated Reporting of Laboratory Diagnoses

Mandated reporting of a predefined list of notifiable diseases and conditions is the cornerstone of public health surveillance. However, paper and faxed reports can be costly to generate and process. Electronic laboratory reporting has been shown to improve the timeliness and completeness of reporting,^{24–26} but laboratories and health departments have been slow to adopt this reporting method. In a 2007 survey, only 14 of 56 jurisdictions reported electronic laboratory reporting systems that

were at least 50% operational.²⁷ Local laboratory test and result codes are often customized for billing purposes, and it can be time-consuming to map them to a standardized vocabulary (e.g., Logical Observation Identifiers Names and Codes)²⁸ and to maintain that mapping on an ongoing basis. Furthermore, if electronic reporting draws only from laboratory information systems, the quality of reported data (e.g., inclusion of patient addresses) may actually decline, and certain health department programs may be reluctant to automate the entry of electronic reports into surveillance databases.⁴ Still, the electronic transmission of laboratory reports can increase the efficiency of public health surveillance for high-volume diseases and the timeliness of reporting for cases requiring immediate public health action.²⁹

The technical and organizational infrastructure and standards implemented as part of emerging HIO activities could facilitate automated laboratory reporting. Although the legal requirement to report rests upon the laboratories and can not be delegated, the HIO could ensure that (1) all the data necessary for notifiable disease reporting would be integrated and mapped to standard vocabularies, (2) notifiable conditions would be identified according to a standard rule set (e.g., what constitutes positive syphilis serology), (3) a standards-based secure message could be sent to public health, and (4) an electronic log of transmissions would be maintained for audit purposes. This mandated reporting to public health agencies would include full patient identifiers and could trigger a public

health investigation, including contact tracing.

Nonmandated Reporting of Laboratory Data

Not all infectious diseases of public health significance are legally required to be reported. For example, viral diseases that account for the majority of seasonal disease morbidity for respiratory illnesses (e.g., influenza, respiratory syncytial virus) and gastrointestinal illnesses (e.g., norovirus, rotavirus) are not routinely reportable in most jurisdictions. These cases will not require public health action on an individual basis, but knowledge of the disease patterns in the community can help stakeholders guide public health messages and rule out other, less innocuous outbreaks. Sentinel laboratories already conduct manual reporting of selected respiratory and enteric viral pathogens.³⁰ As laboratory assays for these diseases become more available in clinical laboratories, automated electronic reporting to public health becomes more feasible and useful. Rather than adding these conditions to notifiable disease lists, an alternative would be for laboratories or HIOs to voluntarily report them to public health.

Another example of nonreportable laboratory data that could be very useful for public health monitoring is antimicrobial resistance patterns. In both of these examples, negative as well as positive tests could be reported (in contrast to traditional reporting), providing an understanding of denominators and allowing an estimation of sensitivity and resistance patterns of specific

infectious agents to specific drugs. This information could be used in conjunction with a geographical information system to provide spatial-temporal displays³¹ such as a community-wide antibiogram that could help clinicians be more selective in their choices of antibiotics and prevent unnecessary propagation of antibiotic resistance within a given community. This nonmandated reporting would not require patient identifiers, although the ability to link results from the same patient would offer some benefits by reducing double counting. As in the use cases already described, the HIO would provide the local infrastructure needed to map required data elements (e.g., laboratory results) to standard vocabularies, identify individual cases of interest according to standardized rules, and securely report them to public health. Deidentification of the cases (with or without a linking variable) would be an additional requirement of this use case.

Mandated Reporting of Physician-Based Diagnoses

The second arm of notifiable disease surveillance is independent named reporting from physicians, mandated by law. Electronic laboratory reporting does not cover reporting from physicians, who are separately required to report, and who may be the only sources of required clinical information (e.g., onset date) or risk factor information (e.g., occupation, travel). Physician compliance with reporting requirements is highly variable (9%–99%),³² depending on the disease entity, the provider's awareness of reporting requirements, and the provider's perception of the benefits



Public Health Use Cases for Health Information Exchange With Event Scenarios Assuming Current Methods Are Used

