

Executive summary

Personalising breast cancer prevention

Personalised prevention is an immense and complex field and there is no agreement as to whether it can be realised for breast cancer at the population level and, if so, when and how.

Personalising breast cancer prevention – bridging the gap between research and policy provides policymakers, those working in health promotion, and healthcare providers with an essential overview of the knowledge emerging from research. It includes recommendations for important areas of decision-making and considerations for moving forward with personalising breast cancer prevention pathways.

The report presents the key implications for breast cancer prevention pathways and the more specific considerations that are raised for prevention in the different contexts of hereditary breast cancer and population screening programmes. The objective is to enable policy makers to articulate evidence gaps and make decisions about future practice and policy.

Establishing preventive interventions is not easy. It requires careful consideration of the evidence base and how to develop pathways to enable the use of new knowledge in an effective manner. It also demands a careful balancing act, taking into consideration individual, population and health system needs, benefits and harms. This can only be achieved through engagement across different groups such as individuals, payers and providers.

Given the heterogeneous nature of breast cancer and the many uncertainties around its prevention, traditional research studies are unlikely to provide all the answers. A learning approach, embedded in routine practice, comparing elements such as current testing intervals, tests or thresholds, could better help address some of the challenges in evidence generation.

The high population morbidity and mortality from breast cancer make the condition an important target for preventive programmes. Policy makers and healthcare providers should take account of recent research and decide how to capitalise on the opportunities for improved prevention by personalisation of interventions according to risk.

Recommendations

■ Breast cancer prevention pathways

Agree on population sub-groups for active prevention

As knowledge of risk evolves there is an opportunity to re-consider broad at-risk populations and distinguish sub-groups who would benefit from more granular risk categorisation to inform offers of specific interventions. The timing (during the life-time) and form of risk assessment for more granular categorisation should be determined.

Identify opportunities to address lifestyle modification

Policy makers and healthcare providers should consider how breast cancer prevention opportunities related to lifestyle modification can be introduced at various points where an individual might interact with the health system.

Strengthen delivery of risk-reducing therapies

Where necessary shared processes should be created between primary, secondary and tertiary care with respect to risk assessment and in supporting uptake of and adherence to risk-reducing therapies.

Align early detection strategies

Early detection strategies applied at the population level and to those at higher risk due to a genetic predisposition can be considered complementary processes. Alignment and consistency across these initiatives is needed so that effective and agreed management strategies are available for individuals across all risk categories.

Consider the implications of breast cancer heterogeneity for prevention pathways

In the future it is likely that the umbrella term 'breast cancer' will contain clear population subgroups at risk for different subtypes of the disease, each with their own specific preventive intervention. This will create further avenues for personalisation of prevention pathways.

Create processes that address the gaps in evaluation and regulation of risk tools

The integration of risk assessment tools for clinical management of breast cancer risk has so far been largely ad hoc and has lacked formal evaluation. As new models and tools are developed, more formalised mechanisms for their external validation, evaluation and integration into practice are needed, ensuring suitability for the intended purpose and context.

Develop effective strategies for communicating genetic and non-genetic risk information

A wider range of services may be involved in providing risk information, based on genetic and non-genetic factors. Resources need to be committed to supporting risk communication strategies and enabling appropriate education and supervision of health professionals who will be involved in delivery at different points in the prevention pathway.

■ **Prevention in the context of hereditary breast cancer**

Identification and management of hereditary breast cancer should remain a priority

Some individuals and their relatives are at significantly higher risk of developing breast cancer due to a genetic predisposition because they possess pathogenic variants in particular genes (e.g. *BRCA1/2*). These individuals are a well-established sub-group who will continue to need specific care pathways and services to manage risk. The integration of evolving knowledge of risk into care pathways for these individuals should continue to be an important focus area.

Policy makers must decide whether to adopt a wider screening approach for individuals with a family history of breast cancer

There is considerable debate about whether or not to adopt a population-wide screening approach to identifying individuals with a family history of breast cancer. Decisions on this will have an impact on service requirements. If a proactive screening approach is deemed beneficial, services will need to be appropriately configured to enable this and to integrate effectively with existing referral pathways for family cancer clinics.

Consider the various ways in which individuals with rare breast cancer risk variants are identified

The increasing availability of genetic testing through research or clinical initiatives to embed whole genome sequencing within healthcare, is likely to present another mechanism through which individuals with rare variants will be identified. Therefore, consideration should be given to the various ways in which individuals with rare breast cancer risk variants might be identified either purposefully or incidentally. Suitable pathways should be available for the clinical management of all these patients.

Develop a consensus set of guidelines with respect to genetic testing

Health systems should develop mechanisms to generate the evidence base for genetic testing. This should be used to inform consensus guidelines on genetic testing for individual health systems to ensure equitable access and consistent quality of testing.

■ **Prevention in the context of population screening programmes**

Consider the evidence, opportunities and potential harms of implementing risk-based stratification approaches in population screening programmes

Stakeholders in breast cancer screening such as the providers of the service, healthcare professionals, policy makers, payers, advocacy groups, and researchers need to jointly consider the evidence of benefit, harm, cost and acceptability of different approaches to risk stratification. Transparency about decision making on whether to embrace risk stratification, to what extent and in what form, are important in moving this agenda forward.

Identify the appropriate tool to use for early detection programmes

Implementation of stratified population screening will require agreement on the underlying model to be used and the development of a validated tool that is appropriate for use in this context. Policy makers concerned with the development and delivery of screening programmes should engage early with researchers to ensure that work on risk models and tools is closely aligned with the anticipated needs of all stakeholders involved in screening programmes.

Develop consensus on alternate screening strategies

Implementation of stratified screening will require that an evidence-based consensus is reached on the programme of interventions for each risk group and that this is found to be acceptable to the public.

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