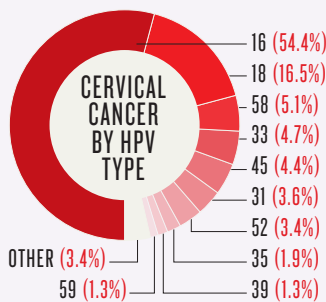


HPV: THE GLOBAL BURDEN

Human papillomavirus (HPV) has become synonymous with cervical cancer, but its actual footprint is much bigger, by James Mitchell Crow.

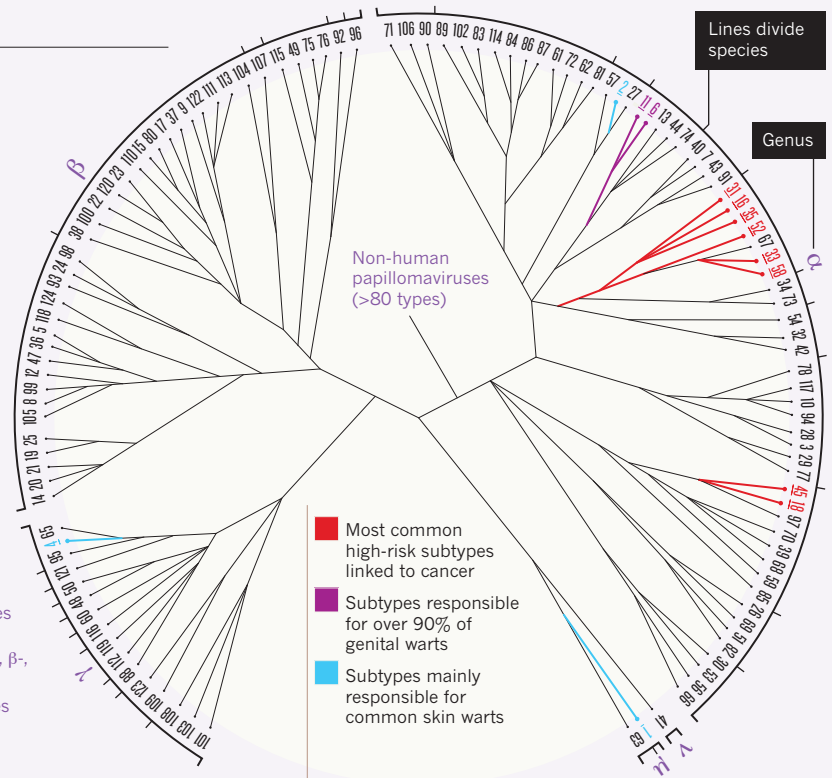
HPV COMES IN MANY FORMS

Tens of different papillomavirus types infect humans, but only a handful are harmful. Mapping HPV types by genus (right) reveals that certain species often cause similar warts and lesions, with most of the HPV types that cause cancer coming from the same species. However, shared pathology doesn't always indicate close family ties; HPV types 1, 2 and 4, which all cause common skin warts, are distant relations.



