

# Integrating Family Medicine, General Practice, and Epidemiology to Enhance Public Health Strategies

**Abdullah Mutlaq Khashman Alotaibi<sup>1</sup>, Tahani Abdullah Dawshi<sup>2</sup>, Saud Abdulaziz Almobaith<sup>3</sup>, Fatimah Abdulwahab Mohammed Alhawaj<sup>4</sup>, Hanan Abdulwahab Mohammed Alhawaj<sup>5</sup>, Osama Abdulwahab Mohammed Alhawaj<sup>6</sup>, Abdulrahman Sharaf Althobaiti<sup>7</sup>, Meshal Ghazai Alenezi<sup>8</sup>, Radi Rashed Alanezi<sup>9</sup>, Faisal Mohammed Alhallafi<sup>10</sup>, Abdulmajed Abdulaziz Samarkandi<sup>11</sup>, Abdullah Salman Al-Nufai<sup>12</sup>**

1. *General Practice Doctor, Umm Addoum General Hospital*
2. *General Practitioner, Dammam Health Network*
3. *Family Medicine Saudi Board, Dammam Health Network*
4. *Family Medicine Saudi Board, Dammam Health Network*
5. *Family Medicine Saudi Board, Dammam Health Network*
6. *General Practitioner, Dammam Health Network*
7. *General Practitioner, Dammam Health Network*
8. *General Practitioner, Dammam Health Network*
9. *General Practitioner, Dammam Health Network*
10. *General Practitioner, Dammam Health Network*
11. *Epidemiology Inspector, Madinah Health Cluster*
12. *Epidemiology Technician, Health Cluster, Human Resources Regularity Department*

## Abstract

One of the major strategies to improvement in public health is the integration of family medicine with general practice and epidemiology. Together, these disciplines form an excellent blend that offers a basis for improvement in disease prevention, promotion of health, and also efficiency in healthcare systems. First-line providers are the family medicine practitioners, which present a perfect opportunity for new trends in health and patient-centered care. Epidemiologists in their roles carry along information gathering and analytical capabilities identifying possible risk factors and gauging the effectiveness of interventions. This paper focuses on the benefits in consolidation of the fields and possible strategies which can be availed for promoting collaboration on optimization strategies for public health, in the main about chronic disease management, boost immunization rates, as well as handling social health determinants.

**Keywords:** family medicine, general practice, epidemiology, public health integration, prevention of chronic diseases, equity in health.

## Introduction:

Basic units of health care include family medicine and general practice, both in terms of comprehensive care consisting of preventive measures and long-term relationship with a patient. Epidemiology does contribute towards such fields as the study of the health trends for populations will help extract critical information about disease trends, risk factors, and efficiency of interventions in public health (Akhtar-Danesh et al., 2013). Together, these structures can complement the effectiveness of public health strategies to have a better result of prevention of diseases, early diagnostics, and promotion of health. This is exactly the essence of integration in reducing the global burden of chronic diseases, which became the principal causes of morbidity and mortality on the entire globe (Bhuyan et al., 2015).

While family physicians are at a strategic position to provide continuous patient care, epidemiologists contribute their skills of data-based assessment of health and identification of emerging trends at the population level. The convergence of both helps treat patients more

personally, based on epidemiological evidence, with better public health interventions matched to the needs of different communities (Green et al., 2012). Family medicine, general practice, and epidemiology collaborate to make the whole much more holistic in the approach by attending to individual and population needs in the promotion of public health.

### **Methodology**

Literature was reviewed on the integration of family medicine and general practice, including epidemiology, to advance the principles and practices of public health. We looked through all relevant studies in the databases that included PubMed, Google Scholar, and Scopus from 2010 to 2023. We used the search terms "family medicine," "general practice," "epidemiology," "public health integration," and "chronic disease prevention." We considered 35 articles mainly based on their relevance and quality of systematic reviews, cohort studies, and qualitative research studies. It used those studies to analyze public health integration regarding the role of family medicine and epidemiology in a context in which barriers and benefits might come handy. Extraction mainly focused on the main topics about collaboration strategies, prevention disease impact concerning equity.