Potential Health Information Exchange Applications	Event Scenarios Assuming Use of Current Methods
Mass-casualty events	The city of Metropolis is rocked by an early-morning explosion. Even before the arrival of the wounded, the telephone lines of the city's 24 emergency departments are swamped by calls from family members seeking information about their loved ones. Staff are distracted, and communication is hindered.
Disaster medical response	As Metropolis' wounded flood into unfamiliar emergency departments, providers scramble to obtain medical records and struggle to treat patients without knowing their medications, allergies, or existing conditions.
Clinical care in public health clinics	A week has passed since the explosion, and the city is beginning to regain its equilibrium. At a city tuberculosis clinic, a public health physician is examining a homeless patient with atypical symptoms. He reports malaise, fever, chills, and a bloody cough, but the characteristic lesions of tuberculosis are absent. He also reports a vague history of prior lung problems.
Reporting of laboratory diagnoses	The patient decompensates and is transferred to an emergency department. Blood cultures are drawn. The laboratory identifies an unusual gram-negative rod growing in 4/4 bottles, but the laboratorian, by nature conservative, is reluctant to report it officially until he can run some confirmatory tests.
Public health alerting: patient level	By the time public health officials are notified, the patient is very ill in intensive care. Alarmingly, he reports similar problems in a drinking buddy. He knows his friend's name and approximate age, but public health officials are unable to find him at the usual shelter. The friend also becomes very ill and is brought into an emergency department at another hospital, where they are unaware of the patient's exposure history.
Reporting of physician-based diagnoses	The outbreak is now confirmed as having been caused by a specific bacillus. Public health investigators desperately need to identify additional cases, and they issue an alert through the Health Alert Network informing providers of the need to report. However, some clinicians are not subscribed through this system, and those who are subscribed are overwhelmed by the "worried well" coming in for visits. Thus, they are unable to transmit case reports to the health department in a timely manner.
Nonmandatory reporting of laboratory data	To make matters worse, it appears that this strain of bacillus has been engineered to be resistant to the antibiotics normally used to treat it. The authorities would like to require the tracking of antibiotic resistance patterns to be added to the electronic lab reporting data streams, but they are unable to alter these interfaces in a short time period.
Public health investigation	Public health authorities still don't understand the connections among the cases that are starting to trickle in. This is complicated by the fact that there are hundreds of suspect cases; without more clinical data, it is hard to narrow down the high-probability cases and try to understand the connections among them. Tracking down written medical charts is difficult and time-consuming.
Nonmandatory reporting of clinical data	Public health officials are concerned that the reported cases could be the tip of the iceberg. The affected individuals seem limited to the immunocompromised and the elderly, who may have received a high dose of the presumed agent of bioterrorism. Policymakers are desperate to know whether there have been increases in ambulatory and Emergency Department (ED) visits by individuals with prodromic symptoms and measured fever.
Public health alerting: population level	An old antibiotic is found that has efficacy against the agent. A public health alert is drafted and disseminated through the health department's health alert network, but providers are still not getting the message. It is crucial that therapy be started as soon as possible.
Quality measurement	The outbreak is being brought under control, but to be sure that it does not flare up again, public health officials recommend vaccinating individuals at risk for the disease. After releasing this recommendation, public health authorities need to know what percentage of susceptible patients at particular health care sites have received the vaccine. These data would allow authorities to target hospitals out of compliance for education and support.

of reporting. A counterpart to electronic laboratory reporting would therefore be enhanced reporting of

suspect or confirmed clinical cases on the basis of diagnoses, procedures, or medications entered into

clinical information systems and available to the local HIO infrastructure. This enhanced report

could be sent in an automated fashion, or it could produce an alert that prompts clinicians to efficiently



comply with the reporting requirement in line with their clinical workflow, a mechanism which should improve both compliance and timeliness of reporting.

The Boston Center of Excellence in Public Health Informatics is developing such a model on the basis of reporting from each individual institutions, electronic medical records,³³ but the principle could be readily extended to standardized data repositories maintained for HIE. The HIO would need to ensure mapping of required data elements to standard vocabularies, implementation of a standard rules engine, secure messaging to public health, and an audit trail. An additional workflow that might be prudent would be to have such cases first trigger a review by a hospital or health system's infection control practitioner prior to transmission to the health department. This would reduce the number of erroneous reports caused by nonspecific diagnoses (e.g., rule-outs) or miscodings (e.g., "trichinosis" entered instead of "trichomonas") and ensure that the surveillance reports contain all the needed information, some of which may require manual chart review (e.g., occupation, travel history).