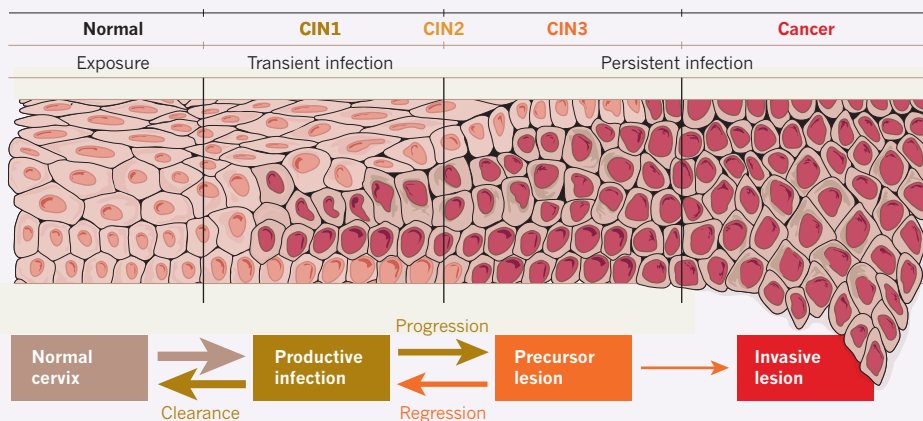
α , β , γ ,
 μ , ν

HPV genera:
 α -papillomaviruses
infect mucosal
surfaces and skin, β -,
 γ -, μ - and
 ν -papillomaviruses
only skin.



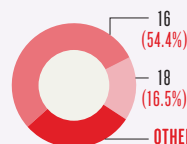
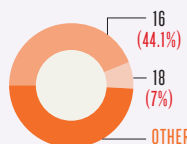
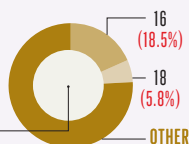
HOW HPV CAN LEAD TO CANCER

Although HPV infections are common, 90% of cervical infections are cleared within 2 years. If infection persists, abnormal cells can begin to appear. Only if these cervical cells cross the basal membrane and spread into the tissues beneath does the condition become cervical cancer.



Low-grade lesions
High-grade lesions
Cervical cancer

Type-specific HPV prevalence in women (%)