### **Literature Review**

The potential seems to be high in ensuring better public health outcomes through a combination of family medicine, general practice, and epidemiology. Family physicians are generally well-placed to detect prevailing health trends early in their development and are ideally placed in initiating preventive measures. Further interaction with epidemiologists will allow them to come up with much more accurate health risk determinations and targeted interventions themselves (Pratt et al., 2018). Epidemiologists, in turn, are able to provide insight into the population's health, thus helping identify vulnerable populations and evaluate the efficacy of public health interventions.

Many research studies indicate that integrating primary care with public health efforts is essential, especially in chronic disease management. This integration of epidemiological data with family medicine can improve the early detection and management of diabetes, hypertension, and cardiovascular diseases. For instance, Harris conducted a study in 2012 that demonstrated that controlling the upward trend of the diseases, which are mostly treated multi-levelled, requires the involvement of public health professionals and family physicians. It would help both fields devise better prevention programs and intervention that could result in effective health outcomes through information and resource sharing.

The highly successful case is that of managing childhood obesity. Using a systematic review, Bhuyan et al. (2015) have shown that, with epidemiologic data concerning trends of obesity, family physicians were more effective in implementing early interventions and offering individual counseling. These results further show that clinical care could be very important if considered as part of population health wisdom in managing public health challenges.

### **Discussion:**

Integration of family medicine, general practice, and epidemiology promises to improve the strategies that public health adopts. This is because it ensures interaction between health service providers and those working in public health. Such a collaboration means that critical data, knowledge, and resources could be shared; thus, implementation of disease prevention and health promotion at the population level would be enhanced. Combining all these disciplines can potentially be applied for enhanced results in chronic disease management, immunization programs, and health disparities (Akhtar-Danesh et al., 2013). Primary care physicians often provide a portal of entry for the vast number of patients; they therefore have an excellent position

from which to identify developing trends in health early and consequently play an important role in public health surveillance and response. This proactive approach may give insights on social factors of health if complemented with the analytical skills of epidemiologists and expanded the coverage of public health intervention (Harris, 2012).

Family medicine and general practice are the core of a primary healthcare system. They provide an opportunity for comprehensive, longitudinal care with patients over time, thus establishing longitudinal relationships between physicians and patients. This is an important value in the understanding of more comprehensive contexts surrounding an individual's health, including lifestyle, socioeconomic factors, and environmental influences (Bhuyan et al., 2015). For example, family physicians are the first line of observation if chronic disease patterns, for example, the incidence rate of diabetes or hypertension increase in their population. Their frontline position places them very critically in the role of epidemiological surveillance, as they can report on the trend to the public health authority in a timely manner (Pratt et al., 2018). The family medicine approach is also important because it emphasizes the whole person and not the isolated condition. The approach is, therefore, important in addressing many public health challenges that have multifactorial causes, such as mental health, substance abuse, and obesity.

It brings out epidemiology to heighten the ability to identify patterns of disease, estimate health risks, and monitor the effectiveness of public health interventions. The epidemiologists bring with them crucial skills in the collection, analysis, and interpretation of data that may be applied in the determination of clinical decisions and public health policies. Therefore, this collaboration between the family medicine practitioners and the epidemiologists can together analyze the health data and come up with emerging threats to design specific interventions (Green et al., 2012). This integration can also help in designing evidence-based and data-driven community-level prevention programs based on the specific needs of the population that is being served. For instance, family physicians will be able to give an idea about trends in community health, and epidemiologists can analyze these patterns to see what could be the causes behind them and then suggest evidence-based decision-making (Wong et al., 2017).