Nonmandatory Reporting of Clinical Data

Syndromic surveillance systems are based on ongoing monitoring of nonreportable, nondiagnostic data from existing information systems that can nonetheless provide information on trends in community health. Examples include monitoring of emergency department chief complaints or discharge diagnoses^{34,35} and Web

search engine hits for topics such as flu-related illnesses^{36,37} or sales of over-the-counter flu remedies.³⁸ Most such surveillance systems are also tied to sophisticated statistical algorithms for detection of temporal and spatial-temporal clusters that may require investigation to rule out disease outbreaks of public health significance, whether naturally occurring or manmade.^{39,40} The HIO infrastructure could enable voluntary automated transmission of these data to public health authorities.

Such a system should also support the ability of public health to conduct investigations in the event of a disease cluster of concern. The HIO would need to enable standards-based mapping of a potentially large array of data elements,⁴¹ the ability to filter for cases of interest, and secure messaging to public health. Because identifiers are not required or mandated, 2 general approaches could be employed. As with laboratory data, individual clinical cases of interest could be found according to a standardized rules engine and then deidentified or pseudonymized before reporting. Alternatively, events of interest could be aggregated and reported to public health as counts (e.g., number of total encounters with febrile respiratory illness). Public health investigation of clusters would require a protocol for using the audit mechanism (e.g., with exact time of transmission) to enable reidentification of individual cases when necessary.

Public Health Investigation

In this use case, public health queries the HIO for clinical data

relating to a particular case that has already been identified as requiring investigation through other means (e.g., laboratory report, contact tracing). Under this scenario, public health would already be in possession of full patient identifiers used to query the HIO and would access clinical data needed for the public health investigation as required by law. In this model, public health acts as merely another authorized user of the HIO network, albeit with different authorization requirements from those that apply to clinical users (i.e., that the individual searched for is a patient under care and has consented to their information being shared). The HIO would need to have a mechanism for auditing such public health access.

Clinical Care in Public Health Clinics

In different jurisdictions, public health departments are directly responsible for providing health care for certain conditions (e.g., tuberculosis, sexually transmitted diseases) or in certain settings (e.g., schools, jails, homeless shelters). Under this scenario, public health would already be in possession of full patient identifiers used to query the HIO and would access data needed for clinical purposes, much as any other user of the HIO network. In some jurisdictions, there may be public health exemptions that explicitly permit release of information to public health clinicians even without patient consent.⁴²

Population-Level Quality Monitoring

In the past decade, public health has become increasingly attuned to the mounting burden of

epidemics of chronic diseases and the growing efficacy of clinical preventive services (e.g., lipid control, early detection of cancers) for asymptomatic individuals and medical treatment for prevention of sequelae for diseases such as diabetes and heart disease. Although overall quality of preventive care is known to be poor,¹⁰ current methods of measuring the quality of care rely on chart reviews at provider settings or claims-based analysis of different insured populations. Chart reviews are costly, and neither method supports ongoing population-level (neighborhood or community) quality monitoring outside of closed systems. To the extent that regional HIE can penetrate across systems of care, it offers the possibility of measuring the quality of care delivered to members of a community across health plans and providers. The HIO infrastructure could be leveraged to provide core data elements (e.g., medications, procedures, diagnoses) needed for a focused, high-quality data warehouse. A system-generated identifier could be used to link patient data across different institutions. If patient-level linking across institutions is not required, then summary quality measures from individual institutions (i.e., counts of numerators, denominators, and exclusions) could be aggregated at the HIO level with no risk to patient privacy.

Mass-Casualty Events

When mass-casualty events occur, hospitals are often overwhelmed with requests for information regarding loved ones who have gone missing and are feared injured or dead. Currently no



efficient system exists for disseminating this information across health systems. In the days following the September 11th terrorist attacks in New York City, the Greater New York Hospital Association, a New York City–area trade association that represents hospitals and continuing care facilities, gathered and compiled emergency department visit logs from more than 100 hospitals and served as a single point of contact for these public requests. If a record locator service (RLS) architecture was designed to receive ongoing admission-discharge-transfer messages from clinical registration systems (with updated dates of service), then the HIO would be well-suited to fulfill this patient locator function. The HIE hub would merely need to allow the designated call center(s) to query the RLS in the event of an emergency. To provide the minimum data necessary, however, the HIO would ideally include a mechanism to display only the results of the RLS query (i.e., no clinical information) and filter these responses by date range to only include encounters since the state of emergency began.