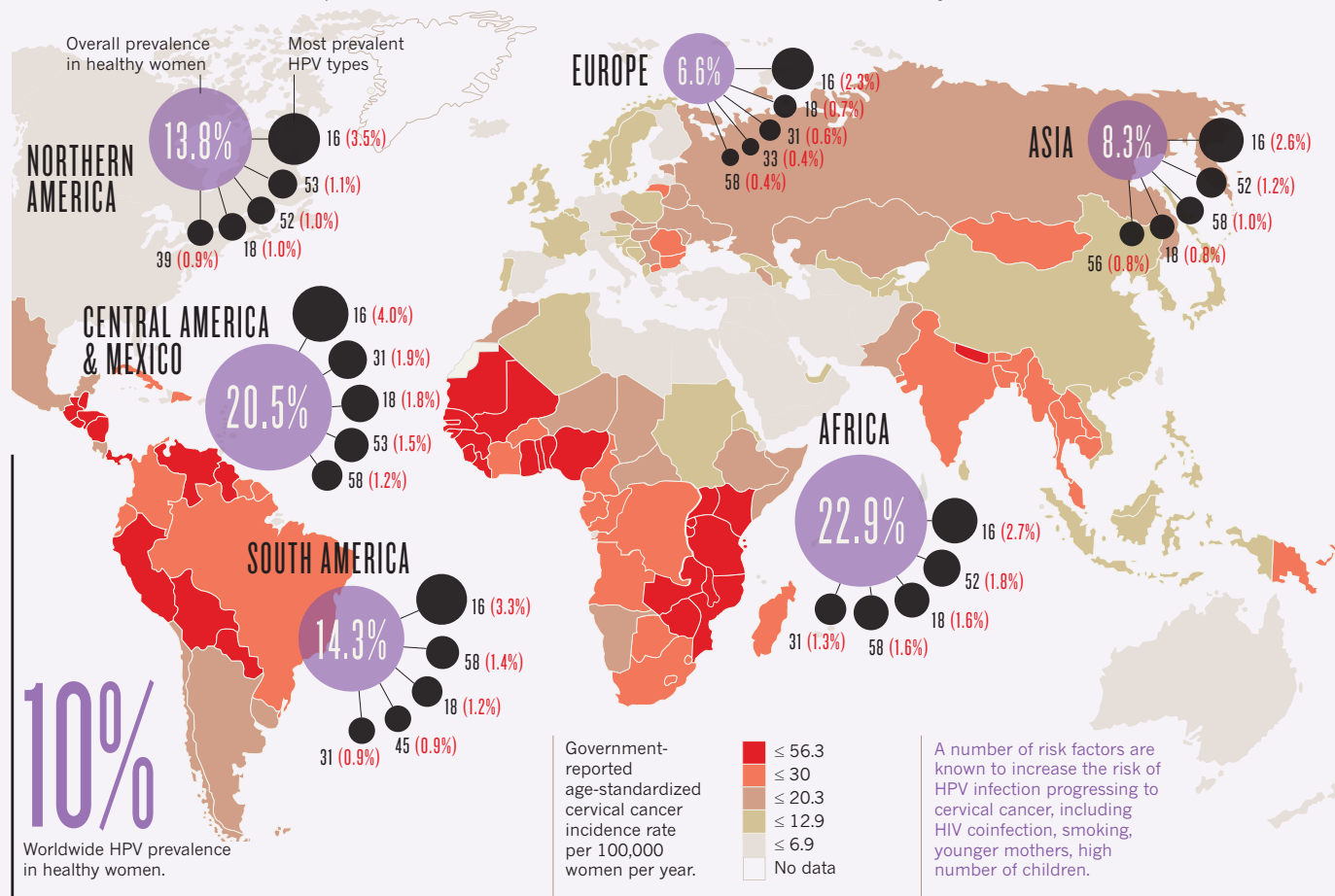


A few abnormally sized and oddly shaped cells on the surface of the cervix is classified as Cervical Intraepithelial Neoplasia 1 (CIN1), a low grade lesion that typically disappears within a few months without treatment. A large number of precancerous cells on the surface of the cervix that are distinctly different from normal cells is classified as CIN3. High-grade CIN3 lesions are still reversible spontaneously or through treatment.

Infection with certain HPV subtypes is more likely to lead to cancer than others. HPV types 16 and 18 make up only 2.7% and 1.1% of initial cervical infections respectively, but together account for 70% of cervical cancer cases.

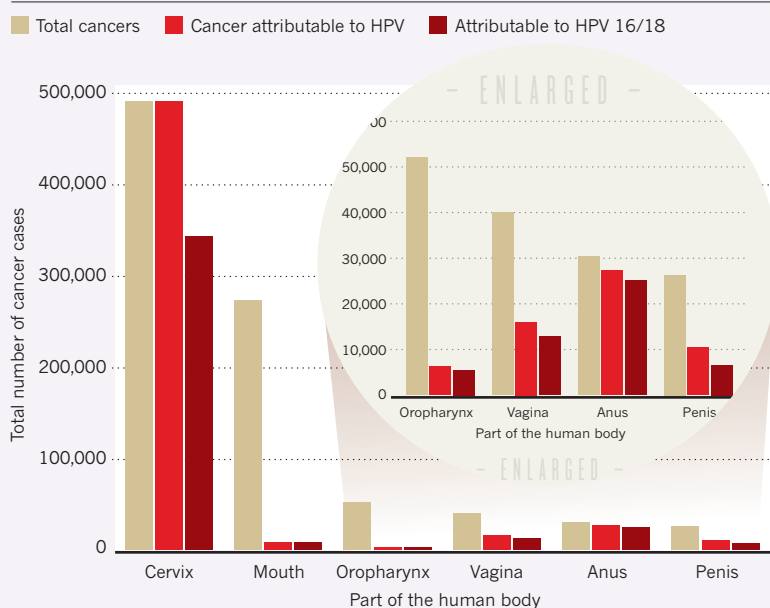
INFECTION RATES AND CANCER CASES

Cervical HPV infection rates vary around the world, as does the number of infected women who go on to develop cervical cancer.



HPV AND CANCER

Although the overwhelming majority of cancers caused by HPV infection are of the cervix, infection with the virus can also lead to cancers in other parts of the body.



THE FUTURE OF HPV SCREENING

HPV tests are proving more effective than traditional cytology screens at catching early-stage infections that progress to high-risk lesions.