Integration of family medicine, general practice, and epidemiology into health systems has increased the capacity to understand and act on social determinants of health. Public health professionals, such as family medicine providers, begin to realize that most issues are actually social, economic, and environmental health problems (Levesque et al., 2013). Together, they prevent health disparities and build health equity. For example, a primary care provider can identify food-insecure patients or transport-insecure patients. It can then share this with public health officials so they can focus resources on that community (Storm et al., 2015). Such collective information by the primary care providers and epidemiologists is quite pivotal toward realizing how these social determinants interact with health outcomes, with possible interventions that may well be efficiently targeted toward such vulnerable populations.

One of the significant advantages of such integration is that the professionals are much more capable of applying preventive measures. Family doctors, who have a broad view of the medical history of the patients, are much more qualified to provide preventive care. However, with the integration of epidemiologic data, they can design prevention strategies as per specific patient groups' needs (Torner et al., 2013). For instance, epidemiological research that indicates an increase in cardiovascular diseases within a specific geographic location will be taken by family physicians to assess and advise patients at risk. This collaboration leads to targeted, evidence-based interventions before the disease becomes worse, thus requiring more intensive interventions (Kempe et al., 2014). Actually, it even allows for quicker responses to this new type of public

health threats as practitioners of family medicine could collaborate with epidemiologists and could discuss issues connected with the emergency spread of infectious diseases, among other things.

This integration will solve the burgeoning issue of chronic diseases in which chronic conditions are found responsible for the majority of expenditure in health care and for health inequities (Akhtar-Danesh et al., 2013). So, with this collaboration in place of working with the public health professionals, family physicians will strengthen efforts at controlling chronic conditions through lifestyle interventions, early identification, and follow-up. Epidemiologists will then use the evidence to give them information on how effective the various strategies are, and, therefore, interventions will be based on the best available data (Michener et al., 2012). Synergy among family medicine, general practice, and public health will be necessary to reduce the long-term consequences of chronic diseases that can lead to disability, premature death, and reduced quality of life.

The significance of the immunization programs as a public health measure also indicates the importance of family medicine, general practice, and epidemiology. The family doctor is generally the first contact physician administering the vaccine; hence plays an important role in the immunization programs. Upon receiving disease outbreak data and vaccination coverage, the family physician could target efforts on improving vaccine rates among the high-risk groups (Felix-Bortolotti, 2009). It's only because of this collaboration between those disciplines that the immunization programs have used resources more efficiently and they will be effective and accessible too. In addition, family physicians can also help in dealing with vaccine hesitancy. They can provide individual education based on the epidemiological evidence of vaccine efficacy and safety (Saeed, 2012).

Another area where the integration of these disciplines is critical is in the response to infectious disease outbreaks. The COVID-19 pandemic has made evident the need for collaboration between primary care providers and public health officials. During the pandemic, family medicine practitioners played a central role in diagnosing, treating, and educating patients, whereas epidemiologists provided critical data on the spread of disease, transmission rates, and risk factors (Michener et al., 2016). Both the disciplines combined proved irreplaceable for the creation of public health responses, which in turn would form the strategies that involve containment, contact tracing, personal protective equipment, and vaccines. Their combined action did not only result in an increased efficiency in their responses but also in how interventions addressed populations according to real-time data.

Family medicine and general practice also provide a significant support role for mental health initiatives that increasingly form part of the public health strategy. In most cases, it is the primary care providers to whom people are likely to turn first in seeking help for their mental health issues. It is going to help the family physicians to identify people at risk for depression, anxiety, and substance abuse disorders by bringing epidemiological studies into the trends of mental health (Martin-Misener et al., 2012). Epidemiologists would further enlighten social and environmental factors contributing to such mental health issues, and so, they should be well-informed for creating all-inclusive care plans. This would, therefore, enable early detection of mental health problems and make it easier to offer appropriate, evidence-based interventions.