Disaster Medical Response

Electronic availability of clinical data through the Department of Veterans Affairs and other systems allowed some large health care providers to have their patients' data available very soon after Hurricane Katrina destroyed much of their physical infrastructure.⁴³ HIE may further benefit the medical care of refugees and other dislocated individuals by opening up clinical data exchange query

functions to providers and HIOs in other areas via a rapid credentialing process that would permit authorization and access.

Public Health Alerting: Patient Level

In most of the previously described scenarios, the flow of information is from HIOs to public health. However, one could conceive of the HIO infrastructure also enabling targeted communication from public health to HIO network users. Health departments are typically constrained in their ability to disclose identifiable surveillance data for clinical purposes, but there are some examples where the duty to warn outweighs this prerogative to confidentiality. For example, emergency department physicians who query the HIO for a patient's past medical history could receive a highlighted public health alert for patients with active tuberculosis who were lost to follow-up. This alert system would make it possible to isolate infectious patients earlier, when appropriate, thus decreasing the rate of nosocomial spread.⁴⁴ In this scenario, the public health agency acts as merely another data source on the HIE, but a source with very selective data to share.

A similar use case for patient-level alerting involves antibiotic-resistant organism (ARO) surveillance for early isolation of infected patients when they present to a hospital. AROs such as methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococcus, and multidrug-resistant tuberculosis can pose a significant threat to hospital staff,

visitors, and other patients who are exposed to individuals carrying these organisms—especially immunocompromised patients with HIV or those on medication for organ transplant or other medical conditions. MRSA in particular has gained much attention in the press lately, and not without reason. The incidence of both community-acquired and hospital-acquired MRSA is on the rise in many regions⁴⁵ and is a significant cause of morbidity, mortality, and increased incremental costs, with some nosocomial infections costing as much as \$17,422.^{46,47}

ARO-infected patients who are diagnosed at a given facility may present to an emergency department at another facility without being identified or appropriately isolated for an extended period of time, exposing other patients and hospital staff and putting them at risk for infection with these virulent agents. Early isolation of patients infected with these agents has been shown to decrease nosocomial spread as much as 16-fold.^{48–50} An ARO surveillance use case could be designed around HIE from the hospital's local health department or neighboring facilities, so that the patient could be flagged on the HIO enterprise master patient index, and the admitting facility could be alerted at registration that the patient should be placed in appropriate isolation.^{51,52}

Public Health Alerting: Population Level

The HIE user interface could also be a gateway to relevant epidemiologic information that the provider might be interested in. For example, an emergency

department physician might receive trends in influenza A and B viral cultures in the community and outpatient antibiograms, and a primary care physician might receive updated preventive services recommendations. These findings could be presented to all users, or they could be customized to the particular queried patient's age, race, neighborhood, or prior medical history. General public health messages could be incorporated into the HIO portal, and more tailored epidemiologic information could be integrated into a patient query. HIOs that offer access to patients through online portals might also enable targeted public health communication with patients in much the same way.

DISCUSSION

We have presented an expanded vision of how the organizational and technical infrastructure of HIOs could improve the efficiency and quality of public health reporting, facilitate public health investigation, improve emergency response, and enable public health to communicate information to the clinical community. We note that there are significant worries about the financial viability of some HIOs,⁵³ some notable failures,^{54–57} and much concern about developing business models for HIO sustainability.⁵⁸ These issues notwithstanding, there were 193 HIE projects at various stages of development in 48 states, including 42 that were operational at the time of a 2009 survey.⁶ In addition, new models for health information exchange are being developed to augment regional



health information organization efforts, such as the Nationwide Health Information Network Direct Project (available at: <http://nhindirect.org>). The use cases described here provide clear advantages to public health, but each use case also provides benefits to clinical participants, whether by easing the burden of mandated reporting and responding to public health investigations, improved clinical decision-making that is based on epidemiologic data, or protecting the ability of the institution to function during public health emergencies.

Although clinical use cases often seem to be the initial motivators of HIOs, public health can and should get involved during the initial phases of development. Having appropriate public health agency representatives at the table early in the process may help influence governance issues and architectural design decisions so that the HIO project can support public health use cases.

Different technological approaches may be required to support public health use cases, depending on the system or network architectures for a given HIO. Examples of the varying architectures include (1) centralized repositories, as in the case of large hospital networks with enterprise-wide electronic health record implementation (e.g., the Veterans Affairs or Kaiser Permanente health systems); (2) hybrid peer-to-peer file-sharing models, in which all clinical information is stored at the participant organization on edge servers that sit behind their firewalls but with patient demographics stored centrally to allow patient matching and retrieval of

relevant clinical information; and (3) patient-controlled health records, in which patients determine which data to deposit into their account and who has permission to view or change them (e.g., Google Health or Microsoft Health Vault). Obtaining the public health benefit envisioned here will require additional capabilities and functionality on the part of HIOs⁵⁹ and a thorough understanding of pertinent legal and privacy issues.