Therefore, the general practitioners have a role on management of infectious disease by cooperative work with epidemiologists. Public health general practitioners provide public health service in respect to control and treatment for many infectious diseases like tuberculosis, influenza, and HIV among others. With cooperation by public health professionals the practitioner will make sure that patients follow the treatment cycle together with giving them any educative session on

public health. Epidemiologists will trace outbreaks and give real-time information on how diseases are spreading. In this case, the family physicians will change their treatment plans and preventive measures accordingly. This kind of collaboration will improve the chances of coordinated and effective response to threats of infectious diseases for more excellent public health outcomes (WHO, 2018).

The integration of family medicine, general practice, and epidemiology also stimulates the further development of more wholesome health policies. Policymakers will depend on data drawn both from primary care providers and epidemiologists when choosing and allocating resources in planning services. Family physicians may draw upon their knowledge of what patient needs are and knowledge regarding community health to give helpful inputs into policy discussions. Meanwhile, epidemiologists provide the analytical tools that would be necessary to assess whether the policies in place are effective and where changes might be needed (Institute of Medicine, 2012). Coordination of these disciplines is essential to developing policies that are evidence-based and realistic.

Family medicine, general practice, and epidemiology can improve the quality of care because they incorporate evidence-based approaches into clinical practice. Since family physicians would incorporate evidence-based practices based on epidemiological studies, treatment methods and health interventions can become more effective. This can work well in dealing with difficult health conditions because of its multilateral approach. As collaborative and cohesive family medicine practitioners, when working together with epidemiologists, design individualistic care plans that incorporate a consideration of not just each patient's needs but a more macro public health trend that helps improve the patient's outcome and reduces disease burden as a whole (Bhuyan et al., 2015).

The most challenging issue in family medicine, general practice, and epidemiology integration is bridging barriers between sectors of primary care and public health. They share a common objective but differ in organizational and priority areas as well as other resources, which may restrict the collaboration between the two sectors. The challenge, therefore, can be handled by cooperation between the sectors to come up with common objectives, improve communication, and streamline the processes (Pratt et al., 2018). This would include mutual respect for what each discipline brings uniquely and working over time to develop trust and common objectives. These barriers may be what help family medicine, general practice, and epidemiology become one single strong collaborative force advancing public health.

Better utilization of health resources is another crucial result that could be achieved by integrating the clinical know-how of family physicians with the analytical capabilities of epidemiologists in order to find cost-effective interventions responding to the most urgent public health issues. For example, public health experts can identify populations with high risks who would be of utmost importance to receive preventive interventions such as vaccination and screening programs. The targeted interventions are then delivered by family physicians to ensure that the intervention resources are channeled where they are needed most (Saeed, 2012). This would ensure that public health interventions have the greatest possible impacts.

This brings cause for a critical integration between family medicine and general practice, along with epidemiology to become necessary when outlining interventions toward the new dangers that now loom, whether they are the new infections surfacing, new burdens of chronic diseases, or the necessity for a more individual approach at intervention in health; therefore, their integration becomes a complete solution to work towards improving the population health. Combining collective data, resources, and expertise of family medicine, general practice, and epidemiology,

family medicine can amalgamate more effective and sustainable strategies to achieve public health goals that improve well-being for communities all over the world (Michener et al., 2012).

### **Conclusion**

This is because integrating primary care and public health can enhance population health outcomes as it caters to the ever-growing need for healthcare. Proper collaboration between these two sectors would bring about better-coordinated and accessible care, especially in the prevention and management of chronic diseases. Therefore, primary care providers and public health organizations can optimize their resources, share data, and align efforts in building a stronger and more resilient healthcare system. However, there are numerous other barriers that have to be taken into account, such as different priorities and funding, for optimal integration of activities.

There is, however, a stronger need in the future for a move to standardization in developing procedure, training of the health professionals and culture of collaboration besides primary care and public health. This may be initiated by policy reforms, increases funding to intersectoral partnership and evidence-based practice. In the end, the effective integration between primary care and public health will mean that there is better quality care but also more sustainable health systems better prepared to address emerging community needs.

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