Depending on regulations and the particular details of a given HIO implementation, the information relayed in the various use cases may be summarized counts that are fully identified, deidentified or anonymized—so that a patient cannot reasonably be identified individually—, or pseudonymized in instances where patient identifiers are not initially reported but a mechanism exists to allow re-identification if necessary (e.g., a clustered outbreak where confirmation and investigation are necessary). Although we have briefly mentioned the likely level of privacy necessary for each use case, the privacy implications of HIE are complex and are discussed in detail elsewhere.⁶⁰

Having a single point of contact on the clinical side for establishing, testing, and maintaining data flows would be invaluable to public health partners. What we have not discussed is the reciprocal need to consider how public health is organized to interface with clinical entities, both within public health agencies and across them. An assessment by the Council of State and Territorial Epidemiologists notes the limited progress made in integrating

electronic disease surveillance systems, with only 13 of 48 states reporting interoperability between any surveillance modules.⁶¹ The Universal Public Health Node being developed in New York state is the latest in a series of attempts to accomplish this integration.⁵⁹ The potential for harmonization of clinical reporting through HIE challenges public health officials to develop their own analog to the HIO, with parallel requirements for technology standards, staffing, governance, and trust.

Multiple parallel and discrete efforts are under way to institute electronic reporting from clinical providers to public health, covering such areas as electronic lab reporting, immunization and cancer registries, birth and death registration, adverse events, and syndromic surveillance, to name just a few. Unprecedented national investments in health information technology are poised to dramatically increase the amount of structured electronic data available and stimulate the advancement of multiple models for health information exchange. To maximize the benefits of these investments to public health, new HIE infrastructure must also demonstrate its ability to support these public health use cases, and health jurisdictions must be given the financial resources necessary to fully participate. ■

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Development and Implementation of a Collaborative, Multistakeholder Research and Practice Model on HIV Prevention Targeting Asian/Pacific Islander Men in the United States Who Have Sex With Men

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We describe lessons learned from a national HIV prevention research program grounded in community-based participatory research, the Men of Asia Testing for HIV (MATH) Study, which targeted self-identified Asian/Pacific Islander men in the United States who have sex with men. We discuss the genesis of and impetus for the study and then describe its various facets, including accomplishments, challenges, and unanticipated consequences. We conclude with a discussion about the real-world practice of community-based participatory research with respect to the MATH Study in particular and similar research in general. (*Am J Public Health*.

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ASIAN/PACIFIC ISLANDERS

are the fastest-growing racial/ethnic minority group in the United States, having increased from 1.5% of the total population (3.5 million people) in 1980 to 4.1% (11.8 million) in 2004. Of the 11.8 million Asian/Pacific Islanders living in the country, an estimated 6.7 million (61.4%) are foreign born, and 7 million (63.7%) are older than 5 years and speak an Asian/Pacific Islander language at home. Almost 70% of Asian/Pacific Islanders in the United States reside in areas of

the East Coast (particularly in the greater metropolitan areas of Boston, Massachusetts; New York, New York; Philadelphia, Pennsylvania; and Washington, DC), West Coast (particularly in the San Francisco, California, Bay Area and the Los Angeles and San Diego, California, metropolitan areas), or US Pacific (including Hawaii).¹

Asian/Pacific Islanders represent 1.1% of all reported AIDS patients in the United States; the Centers for Disease Control and Prevention (CDC) reported in 2005 that the population of men who have sex with men (MSM) accounts for 67% of cumulative AIDS cases among Asian/Pacific Islanders.² Despite

these trends, many Asian/Pacific Islander MSM residing in the United States have never undergone serological testing. One recent study showed that 61.5% of Asian/Pacific Islander MSM with HIV were unaware of their infection at the time of testing.³

Because delayed testing is often associated with an initial presentation of advanced disease, higher health care costs, and disease morbidity, studies of testing behaviors are vital.⁴ Moreover, Asian/Pacific Islanders are more likely than all other US ethnic groups to be diagnosed with AIDS at the time of HIV diagnosis. As many as 45.6% of Asian/Pacific Islanders with AIDS cite illness as their initial

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